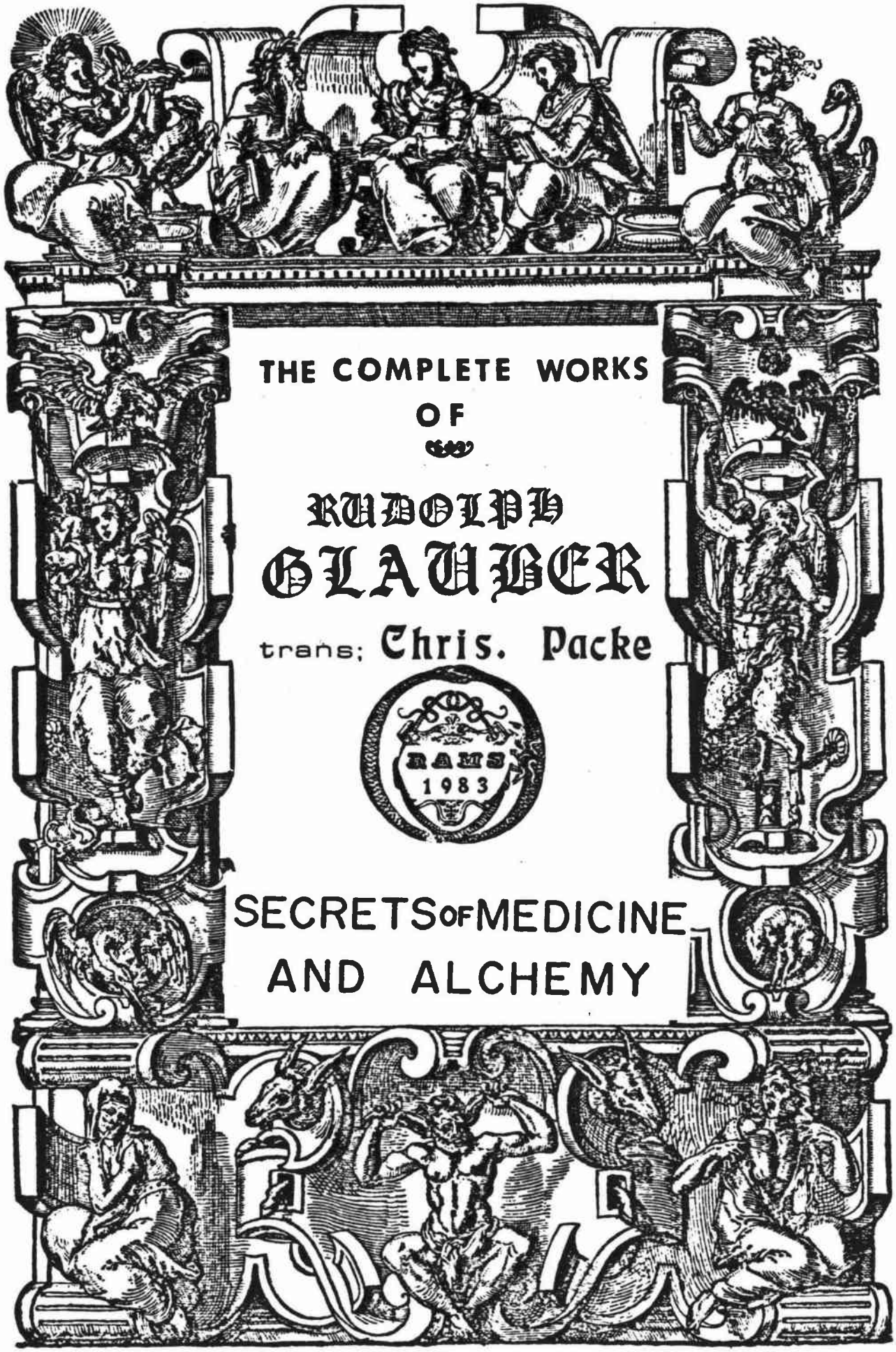


THE COMPLETE WORKS
OF

RUDOLPH GLAUBER

trans; Chris. Packe

SECRETS OF MEDICINE AND ALCHEMY

The Works of the Highly Experienced and Famous Chymist, John Rudolph Glauber; containing, Great Variety of Choice Secrets in Medicine and Alchymy In the Working of Metallick Mines, and the Separation of Metals, Also Various Cheap and Easie Ways of making Salt-Petre, and improving of Batten-Land, and the Fruits of the Earth. Together with many other things very profitable for all the Lovers of Art and Industry. Translated into English, and Published for Publick Good by the Labour, Care and Charge, of Christopher Packe, Philo-chymico-Medicus.

London,

Printed by Thomas Milbourn, for the Author, and are to be sold at his House next Door to the Gun in Little-Moorfields; by D. Newman at the Kings-Arms in the Poultry, and W. Cooper at the Pellican in Little Britain. MDCLXXXIX.

To The

Honoured, and Truly Learned,

Edmond Dickenson, M. D.

Physician to the King's Person and Family.

The Art of Chymistry, (Honoured Sir) although in its Speculations most Noble and Delectable to a Philosophick Mind, and in its Practice highly Inservient, and Beneficial to Mankind; yet hath it not escaped the the Obloquies, and false Imputations of Detractors, and Caluminiators, who either through Ignorance, Idleness, or Envy (or all of them conjoined) have made a false Representation of this most Noble Art to the World, and endeavoured to set Mankind at the greatest distance from that which is its highest interest to court. For which cause such Writings as Promulge, and offer at the advancing of the CHYMICAL ART, stand in need of such a Patron as is able to defend them against all the Cavils of Pride, Envy, and Ignorance.

And if the Exquisite Parts, and Profound Learning in the more Abstruse Philosophy, together with a Long, and Indefatigable Scrutiny and Labour in the Chymical Art, accompanied with a happy Practice in the Honourable Faculty of Physick, be fit Accomplishments to Entitle one a MECAENAS of this Art; then are those Excellencies all met and Concentred in your self, as is evident to the whole World by your Curious and Learned Epistle to MUNDANUS, and his Answer to it, which answer will be a Lasting Testimony of your great Worth and Merit.

For certainly, Sir, it is no small evidence of your Worth and Abilities

in the PYROTECHNICK ART, that a Philosopher who had been more than forty years an ADEPT, in all that time should not find three Persons, besides your self, whom he thought worthy to make certain of the truth of what they sought, and aspired after; and yet gave you an Ocular Satisfaction and Certitude of that which Thousands have desired to see, but could not: And further seriously professing, that if he had had the same liberty from his Master, that some ADEPTS enjoy, that he would have revealed to you the whole Secret.

These things have induced me humbly to offer this Book to your Patronage, not doubting but under your Name and Protection, it will be able to overcome many Difficulties, and obtain a free passage in this our English World, to the benefit and advantage of many well disposed persons, who seek after Honest, Profitable, and Commendable Arts, which I am fully perswaded was the chief end of the Author in Writing: and I am sure is mine in Translating his Works. You are throughly acquainted with Glauber's Writings, you know his Menstruums, and his Medicines, and are able to attest the truth of what others may account false and impossible. As for such of them as concern the higher Classes of Chymistry, I shall say nothing (being yet but ad Corinthum vergens) but commit them to your Mature Judgement, and protection, humbly craving your pardon for this my presumption, and for what Errors or Oversights I may have committed in this Work; and desiring your Favourable Acceptance of these my poor Endeavours. I take leave to conclude with a passage of the abovementioned Excellent MUNDANUS. I am fully perswaded, that by the Blessing of God upon your Sagacious Labours, you will at length obtain

that which will abundantly Compensate your Pains and Cost. To which I adjoin my own hearty Wishes; and that after you have been as happy in this World, as true Philosophy can make a Man, you may be Eternally Happy in that which is to come. I am

Sir,

An Honourer of

Your Name and Learning,

Christopher Packe.

The Preface To The R e a d e r.

That the Art of Chymistry is very useful and highly serviceable in Physick, Chyrurgery, Husbandry, and Mechanick Arts, is long since evinced by the Excellent Mr. Boyl (the Honour both of our Age and Country) in his Experiment at Philosophy, or Philosophick Essays; who in Essay I. and II. shews that the Examination of the Juices of Human Bodies, by the Art of Chymistry, may illustrate their Use and Nature. And that by it may be Explicated the Nature of our several Digestions, and their Attractions. And afterwards Cap. VIII. page 194. speaking of the advantages that Chymistry affords to the Therapentick or Curative part of Physick, (which is the chief and principle) and to which all the other parts are subservient) is pleased to express himself thus: I cannot but think that if Chymistry did no more than assist us, by the resolution of Bodies, to extricate their more active parts, and partly by such Resolutions, and partly by associating Bodies together, to alter the former Texture of Natures productions, or present us with new Concretes of new Textures: by this very means, if Men want not Curiosity and Industry, to vary and prosecute Experiments, there must necessarily arise such a store of new and active Medicines, that in all probability, many of them will be found endowed with such virtue as have not been (at least in that degree) met with, in the usual Medicines, whether

Simple or Compound, to be bought in Apothecarys Shops; and consequently, even without any notable discovery, or improvement of Principles, Chymists (even as Matters now stand with them) may considerably add to the Pharmaceutical part of Physick. But if the Operations of Chymistry were seriously enquired into, and throughly understood, I make little doubt, but by a skillful Application of them, and especially by a series of them , in a Rational and Orderly way succeeding one another, there may be found out a great many preparations of Remedies, both very different from the common Ones, and far more Noble then they. And presently after he adds. That if we had but a few Potent Menstruums to dissolve and unlock Bodies with, I scarce know what might not be done in Chymistry. Then further in that Essay where he treats of the usefullness of Chymistry to the Empire of Man over the Inferiour Works of Nature; he proceeds to shew that Chymistry is very serviceable to Husbandry in all its parts, and to other professions that serve to provide Men with Food or Raiment, or do otherwise minister to the Necessities or Accomodations of Life, as Bakers, Brewers, Dyers, & etc.

Thus far this Learned Philosopher: To which I shall only add this, That if when he wrote those Essays, Chymists were able to contribute so much to the Necessities and Conveniences of Mankind, when Chymistry was but young in England, and but few Chymists who were accurate in their Operations, and perhaps, fewer who had any competency of Learning, or so much as lightly Tincted with the Hermetick Philosophy; if, I say, that it discovered so great a light when it had but newly ascended our Horizon, and was, as I may say, but in its infancy, what assistance may

now be had from it, when (notwithstanding all the obstacles, and unkind usage it hath met withal) it is grown to a more virile Age and Vigour: But although Chymistry be much enlarged, and advanced in England, in respect of the Numbers, and Qualifications of the Lovers, and professors of it; yet are not Chymists free from pressing Disadvantages, not having the freedom of administring their own Medicines, how powerful and salutiferous soever, and otherwise adapted to the necessities of the Sick, than the common Apparatus of Physick. So, that as the Case now stands, the help and Succour which the Sick and Diseased receive from Chymical Physick, is but very small to what they might have, if knowing Chymists had the freedom of exercising that Art in all its parts, which with much Industry, Labour, and Costs, they have been sollicitious to attain. But when this disencouragement of ingenuity and Obstacle of the publick good, shall become more apparent to those in whose power it is to redress it, I do not doubt but it will meet with a Remedy.

But now, to give some account of my present undertaking. I have at length (by God's help, and the assistance of my Subscribers) finished my Translation of Glauber's Works, and here present it to the Reader, in the English-Tongue. How well I have performed it, I must submit to the judgement of others: I could have been very glad to have seen it done by some abler hand; but when I have heretofore proposed the doing but of some parts of it to those whom I knew might easily have accomodated English Artists therein; telling them that I wondered so Excellent an Author, should be so long extant, and that none should unveil him of his Latin and German Coverings, and put him into an English Dress.

I have had for an answer, that this Age was not worthy of it; so that it seems to me, that the Providence of God had reserved it for fitter times, although to be done by one of the meanest of the Sons of Pyrotechny. But this I can say, that I have acquitted my self in this matter, as well as the slenderness of my Parts, weakness of Body, and the necessary Affairs of my Laboratory would permit me; but;

Ubi desint Vires, acceptanda est Voluntas.

I desire the Lovers of Chymistry to accept my Labours, with the same good will that I have undergone them, having no other end but to serve my Country. And I hereby return thanks to all those generous spirited Gentlemen and others, who have Subscribed to, and promoted this Work, without whose assistance (the Charge being very great, as well as the labour to me, almost insupportable) it must yet have remained hid and unserviceable to the English Reader. But I am in an especial manner obliged to that spirited Gentleman (whom I ought to name, were it lawful to do it without his leave) who freely offered me and put into my hands a not inconsiderable part of the Materials for this Work, which part, also had been more considerable than it was, had not the Spirit of some, (who unjustly hindered it) been as Mean and Sordid, as his was Generous. But that loss was, in part, made up to me, by a well-minded Artist, to whom I also return Thanks.

I have Printed this Book upon far better and larger Paper than I proposed to do it in; for as the time of setting forth my first Proposals, I had not the German Pieces, but when they came in my hands, upon a more accurate computation of the matter, I found that if I should go on to do

the Work upon the Paper I had proposed, the Book would swell to too great a thickness for its breadth and length, and not be only ill shaped, but inconvient to be read. By this means my Subscribers have a much better Book than I promised them, although the Charge hath also been Considerably greater to me, than I at first expected.

The Reader hath all here in one Volumne which Glauber ever Printed, as far as I can find upon diligent Enquiry at Amsterdam, where all his Writings were Printed, and where I purchased the Original Copper Plates belonging to them. But whereas, as 'tis said in the Explication of Miraculum Mundi, page 177. That the Cut there described was not Printed in the Latin Copies, nor to be found among the Original Plates; yet notwithstanding, I was not willing that the Work should go without the Figure of so useful a Furnace as that is, for the Torrefying, or Calcining of Ores, and separating, and depurating their Metals, for which reason I have caused it to be Delineated and Printed with others before the Continuation of Miraculum Mundi, after page 188. I have also procured from the hand of another friend, who is a Lover of Art, the Draught of the Refrigeratory, Furnace, or Instrument, which serves for the making the Mercury of Wine, purifying, and fixing of Argent-vive, Antimony, Sulphur, & etc. and many other uses which an Ingenious Artist will find out. This Furnace the Author always endeavoured to conceal, but describes it in some part in the beginning of the sixth part of the Spagyrical Dispensatory, to which Description I have added the Figure. The Figures of the several Vessels and Instruments belonging to the Fifth Part of the Furnaces, are referred to at the beginning of the

Fourth Part, but since, for the better orders sake I have placed them before the said Fifth Part.

These Twelve following Treatises were never Printed in Latin, but in the German Tongue only, viz. The Third, Fourth, and Fifth Centuries; the Second and Third Appendixes to the Seventh Part of the Spagyrical Dispensatory. The Book of Fires. Proserpine. Elias the Artist. The three Fire -stones. The Purgatory of Philosophers. De Lapide Animali. The Secret Fire of Philosophers. All which I have caused to be Translated (my self being ignorant of the German Tongue) by a person well skilled both in High-Dutch, and also in Chymistry, whereby I hope this Book will not be altogether unserviceable even to the Learned; besides, all the Works of this Author that are very difficultly (if at all) to be met with at any Book-sellers Shop in London, and those that are, at a dear rate: For when I had entered upon this Translation, I was forced to send to Amsterdam to have all the Latin pieces compleat.

The Author in many places refers to his Opus Saturni, Opus Vegetabile, and the Concentration of Heaven and Earth, which Treatises, I am assured, were never printed (at least under those Titles) which also seems to be manifest from his Epistle to the First Century, or General Appendix, wherein he inculcates, that for want of time, he had inserted the sum of them all in that Treatise. He also mentions a Seventh part of the Prosperity of Germany, in the Preface to the Second Part of Pharmacopoeia Spagyrica, which was never Printed under that Title, but I am induced to believe it is in the Novum Lumen Chymicum, as partly appears by comparing it with the foresaid Preface. And it is evident that in

some parts of his Writings he hath mentioned a Treatise by one Name and afterwards Printed it by another, as, The Testimonium Veritatis, which was afterwards Printed by the Name of Explicatio Miraculi Mundi. As for the Opus Saturni, I have heard that there are some Manuscript Copies of it, and had hopes of obtaining it from two several hands, but both failed me. I have been also informed, that there are Five Centuries in Manuscripts more than I have Printed, but could never understand in what hands they were, except one of them, viz. the sixth, the proprieter of which would not be so kind to let me have it to print.

I have (by the advice of an Honourable Person) left out the Author's Religious and Moral Digressions, where I could do it without prejudice to the matter; as also his Apologetical Writings, except his Apology against Farner, which I have printed, for asmuch as it is intermixt with many profitable Secrets, which perhaps, he would not have published, at least not at that time if they had been, as it were, extorted from him by the ill Treatment of that Ungrateful Man.

I could not place the several Treatises in that order which the Author published them, without breaking the order of the several parts, as of the Miraculum Mundi, Spagyrical Pharmacopoea, and Prosperity of Germany; for being many years in publishing, they were done promiscously, but how they succeeded one another so far as the Nature of Salts, the Reader may satisfie himself in the Preface to that Treatise. And as his Writings were published by peice-meal, so are the principal Secrets he teacheth, scattered up and down in divers parts of them, in one place he treateth of a thing obscurely, or but in part, in another place of

the same thing openly in that part which he had vieled in the other. Sometimes he declares a Process very openly, omitting only some small Circumstances, or Manual Operation, which would seem to many either, impertinent, or not necessary to be done, when notwithstanding, the business will not succeed without it. An instance of this may be given in his Sal Mirabilis, whose preparation he teacheth obscurely in the Nature of Salts, but more openly in the Second Part of Miraculum Mundi. In the Nature of Salts, and in the Sixth Part of the Pharmacopoeia Spagyrica, he teacheth how to Dissolve Gold therewith, and thence to make a kind of Aurum Potabile, but wholly omits the adding of a certain Vegetable Sulphur, without which, the work will not answer the Description; this Defect he supplys in the Second Century, after a twofold manner, the one not obvious to every Man's Apprehension, I mean the intent of the Author, viz. in those Processes where he shews the making of a Vegetable Sulphur; but the other sheweth the necessary Manual Operation in plain and open words. And this he hath done with all his Secrets on set purpose, that they should be found out by none but the Industrious.

And this hath given occasion to many, who have not taken pains to read him with diligence, or not being experienced in Operating, to reproach him for an obscure, yea, even for a false Writer, because they have made two or three Superficial, or Unskillful Trials of his Processes, which have not succeeded according to their Expectations, when indeed, the faults was in themselves, either in not perceiving the Authors intention, or their own want of skill in rightly managing the Operation: And I know some persons that sometime scarce said Glauber had been too

dark in his Writings, who now think he hath wrote too plain.

But having mentioned this, I will here (for the sake of those Country Gentlemen, who have subscribed to this Work) a little Elucidate the Authors Process about the inversion of Common Salt, with Lime, for the enriching of Poor and Barren Land. He indeed speaks of several Saline Preparations, which greatly promote the fertility of the Earth, but this with Common Salt, and Lime, is the cheapest of all, and also is most easie to be done, for any Plow-man, or Labourer, having but once seen it done, may be presently able to manage it. The sum of it is, that Common Salt be turned from its sharpness, into an Alcalizate Nature (which is hot and fat) which then by its Magnatick force will attract from the Air a Vivyfying, Fructifying, Salt-nitrous power, and long retain it in the Earth, which is the cause of all Growth and Vegetation, as the Author sheweth in the Continuation of Miraculum Mundi, and many other places; but gives the Process of the preparation in plain and open words in the Appendix to the Fifth Part of the Prosperity of Germany, page 416.

Neither is the practise of preparing either the Land or the Seed, in order to the better Crop, altogether Novel, as may be partly seen in Virgil, Georgic Lib. 1. where he saith,

Semina vidi equidem multos medicare ferentes,
Et Nitro prius, & nigra perfundere amurca:
Grandior ut foetus filiquis fallacibus esset, etc.

Which in English may sound thus:

Some have I seen their Seeds to sow prepare,
With Nitre and Oil-Lees, for they by care
Will grow far greater, and be sooner ripe, & etc.

The Lime must be spread upon the ground, where no Rain can come to it, till it slake it self by the Air, and fall into a Powder; of this Powder you are to take four hundred weight to one hundred weight of any common foul Salt, which is too impure for the use of the Kitchen, where such may be had, otherwise clean Salt, (for that will be cheaper than Dung) the Salt and Lime are to be well mixed, and then moistened with such a quantity of Water, (or rather Urine where it may be had) as will bring the Lime and Salt mixed, to the Consistency of a stiff Morter. Of this Mass Balls are to be made about the bigness of ones fist, and laid under a Shead, or Hovel to dry; being dried, they are to be burnt in a Kiln as Lime is, so that the Balls may be red hot for an hour at least; or where no Lime-Kiln is near, they may be burnt by building a Pile in the Field, first with a Lay of Wood, then a Lay of Balls, then Wood again, and so till the Balls are placed fit for burning. When the Balls are burnt, they are to be again placed upon a Floor under a Shead, or Hovel, where they may be exposed to the Air, but kept free from the Rain, and if you break them with a Clod-beater presently, the Air will the sooner act upon them, and cause them again to fall into a Powder; which Powder may then be carried out and spread, or rather sowed out of a Seeder, thicker or thinner as the Land shall require. Provided this be done in the beginning of Summer about the time of Fallow, for

that being many Months before the Seed is to be sowed, the fieryness of the rich Compost will be Contempered by the Air and the Earth, and changed into a Nitrous fatness, which joining it self with the Earth, is again Magnetically attracted by the Seed when it is sown, whose growth is thereby swiftly promoted, and its Multiplication much augmented. But if any should cast this Matter upon his Land soon after it is burnt, and presently after that should sow his Seed, instead of having a greater Crop then he used to have, he would have a less, or perhaps none, that Year, but the next Year, and so on for many Years, the same Land would bring forth Pleantifully. Therefore it is necessary, that this Matter should lie six or seven Months spread upon a Floor, and now and then turned with a Shovel, as you turn Malt, that it may be Contempered, and Animated by the Air; or be cast upon the Land so long before the Seed be sown. The reason is the very same with Dung, for none takes fresh Dung and spreads it upon his land when he is about to sow his Seed, for if he should, his Seed would burn up; but the Husbandman lets his Dung lie some time to rot, as he calls it, after which he lays it on his Land, and lets it lie spread some time before he plows it in, and all this is but to Contemper the heat of the Animal Salt contained in the Dung, and turn it into a Nitrous Nature. Thus much I thought good to say about this Matter in the plainest words, least any, not throughly understanding the Authors Intention, should err in the first Experiment, and so unjustly blame the Author, and forbear themselves and deter others from prosecuting that easie Practise, which I am confident, if rightly managed, will bring much profit to many persons in

this Nation. This must also of necessity be a profitable Work to those who will undertake it upon the account of making of Salt-petre; especially to such as understand the Nature and Generation of that Excellent salt, which is of such incomparable use in the Preparation of Medicines, separateing of Metals, and in many Mechanick Arts.

Now for asmuch as in this Work Sal Mirabilis, Spirit of Nitre, and Spirit of Salt, are recommened to very many uses, and every one that hath a mind to make Experiments with them, may not have the knowledge, or the conveniency of preparing them, I hereby signifie, that I intend (God willing) to prepare and keep by me the Author's Sal Mirabilis of both sorts, that peculiar Spirit of Salt, which he commends against the Scurvy and other Diseases, and also to keep Beer from sowering in the Summer, in the Consolation of Navigators. His Panacea of Antimony, and Golden Panacea, spoken of in the Second Part of the Pharmacopoeia Spagy. the Explication of Miraculum Mundi, and divers other places. His Aurum Diaphoreticum, also the Tincture of Gold, or Aurum Potable, are described to be made of the Irreducible Blood of the Lion) in the Sixth part of the Spagyrical Pharmacopoeia, Chap. 22. These I propose constantly to keep by me for the accommodating of Physicans, and others, who shall have occasion to buy them. Those are Excellent Medicines, and such as a Physican may have some confidence in; and indeed, this Book contains a great variety of such Medicines as will get a Physican Honour, which (I hope) will be tryed by all those who delight to do good, and be brought into use for the general Help and Comfort of the sick. For I freely confess, that if I have any thing in Medicine, beyond what is commonly

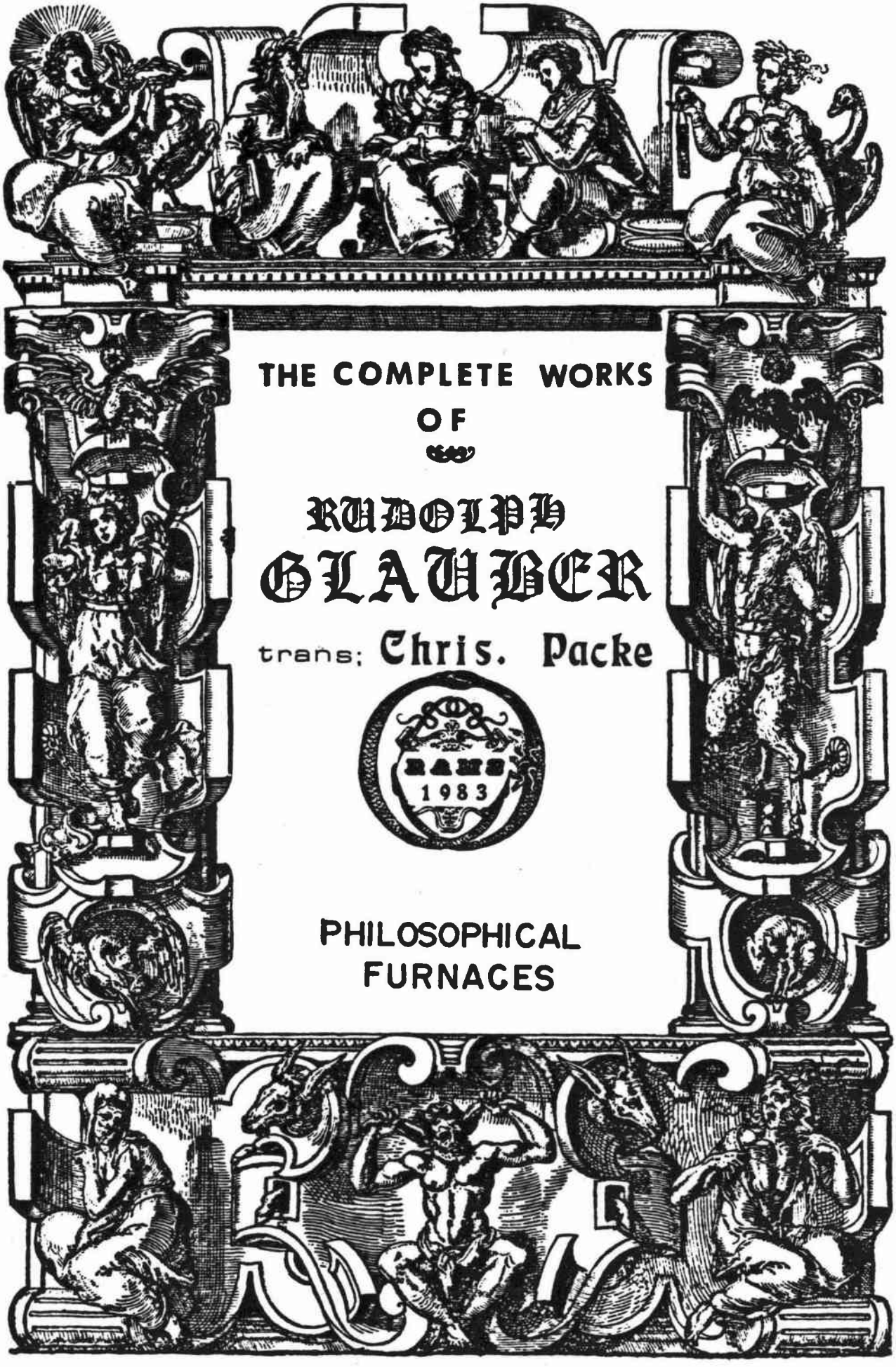
known, I have had the Foundations of it from this Author; and if God shall please to grant me life to a fit time, I doubt not but I shall from those Foundations be able to raise such a Superstructure as shall testifie the truth of his Writings, and powerfully evince the Worth and Excellency of Chymical Medicines, and that demonstratively in matter of Fact, viz. by the Curing of both Acute and Chronick Diseases.

And now by way of Conclusion, I have only one thing more to add; and that is a Request to all the Ingenious Lovers of Chymistry, that they would not occasion this Work, which I have undergone with so much Labour, and loss of time from my privite Concerns, meerly for the good of others, to redound to my own hurt; my meaning is, That I might not be put to the charge and trougle of Letters about Curious Enquiries, wherein I am to have not the least profit: This I mention, because I have had divers such Letters come to my hands since I have been about it, and that sometimes two or three being very long ones with many Queries, in one Week. Now should this continue, and I endeavour to satisfie all the Doubts, and gratifie all the Curiosities of all such non-considerate persons, truly I should have no time besides what this would take up, to provide for my self and Family. But notwithstanding what I have said, if any Ingenious Person shall stand in need of my Assistance, in preparing of anything for him, or otherwise, wherein I may have a reasonable recompence for my Time and Trouble, I will be ready to give him the best assistance I can. For I am now but just ready to recieve a Writ of Ease from three Years of daily Labour and care about this Work, and I would be willing to enjoy it some time, that I might again with diligence apply

my self to my Laboratory, the effects of which, if God shall see good, may at one time, or other, shew themselves to the World. In the mean time, I wish all Honest and Ingenious Lovers of the Spagyrick Art, good success in their Studies and Labours, that thence the Penuries and Miseries of Mankind, especially of the sick, may be effectually remedied; that they may Cooperate as Instruments with the great ends and providences of the Almighty, to bring about that time, in which God shall be Glorified all the World over, and Men live in a more serene and tranquil condition than yet they have done, which shall always be the Desire and Prayers of him that is a Lover of Pyrotechny, and Honourer of all true Artists.

From my House next Door to the Sign
of the Gun in Little Moor-Fields,
1688.

Christopher Packe.



THE COMPLETE WORKS OF

RUDOLPH GLAUBER

trans: Chris. Packe

RAMS 1983

PHILOSOPHICAL FURNACES

The
FIRST PART
OF
PHILOSOPHICAL FURNACES.

Containing a new Art of making SPIRITS, OILS, FLOWERS, and other Medicaments, by the help of the first of those Furnaces, after a very easy and peculiar manner out of Vegetables, Animals and Minerals; With their Chymical and Medicinal use.

A Preface to the Courteous Reader.

I have hitherto reserved to my self as Secrets, some peculiar Furnaces and compendious Ways of Distilling, which with diligent study and speculation I found out some few years since, by which many excellent Works, impossible to be done by the vulgar Art, may be performed; but now at last I have, considered with my self how advantageous it may be to the World, determined to conceal this Art no longer, but for the good of my Neighbour to publish it, by giving to CHYMISTS a perfect and fundamental information of this new-invented Art, that they may no longer for the future spend their Time and Money in long and tedious Operations, but may after a more easie way, by the help of my Furnaces, be able to effect many excellent things. Now this Book shall be divided into Five Parts, the first whereof shall teach how to build a Furnace, in which incombustible things are distilled and sublimed, and indeed such things

which cannot be done by Retort or any other Vessels, and how the Spirits, Flowers, and Oils of Minerals, and Metals may by the help thereof be prepared, as also what their Use and Virtues are.

In the Second Part shall be shewed another Furnace, in which combustible things, as Vegetables, Animals, and Minerals are distilled and most perfectly subtilized: by help whereof many most excellent Medicaments for the cure of most grievous and otherwise incureable diseases may be prepared.

In the Third shall be taught a certain new invention hitherto unknown, of distilling Burning Spirits, as of Wine, Corn, Fruits, Herbs and Roots; as also the Waters of Vegetables and Animals, and that in a great quantity, in a short time, and without much costs; as also of boiling Beer, Mead, Wine, and other things, which otherwise are made in Copper or Iron Vessels; and all this by the help of Wooden Vessels, and benefit of small Copper, or Iron instrument of two or three pound weight, and that after a certain easy manner without Furnaces. This newly-invented Art doth also teach divers Chymical Operations, as Putrefactions, Digestions, Circulations, Extractions, Abstractions, Cohobations, Fixations, & etc. And this invention is very necessary and profitable for young beginners in this Art, for they need not in the making of burning Spirits, Waters of Vegetables, Extracts, and other Medicaments so many Furnaces, and so many Copper, Iron, Tin, Earthen and Glass Vessels, for it is here taught how all the aforesaid Operations may be done only by the help of a certain small Copper or Iron Instrument in Wooden Vessels as well as by Alembicks and other great Copper Vessels, by which means a great deal of Costs is saved.

In the Fourth Part shall be taught another certain, and hitherto unknown Furnace, in which all Chymical Operations may most easily be done: being most profitable for the trying of the Natures of Minerals and Metals; as also for the proving, examining, melting, cupelling, and separateing of Metals, that nothing may be lost of them, and that after a compendious and easy way, and also to great advantage.

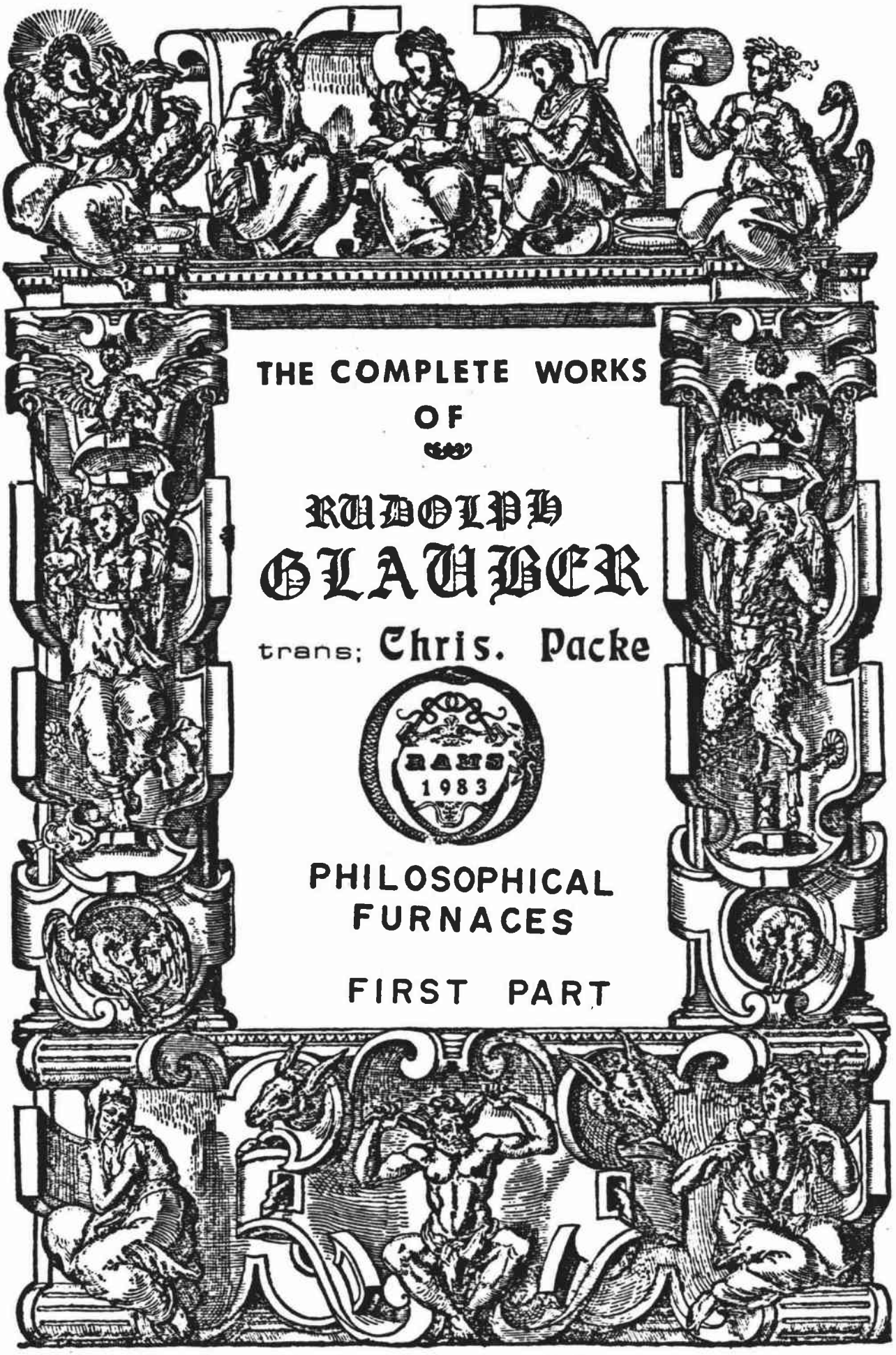
In the Fifth shall be taught how to make and prepare Iron, Earthen, Glass and other kinds of Instruments necessary for the aforesaid four Furnaces, as also other necessary, and most profitable Manuals.

And in the First Part, the Fabrick of the first Furnace being delineated, I shall also shew how by the help thereof may be made Spirits, Oils, Flowers, and other profitable Medicaments, also their Virtues and Use, and that as faithfully as I may, and without fraud. And truly I do not doubt but those of understanding, will approve of this Work, but ignorant ZOILUS'S will contemn it: For it is said according to the Proverb, He that builds by the highway, will hear many things from them that find fault, and especially from the vulgar, & etc. But it would be well if those THRASOES would put forth something more excellent, before they find fault with and carp at other Mens pains and labours.

Wherefore let no one rashly judge of this Work, until he be throughly informed concerning the same, and then I do not doubt but the Author shall be by him commended.

And if haply all things shall not presently succeed well, to his mind, with him that shall build this Furnace, and operate therewith, let him think with himself that perhaps he hath erred in some part,

(for it is a new and unknown work, in which any one may easily err) and not presently therefore murmur against the Author, blaming him, because he hath not wrote clear enough, but let him ascribe it to his own ignorance, and let him study to understand the Author's meaning, and still be practising upon it, and then I do not doubt, but he will have better success, which I pray every one may have. AMEN.



THE COMPLETE WORKS
OF

RUDOLPH GLAUBER

trans; Chris. Packe

PHILOSOPHICAL FURNACES

FIRST PART

THE.
FIRST PART
OF
PHILOSOPHICAL FURNACES.

Of the Structure of the First Furnace.

As for the first Furnace, it may be built greater or lesser as you please, a regard being had of the quantity of the Matter to be distilled, and also either round or square; either of Bricks, or by a Potter with Potters Clay. Now when the Diameter is of one span, viz. withinside, the height must be of four, viz. one from the bottom to the grate, another from the grate to the hole made for putting in of Coals, and two from thence to the top of the Pipe, which must at least go forth out of the Furnace one span, lest the receivers should by the neerness of the Furnace be heated. The Pipe also must have on the fore part a Diameter, answering the third part of the intrinsecal Diameter of the Furnace; also a little larger on the hinder part than the forepart. Let the grate be such an one, as may be taken out at your pleasure and made clean, being stopt by the Matter that is cast in and distilled: for it is easily stopt in distilling of Salts melted with the coals, whereby the aire is kept from coming to the fire, and the distillation by consequence hindered: Or let there be put into the Furnace cross-wise two strong iron bars, upon which lay four or five lesser, distant the one from the other the breadth of a finger, going a little out of the

Furnace, by which when they are stopt, you may take them out with a pair of Tongs, and cleanse them from the burnt Matter, and then again put them into their own places: wherefore also the Furnace must on the fore part be open under the grate, that you may the better order the grate.

Also the grate must have above, a covering of Iron or Stone, with a hole in the middle thereof with a certain distinction, which is to be filled with sand, that the cover may the better and more fitly shut the hole, and prevent the exhaling of the spirits which by this means will, being forced, go forth thru the Pipe into the receivers, after you have cast in the matter which is to be distilled.

Of the Receivers.

Let the Receivers be made of glass, or of strong earth, which may retain the spirits, and such is the Waldburgick, Hassiack, Frechhiemensian, Siburgic earth, & etc. They are better that are made of glass, if they are to be had, and those especially which are made of strong and firm glass, which may be smoothed about the joints with a Smiris stone, and so fitted that they may the better be joined together, and then they shall be smoothed with the Smeris stone, and be fitted, shall be taught in the Fifth part, which treats of Manuals, because by this means they are joined so close, that no spirits can go through the joints: otherwise you must close the joints with the best Lute, such as will not let the spirits exhale, which shall be taught in the Book treating of Manuals.

The form of the recipient you may see in the delineation thereof. As for the quantity thereof, know that by how much the greater they are, so much the better they are, for then you need the fewer, but the more, by how much the lesser they are. Let the superiour orifice be larger than the inferiour, so that always another receiver may with its inferiour orifice be joined to it, and let the inferiour orifice have a diameter of three fingers breadth, or thereabouts; I mean in case the Diameter of the Furnace be of one span. For a greater Furnace requires greater holes, as also orifices of the receivers, by which means a sufficient and due proportion of air may be given to the fire; or if the Diameter of the Furnace be more than a span, it must also have two or three pipes (which being considered together, should have a wideness answering the wideness of the third part of the Furnace, for so great a wideness, and so much air is required, if the fire burn freely and do its office) to which vessels of the aforesaid proportion must be applyed, that the fire be not choaked.

Now, the Figure that is annexed will teach the conjunction of the Receivers, as also their application to the Furnace. And in the first place, the Receiver stands in a three-foot stool bored through in the middle, that the neck of the first Receiver may pass through, to which is applyed a dish with a pipe receiving the dropping spirits: To the first there is joined a second, and to that a third, and so consequently (viz. near unto a wall or ladder) so many as you please. Let the upper Receiver, and indeed all the rest, be left open: To the lower as hath been said, is joined a dish with a pipe, by which the distilled Spirits

run down into another certain glass vessel added thereunto, which being filled, is taken away, and another is set in the place of it, because that is set under it without luting, and therefore may easily be changed. And if you please to distil any thing else, you may take away that dish with a pipe, and make it clean, and then join it close again (that no spirit may breathe forth) to the neck of the lower receiver. And if that dish cannot be so closely joined, that nothing exhale, pour in a spoonful of Water, for that doth astringe, neither doth it hurt the spirits, because in the rectifying it is separated.

Of the subliming Vessels.

These you need not make of glass, or of such earth as may retain the spirits, as hath been above mentioned; it is sufficient, if so be they be made of good common Potters earth, and be well glazed within, viz. of such a form and figure, as appears by the annexed delineation.

Yet you must chuse good earth that will endure the fire, for the lower pots are so heated by the fire, that they would be broken if they should not be made of good earth.

Now I will shew you in general the manner it self of distilling; as also, the manual necessaries in every distillation.

The manner of Distilling.

In the first place, let there be some burning Coals put in, which

afterwards must be covered with more until the Furnace be full almost to the pipe, which being done, let not the uppermost cover be laid over its hole (that the heat and smoak may pass that way, and not thru the pipe, and receivers, which will thereby be red hot; and this will be a hindrance to the distillation) until the fire be sufficiently kindled, and the Furnace be throughly hot; then cast in, with an Iron ladle, of the matter prepared for distillation as much as will cover the Coals, which being done, stop the Furnace very close, by pressing down strongly the upper cover upon its hole or sand, which is put in the lower part of the hole, being a place made for that purpose. Now let him that casts in any thing thru the middle hole, presently stop it with a stopple of stone, and that very close, for by this means all those things which were cast in, will be forced, after the manner of a thick Cloud, to break forth through the pipe into the receivers, and there to condense themselves into an acid spirit or oil, and thence to distil into the dish set under, through the pipe whereof they do yet distil down further into another glass receiver. The Coals being burnt out, and all the spirits being come forth, you must cast in more Coals, and more materials, until you have got a sufficient quantity of Spirits. In this way of distilling, you may at your pleasure cease, and begin again without any danger.

When you will make clean the Furnace, you need do nothing else, then draw out the Iron bars that lye on the cross bar, that the CAPUT MORTUUM may fall down, which afterwards may be taken away with a Fire-shovel, which being done, you must put in the bars again, and lay them

on the cross-bars as before, upon which you must cast burning Coals, and upon them others, until there be enough, then on them all, being well kindled, cast your materials.

When you go to make clean the receivers, and to begin to distil another thing, you need not remove them, but only pour pure Water into them, viz. by their upper receiver, by the descending whereof the other are purified.

And by this way, not only out of Vegetables, and volatile Minerals (incombustible) but also out of fixed Metals, and Stones, spirits, oils, and flowers, are drawn forth wonderfully, easily, and in good quantity, which otherwise could never have been done by the vulgar art of distilling.

Now, in this Furnace are distilled only such materials, which being distilled, yield an incombustible humidity, as common Salt, Vitriol, Allom, and other Minerals and Metals, each of which doth yet require their peculiar manuals, if operated upon.

Now, because this Furnace doth not serve for every matter, because the materials to be distilled are cast upon burning Coals, which are things combustible, I have determined in the second part to give another, viz. a lesser, unlike to this, yet convenient to distil all combustible things that are endued with volatile spirits, as Tartar, Harts-horn, Amber, Sal Armoniack, Urine, & etc. There are, by the help hereof, made most subtile, volatile, sulphureous spirits of Salts, and Minerals, as of common Salt, Vitriol, Allom, Nitre, Antimony, and of all other Minerals and Metals, which otherwise, without this Furnace, could not have been made, with which spirits, wonderful things are performed in

Medicine and Alchymy, as in the Second Part shall be demonstrated more largely.

Now I will shew you a way to make other Receivers belonging to the first Furnace, and indeed, such as are more fit for some Operations, as the former were more fit for others: wherefore let him that will operate, chuse these, or the other, as he pleaseth.

As therefore the former being erected upwards by a wall, or ladder, by which means the spirit might ascend from one into another so long, until being refrigerated and condensed might again drop downward into the dish that is annexed thereto: so these are a contrary way set and placed collateral in a vessel with cold Water to condense the spirits, by which means you need not so many receivers; also they must not be fashioned like the former, as to be open above, and below, but only above like pots that serve for boiling: but this you must observe, that by how much the deeper and larger they are, by so much the better they are.

Also you must join them together by the help of earthen pipes, being so distinct, that the spirits may be kept back, being yet hot (and not refregerated) from passing out of one into the other, but being forced through the middle of the separation of the pipes, may go to the bottom of every receiver, and thence arise by another pipe into another receiver that hath a double cover like the former, where again descending to the cold bottom, remain refregerated and condensed. Now three or four of these are enough (whereas of other, thirteen or fifteen are required) a regard being had of their Greatness.

You may see the figure of these receivers, as also their joining together by the annexed delineation. Now, for the most part, one is sufficient for him that distils a few things, especially if the matter be not pretious, and then let one crooked earthen pipe at least be joined, one arm with the pipe that goeth forth of the Furnace, the other with the Receiver, but so that it go into the receiver downwards, even to the middle thereof, and then you need not shut the orifice of the receivers, for it is no great matter if somewhat evaporate, viz. if the matter to be distilled be not pretious. And by this way may new spirits and new flowers be made every hour, with the help of one Furnace, and one recipient, but with this caution, that for every new distillation, the recipient be washed with Water before it be put to the pipe; which being put to, you may then cast your species into the Furnace; and this do till you have a sufficient quantity of spirits.

And this way of distillation serves especially for the trying of the natures and properties of many and divers Minerals, such as yield in the fire spirits and flowers. For it would be too tedious to every new distillation to apply a new and distinct receiver: as also many studious of the Chymical art would quit their study, being able to make by retort but one tryal in a day. And no wonder if expences, and loss of time should deter many.

Now here there is no need of many Retorts, nor of luting them, nor of receivers, and such like superfluous things; neither is there here required the constant presence of the operator, the observation of the regiment of fire, the neglect whereof would otherwise endanger the loss

of the retorts and receivers, and by consequence the loss of labour. These and such like tedious things are not here to be cared for, because it is sufficient only to cast the Matter upon the coals, and cover the Furnace, and then presently go forth the spirits, and flowers of the same kind with their mineral: of which when thou hast got a sufficient quantity, thou must draw out the Iron bars, upon which the coals lye, that they may fall down, and be taken away; and whilst the Furnace is yet hot, to put in the Iron bars again, and upon them to lay fresh coals, which then will of their own accord be kindled with the heat of the Furnace. In the mean time you must take away the receiver, and make it clean and set it to again, or if you had rather put another clean one, viz. for the new distillation of another Matter.

And by this way, divers things may be in the space of one hour distilled, and sublimed, viz. in a small quantity. But he that will distil, or sublime in a greater quantity, let him take three or four pots that the spirits may pass from one into another, that nothing thereof be lost. Here needs not (as I said before) the continual presence of the operator, for he may be gone, cease, or repeat as he please, because the work is without danger of breaking the retorts, and receivers.

He that knows the use of this Furnace, may do many things in a short time with little cost. For any one may do more by the help thereof in one hour, than in the common way in twenty four, by which way also there is a great saving of coals, because ten pound of coals will do more this way than a hundred the other. As for example, he that will try, shall make a pound of spirit of Salt in one hour with three, four, or five

pounds of coals; whereas after the other way are required fifty or sixty pounds, and at least twenty or thirty hours time, viz. in the common way by the help of retorts: which is indeed very tedious.

Also by this way may be made the flowers of minerals, and metals, in a great quantity, very easily, and in a short time without great cost, so as that in one hours space, with three or four pound of coals may a pound of the flowers of Antimony be made. And this is no small help to the Physican, and Chymist.

Moreover this furnace being once built, endures for so many years, and being broken is easily repaired.

And by this way you shall need only materials to be distilled, no retorts and receivers are in danger, by which means much cost is saved.

Besides the aforesaid ways, I have yet another, and that more compendious, viz. of distilling, and subliming, and more easily, by which means in a very little time, an increadible quantity of spirits of Salts, and flowers of Minerals, and metals may be made; which I shall refer till another time, because for the present I have said enough.

Now I do not doubt, but diligent Chymists will follow my steps, and find out those things which are unknown to me. For it is easier to add to things found out, than to find out things unknown.

The construction therefore of the furnace being in my opinion clearly shewed, there now follows the manner of distilling, and subliming with it.

Although haply, and contrary to my hope any obscurity should be met withal, yet one process will explain another; and the diligent operator, and searcher of Nature shall without doubt, by his practise attain the

effect after the same manner as I have prescribed: which together with the blessing of GOD, I heartily wish all pious Chymists, Amen.

How the Spirit of Salt is to be distilled.

The reason why I enter upon the spirit of salt, before I say any thing of the spirits of vegetables, is this, viz. because it is even the chiefest, which can be made in this furnace: for few exceed this in strength and virtues; wherefore I also have given it the preeminency. Neither is there any of the acid spirits, about which the Chymists hitherto have been more busied, than this, wherefore also it is of all, of greatest price, etc. for some have mixed salt with potters clay, and have made this mixture into little balls, which they have to get the spirit, forced by retort in a very strong fire: some have mixed salt with bole, some with the powder of tyles, others with burnt Allome, etc.

Others using a more compendious way have made salt to flow in a retort, which hath a pipe both in the upper, and hinder part; by the upper pipe of which they have dropped in cold water, to elevate the ponderous spirits of the salt, but by the hinder they have blown with Bellows, to force the spirits into the retort: and this way is not altogether to be slighted, yet it hath this inconvenience, that in process of time the retorts are broken that they can no longer retain the salt, and so the distillation is intercepted. Some have attempted it with Iron retorts, but by this means the spirits have been deaded, because they easily set upon the Iron, whence instead of spirit they have had

flegme. And such, and tedious ways of distilling they have invented; and by the best of them indeed they could scarce distil one pound in 25, or 30 hours space with 50. 60. or 100 pound of coals; this being the reason, because the salt is very little wrought upon, and therefore it is that few ever had the spirit right and good, whence also the virtues thereof have been unknown.

And this therefore I was willing to make known, that it might appear, what price, this spirit hath hitherto been of, and how easy, and abundantly, and with what little cost, it may after my new invented way be made.

It is said above, that the materials may in this way of distilling be immediately cast into the fire; yet this must be wisely understood. For although some of the species may without any preparation be immediately cast into the fire, yet it doth not follow that all and every one of them must: for in some of them we must use our discretion, as in the distilling of salt. For if the salt be immediately cast into the fire, it will not only yield no spirits, but will leap so long upon the coals, until it find a descent to the lowest part of the furnace: Now this may be prevented divers ways; and first indeed after this manner: Dissolve salt in common water, then quench burning coals with this water, that they may be impregnated with the salt, which afterwards set on fire in the furnace: but you must first cast in other burning coals, upon which you must cast those that are impregnated with salt until the furnace be full, as is above said: and while the coals burn, the salt is resolved by the force of the fire into spirit.

Now you must observe that he that distils spirit of salt after this manner, must make choice of glass receivers, because the spirit whilst it is hot, penetrates by reason of its wonderful subtility, those that are earthen. And this spirit is of a most grateful taste. But in defect of glass receivers, I shall shew you another way wherein you may use those that be of earth.

Mix salt, and vitriol or allome together, grinding them very well in a Morter (for by how much the better they are ground, the more Spirit they yield). Then cast this mixture into the fire with an Iron Ladle, viz. so much of it as will be sufficient to cover the coals, and then with a great fire the spirits come forth into the receivers, where being coagulated, they distil down into the dish, and thence into another receiver. And if thou knowest how to work aright, the spirits will like water continually run out thru the pipe, the thickness of a straw; and thou mayst easily every hour make a pound of the spirit. Now the reason why thou shalt by this way have more spirits than by the other, is this, viz. because the vitriol and allome, which is mixed with the salt, makes it flow quickly, by which means it is prevented from falling down through the coals to the lower part of the furnace, but sticking to the coals is almost all of it turned into spirits. The CAPUT MORTUUM, which is reddish, easily falls with the ashes through the grate, and can no more be distilled, but yields by excoction a white fixed salt, which serves for the flowing of metals; and being dissolved in warm water serves also for a glyster against the Worms, which it kills, and purgeth also the Bowels.

Thou wilt object, that the spirit made after this manner, is not the true spirit of salt by reason of the mixture of vitriol and allome, but mixed, and compounded. I answer; There can by this way distil no spirit of vitriol, or allome, being that which I often tried, casting vitriol or allome into the furnace, where I received no spirit at all, the reason of this is, because these spirits are far more heavy than the spirit of salt, neither can they ascend so great a height, viz. of three spans, but are burnt, whence unless the flegme, nothing distils. Wherefore the spirit of salt that is made after this manner is not mixed, but pure and meer spirit of salt, of the same taste and virtue as that is of, that is made by it self; because in this furnace the spirit of allome and vitriol, cannot be made unless a pipe go out of the furnace neer the grate, as you may see by the delineation of the furnace, for otherwise it cannot be made; besides, these spirits are better, and more truly taught in the second part. And if it be granted that somewhat together with the spirit of salt comes forth (which is yet impossible) what hurt I pray you comes from thence either in the solution of metals, or medicine? wherefore the spirit made after this way is not to be suspected. Yet I will satisfie the incredulous, and will shew him another way without the addition of allome or vitriol, for the distilling of that spirit, but that will be in the second part of this Book, where I will teach you the furnace, by which is made spirit of Nitre, Aquafortis, and amongst combustibles, the Oils of vegetables, and Fats of animals and other things which cannot be made by this: and by this way I will satisfie those, who are not pleased with the former.

Now for the want of glass receivers, we are forced to use earthen, but these cannot retain the spirit of salt made after the aforesaid ways; in which case I could indeed discover a certain little manual, by virtue of which the aforesaid spirit may be received even in a great quantity in earthen recipients: but for certain causes I shall here be silent, and shall refer it till the edition of the second part. Let it suffice therefore that I mentioned such a thing, wherefore omitting that, I shall proceed to shew you the virtues, and use of this spirit, as well in Alchymy, as in Medicine, and other Mechanical Arts.

Of the use of the Spirit of Salt.

It is worth while, to speak of the power, and virtues of this excellent spirit; what other Authors have clearly described, I shall here pass over, and refer the Reader to the writings of those Authors; touching only on some few of which they said nothing.

The Spirit of salt is by most accounted a most excellent medicine, and safely to be used, as well inwardly as outwardly: it extinguisheth a preternatural thirst in hot diseases, abstergeth and consumeth flegmatick humours in the Stomack, exciteth the Appetite, is good for them that are hydropical, have the Stone, and Gout, & etc. It is a menstruum dissolving metals, excelling all other therein: For it dissolveth all metals and minerals (excepting silver) and almost all stones (being rightly prepared) and reduceth them into excellent medicaments. It doth also many excellent things in mechanical arts.

Neither is it to be slighted in the kitchen, for with the help thereof are prepared divers pleasant meats for the sick as well as for those that are in health, yea and better than with Vinegar, and other acid things: and it doth more in a small quantity, than Vinegar in a great. But especially it serves for those Countries that have no Vinegar. It is used also instead of Verjuice, and the juice of Lymons. For being prepared after this way, it is bought at a cheaper rate than Vinegar or juice of Lymons. Neither is it corruptible as expressed juices are, but is bettered by age. Being mixed with Sugar it is an excellent sauce for roast meat. It preserves also divers kinds of Fruits for many years. It makes also Raisons, and dryed Grapes to swell, so as to acquire their former magnitude again, which are good to refresh a weak Stomack in many diseases, and serves for the preparing of divers kinds of meats of Flesh and Fish; but you must mix some water with the spirit, or else the Raisons will contract too much acidity. This spirit doth especially serve for making meats delightfully acid; for whatsoever things are prepared with it, as Chickens, Pigeons, Veal, & etc. are of a more pleasant taste than those which are prepared with Vinegar. Beef being macerated with it, becomes in a few days so tender, as if it had been long time macerated with Vinegar. Such, and many more things can the Spirit of Salt do.

A distillation of Vegetable Oils, whereby a greater quantity is acquired, than by that common way, by a Vesica.

As many Distillers as hitherto have been, have been ignorant of a better way to distil Oils of Spices, Woods, and Seeds, than by a vesica or alembick, with a great quantity of water. And altho' they may also be made by retort, yet there is a great deal of care required, or else they contract an EMPYREUMA, wherefore that way, by a still, is always accounted the better, which way indeed is not to be slighted, if you distil Vegetables of a low price, and such as be oleaginous; but not so in the distillation of Spices, and of other things that are of a greater value, as are Cinnamon, Mace, Saffron, & etc. which cannot be distilled in a gourd still without loss, because then there is required a great quantity of water, and by consequence great, and large vessels, to which something adheres, wherefore we lose almost half, which is not to be so much valued in vegetables that are oleaginous, as in Annis-seed, Fennel, and Caryoway seed, & etc. But the loss made in distilling of drier and dearer vegetables, as Cinnamon, LIGNUM RHODIS, CASSIA, is evident enough, and by consequence not to be slighted. Neither can it be distilled that way, for a good quantity by coction acquireth a gummy tenaciousness, which cannot ascend with the water. But that this way for the future may be prevented, I will shew another way to distil the Oils of Spices, and other precious things, which is done with Spirit of Salt, whereby all the Oil is drawn forth without any loss, the process whereof is this, viz. Fill a gourd with Cinnamon or any other

Wood, or Seed, upon pour so much of the spirit of salt, as will be sufficient to cover the wood, then place it with its Alembick in Sand, and give it fire by degrees that the spirit of salt may boil, and all the Oil will distil off with a little flegme; for the spirit of salt doth with its acrimony penetrate the wood, and freeth the Oil that it may distil off the better and easier. And by this way the Oil is not lost by the addition of that great quantity of water in those great and large vessels, but is drawn in lesser glass vessels with the addition of a little moisture. Distillation being finished the spirit is poured off by inclination from the wood, being again useful for the same work. And if it hath contracted any impurity from the wood, it may be rectified: but residue of the spirit which remains in the wood ye may recover, if that wood be cast into the aforesaid furnace upon burning coals, by which means it may come forth again pure, and clear: and by this means we lose none of the spirit of Salt. And after this way by help of the spirit of Salt, are drawn forth Oils of dearer Vegetables together with their Fruit, which cannot be done by a still.

There are made also by means thereof of Oils of Gums and Rosens, clear, and perspicuous.

The clear Oil of Mastick, and Frankincense.

Take of Frankincense or Mastick powdered small, as much as will serve to fill the third part of a Retort (which must be coated) upon which pour a sufficient quantity of spirit of Salt, taking heed that

the Retort be not filled too full, or else the spirit when it boils, flows over it, then place it in sand, and give fire by degrees, and there will first come out some phlegme, after which a clear transparent oil together with the spirit of salt, which must be kept by it self, after this a certain yellow Oil which must be received by it self, and last of all there follows a red Oil, which although it is not to be cast away, yet it is very unlike to the first, serving for outward uses, and to be mixed with Ointments and Emplasters, for it doth wonderfully consolidate, and therefore good in new and old Wounds. The first being well rectified, is in its subtility, and penetrating faculity not unlike to spirit of wine, and may profitably be used inwardly and outwardly, viz. in cold effects, but especially in the stiffness of the Nerves, caused by cold humours, upon which follows a contraction; but then you must first rub the member contracted with a linnen cloath, that it may be well warmed, into which then the Oil must be chafed with a warm hand. For it doth do wonders in such like effects of the Nerves.

After the same manner may Oils be made out of all gums. The red, tenacious and stinking Oils of Tartar, Harts-horn, Amber, & etc. distilled after the common way by retort are also rectified with spirit of salt so as to become transparent and to lose the EMPYREUMA contracted by distillation.

Now the cause of the blackness, and fetidness of these kind of Oils, is a certain volatile salt which is to be found as well in Vegetables, as certain Animals, which is easily mixed with the Oil, and makes it of a brown colour. For every volatile salt whether it be of Urine, Tartar,

Amber, Harts-horn, and of other Vegetables and Animals, is of this condition and nature, as to exalt, and alter the colours of sulphureous things, and that either for the worse or for the better: but for the most part it makes Oils thick, black and stinking, as you may see in Amber, Harts-horn, and Tartar. The cause therefore of the blackness, and fetidness of these Oils being known we may the more easily take heed thereof in distilling, and being contracted, correct them again by the help of spirit of Salt. For all volatile salt hath contrariety to any acid spirit, and on the other side, every acid spirit hath a contrariety with all volatile salts, that have the nature of salt of Tartar. For metals that are dissolved with acid spirits are as well precipitated with spirit of Urine, or any volatile salt as with the liquor of salt of Tartar; which shall be more at large declared in the second part.

The volatile salt therefore is by the mortifying acid spirits, as of Salt, Vitriol, Allom, Vinegar, & etc. deprived of its volatility, and is fixed, by which means being debilitated it forsakes its associate which was infected with blackness by it: it is necessary that we should proceed after the same manner with these fetid Oils, viz. as follows.

Take any fetid Oil of Tartar, Amber, & etc. with which fill the fourth part only of a glass Retort, and upon it pour by drops the spirit of salt; and it will begin to be hot, as it is used to be, when Aqua fortis is poured on salt of Tartar; wherefore the spirit is to be poured on it by little and little, and by drops for fear of breaking the glass: Now the sign of the mortification of the volatile salt is, when it

ceaseth to make a noise, and then no more is to be poured on, but set your Retort in sand, & give fire to it by degrees, as is used to be done in the rectifying things of easie elevation: and first of all will go forth a certain stinking water, after which comes a transparent clear, and odoriferous Oil, and after that a certain yellow, clear, and also well smelling Oil, but not so as the first, wherefore each must be taken apart by changing the receivers. Now these Oils become more grateful than those fetid ones of the shops. For these Oils retain their clearness, and fairness, the cause of their fetidness, and redness being taken away by the spirit of salt. In the bottom of the retort remains the black volatile salt with the spirit of salt, from whence it may be sublimed into an odoriferous salt resembling salt armoniack in taste. The spirit of salt is also deprived of its acidity, and coagulated by the volatile salt, and is like TARTARUM VITRIOLATUM, appointed also for its uses, as shall be spoken in the second part, of the spirit of Urine.

After the same manner also are rectified other Oils, which by length of time have contracted a clammineſs, as are Oil of Cinnamon, Mace, Cloves, & etc. with the spirit of Salt, if they be rectified by Retort, for then they acquire again both the same clearness, and goodness, as they had when they were newly distilled.

Here I must make mention of a certain error of Physicans, not only of ignorant Galenists but Spagyricks, committed in the preparations of some Chymical medicaments. For many have perswaded themselves that Oil of Tartar, Harts-horn, & etc. having lost its stink, is a Medicine radically taking away all obstructions; but this must be taken with a

grain of salt. For some have rectified these kinds of Oils by calcining Vitriol, and by that means have somewhat made them lose their EMPYREAMA, but with all their Virtues; which others observing have conceived that the fetidness thereof is not to be taken away, because the Virtue of them is thereby lost, as if the Virtue consisted in the fetidness thereof; but that is a very great error, because fetidness is an enemy to the heart and brain, and in it is no good. But this is granted, that they that take away the fetidness of those Oils mortifie the virtues of them. But thou sayest, How then must we proceed in taking away their fetidness without the loss of the virtues? Must they be rectified by the spirit of salt? as even now thou taughtest. R. No, for although I said that Oils might be clarified with spirit of salt, yet it doth not follow that my meaning was, that that clarification was the mending of them: This is only a way of clarification, whereby they become more grateful; and it is not to be slighted, a better being unknown. But how they are to be rectified from their fetidness and blackness, without the loss of their Virtues, and to be made more noble, doth not belong to this place, because it cannot be done by this Furnace: I shall refer the reader therefore to the second part, where it shall be shewed, how such spirits are to be rectified without the loss of their virtues, which being so prepared may well be accounted for the fourth Pillar of Physick. And these things I was willing at least for information sake to shew you, not to offend you, and that because I was moved with pity, and compassion towards my neighbour.

The Quintessence of all Vegetables.

Pour upon Spices, Seeds, Woods, Roots, Fruits, Flowers, & etc. the Spirit of Wine well rectified, place them in digestion to be extracted, until all the essence be extracted, with the Spirit of Wine; then upon this Spirit of Wine, being impregnated, pour the best Spirit of Salt; and being thus mixed together, place them in Balneo to digest, until the Oil be separated, and swim above from the Spirit of Wine, then separate it with a separating glass, or distil off the Spirit of Wine in Balneo, and a clear Oil will ascend; for if the Spirit of Wine be not abstracted, then that Oil will be as red as blood; and it is the true quintessence of that vegetable, from whence by the Spirit of Wine it was extracted.

The Quintessence of all Metals and Minerals.

Dissolve any metal (excepting Silver, which must be dissolved in Aqua fortis) in the strongest spirit of Salt, and draw off the flegme in Balneo; to that which remains pour the best rectified spirit of Wine, put it to digesting, until the Oil be elevated to the top as red as blood, which is the tincture, and quintessence of that metal, being a most Precious treasure in medicine.

A sweet and red Oil, of Metals and Minerals.

Dissolve a Metal or Mineral in spirit of Salt, dissolve also an equal weight of salt of Wine essentificated; mix these dissolutions, and distil them by retort in a gradual heat, and there will come out an oil sweet, and as red as blood, together with the spirit of Salt; and sometimes the neck of the retort and receiver will be coloured like a Peacocks tail with divers colours, and sometimes with a golden colour.

And because I would without any difference comprehend all Metals and Minerals under one certain general process; let him that would make the essence of silver take the spirit of nitre, and proceed in all things as was spoken of the other metals. Concerning the use of these essences, I need not speak much hereof; for to him that knows the preparation shall be discovered the use thereof. Concerning the corrosive oils of metals and minerals, seeing they cannot be described by any one process, it will be worth while to set down what is peculiar to each of them, as followeth.

The Oil, or Liquor of Gold.

Dissolve the calx of gold in the spirit of salt, (which must be very strong, or else it cannot dissolve it) but in defect of the strongest spirit thereof, mix a little of the purest salt-peter; but that oil is the best which is made with the spirit of salt alone. From

the gold dissolved abstract half the solution, and there will remain a corrosive oil, upon which pour the expressed juice of lemons, and the dissolution will become green, and a few feces fall to the bottom, which may be reduced in melting. This being done, put this green liquor in Balneo, and draw off the flegme: that which remains take out, and put upon a marble in a cold moist place, and it will be resolved into a red oil, which may safely, and without danger be taken inwardly, curing those that are hurt with Mercury. But especially it is commended in old ulcers of the mouth, tongue, and throat, arising from the French pox, leprosy, scorbute, & etc. where the oil of other things cannot be so safely used. There is not a better medicine in the exulceration, and swelling of the glandules, in the ulcers of tongue and jaws, which doth sooner mundify, and consolidate. Neither yet must we neglect necessary purgings, and sudorificks, for fear of a relapse, the cause not being taken away.

Neither will there any danger follow, whether it be given inwardly, or used outwardly, as in the accustomed use of other medicaments, and gargarisms; for it may daily, and truly without all danger be used at least three times with a wonderful admiration of a quick operation.

Oil of Mars.

Dissolve thin plates of Iron in rectified spirit of salt, take the solution, which is green, of a sweet taste, and smelling like fetid sulphur; and filter it from that filthy and feculent residence; then

in a glass gourd in sand, abstract all the humidity (viz. with a gentle fire) which will be as insipid as rain-water, because the iron by reason of its dryness, hath attracted all the acidity to it self: but in the bottom will remain a mass as red as blood, burning the tongue like fire: it takes away all proud flesh of wounds, and that without danger. It is to be kept in a glass close stopt from the air, lest it be resolved into an oil, which will be of a yellow colour. But he that desires to have the oil, may set it on a marble in a moist Cellar, and within a day it will be resolved into an oil, which will be in colour betwixt yellow and red: It is a most excellent secret in all corroding ulcers, fistulas, cancer, & etc. being an incomparable consolidator, and mundifyer. And it is not without profit mixed also with common water to wash the moist, fetid ulcers of the legs; which cause tumours, by being applyed warm like a bath, for it drys, and heals suddenly, if withal Purges be administred it cures also any scab. That red mass (being yet unresolved) being put on the oil of sand, or flints (of which in the second part) makes a tree to grow in the space of one or two hours, having root, trunk, and boughs: which being taken out, and dried, in the test yields good gold, which that tree extracts from the earth, i.e. from the flints, or sand. Thou mayst if thou pleasest, more accurately examine this matter.

Oil of Venus.

Spirit of Salt doth not easily work upon Copper, unless it be first

reduced into a calx, and that after this manner. Take plates of Copper made red hot in an open crucible, quench them in cold water, and they will cleave into red scales: then the remainders of the plates make red hot, and quench as before: do this so often, till thou hast got a sufficient quantity of the calx; which being dried, and powdered, extract with the rectified spirit of salt, in sand, until the spirit of salt be sufficiently coloured with a green tincture, which you must decant, and filter; and then abstract from it the superfluous moisture, that there may remain a green thick oil, which is an excellent remedy for ulcers, especially such as are Venereal, being applyed outwardly.

Oil of Jupiter and Saturn.

Neither are these two metals easily dissolved in the spirit of salt, yet being filed, are dissolved in the best rectified spirit of salt. But the operation is performed better with the flowers of these metals (the preparation whereof shall be hereafter taught.) Take therefore the flowers, upon which in a gourd glass pour the spirit of salt, and presently the spirit will work upon them, especially being set in a warm place; filter the yellow solution, and abstract the humidity, until there remain a yellow heavy oil, which is proper against putrid ulcers.

Oil of Mercury.

Neither is this easily dissolved with the spirit of salt: but being

sublimed with vitriol, and salt is easily dissolved. Being dissolved, it yields an oil very corrosive, which must be used with discretion, wherefore it is not to be administered, unless it be where none of the other are to be had. For I saw a woman suddenly killed with this oil, being applyed by a certain Chyrurgeon. But this oil is not to be slighted in eating ulcers, tetter, & etc. Which are mortified by it.

Oil of Antimony.

Crude Antimony that hath never undergone the fire, is hardly dissolved in spirit of salt: as also the REGULUS thereof; but the REGULUS being subtilly poudered, is more easily wrought upon, in case the spirit be sufficiently rectified.

The VITRUM is more easily, but most easily of all the flowers are dissolved, being such as are made after our prescription a little after set down. Neither is BUTYRUM ANTIMONII (being made out of sublimed Mercury, and Antimony) any thing else but the REGULUS of Antimony dissolved with spirit of salt; for sublimed Mercury being mixed with Antimony, feeling the heat of the fire, is forsaken by the corrosive spirits associating themselves with the Antimony, whence comes the thick Oil; whilest which is done the sulphur of Antimony is joined to the Quicksilver, and yields a Cinnabar, sticking to the neck of the Retort; but the residue of the Mercury remains in the bottom with the CAPUT MORTUUM, because a little part thereof doth distill off: And if thou hast skill thou mayst recover the whole weight of the Mercury again.

And these things I was willing the rather to shew thee, because many think this is the Oil of Mercury, and therefore that white powder made thence by the pouring on of abundance of water they call MERCURIUS VITA, with which there is no mixture at all of Mercury, for it is meer Regulus of Antimony dissolved with spirit of Salt, which is again separated, when the water is poured on the Antimonial butter; as is seen by experience; For that white powder being dryed, and melted in a crucible yields partly a yellow glass, and partly also a Regulus, but no Mercury at all.

Whence it doth necessarily follow that that thick oil is nothing else but Antimony dissolved in spirit of Salt. For the flowers of Antimony being mixed with spirit of Salt, make an oil in all respects like to that butter which is made of Antimony, and sublimated Mercury, which also is after the same manner by the affusion of a good quantity of precipitated into a white pouder, which is commonly called MERCURIUS VITA: It is also by the same way turned into BEZOARDICUM MINERAL, viz. by abstracting the spirit of Nitre, and it is nothing else but Diaphoretick Antimony.

For it is all one whether that Diaphoretick be made with spirit of Nitre, or with Nitre it self, viz. corporeal, for these have the same virtues, although some are of opinion that that is to be preferred before the other; but the truth is, there is no difference. But let every one be free in his own judgement, for those things which I have wrote, I have not Writ out of ambition, but to find out the truth.

Now again to our purpose, which is to shew an oil of Antimony made with the spirit of salt.

Take a pound of the flowers of Antimony (of which a little after) upon which pour two pound of the best rectified spirit, mix them well together in a glass, and set them in sand a day and night to dissolve, then pour out that solution together with the flowers into a retort that is coated, which set in sand, and first give a gentle fire, until the flegme be come off, then follows a weak spirit with a little stronger fire, for the stronger spirits remain in the bottom with the Antimony: then give a stronger fire, and there will come forth an oil like to the butter of Antimony made with sublimed Mercury, and is appropriated to the same uses, as follows.

The flowers of Antimony, White and Vomitive.

Take of this butter as much as you please, upon which in a glass gourd, or any other large glass pour a great quantity of water until the white flowers will precipitate no more; then decant off the water from the flowers, which edulcorate with warm water, and dry with a gentle heat, and thou shalt have a white powder.

The Dose is, that 1. 2. 3. 8. 10. grains be macerated for the space of a night in wine, which is to be drank in the morning, and it worketh upward and downward. But it is not to be given to children, those that be old, and weak, but to those that be strong, and accustomed to vomiting. When at any time this infusion is taken and doth not work, as sometimes it falls out, but makes the Patient very sick, he must provoke vomiting with his finger, or else it will not work, but make those

that have taken it to be sick, and debilitated even to death. We must also in the over much working of these flowers drink a draught of warm Beer, or rather of warm Water, decocted with Chervil, or Parsly, and they will work more mildly. But let not him that is able to bear the operation thereof any way hinder it, for there is the greater hope of recovering his health thereby, for they do excellently purge choler, and evacuate flegme in the Stomack, being humors that will not yield to other Catharticks; they open obstructions, resist the putrifaction of the blood, the causes of many diseases, such as are Fevers, Headaches, etc. they are good for them that are Leprous, Scorbutical, Melancholical, Hypochondriacal, infected with the French Pox, and in the beginning of the Plague. In brief, they do work gallantly, and do many things.

After the taking of them, the Patient must stay in his bed or at least not go forth of his house, for to avoid the air, or otherwise they may be mistrusted.

And because of their violence they are feared, and hated, I shall in the fourth part of this Book for the sake of the sick set down such as are milder, and safer, such as shall work rather downward than upward, causing easie vomits, which also thou mayest give to children, and those that are old without danger, yet some respect being had of the disease, and age.

The flowers of Antimony diaphoretical.

The foresaid flowers if they be cast into melted Nitre, and be left a while in melting, are made fixt, so as to become Diaphoretical, and lose their Cathartical Virtue. The acid water being separated from the flowers, if it be evaporated, leaves behind the best spirit of salt, serving for the same or such like uses again.

Of the External use of the Corrosive Oil of Antimony.

This oil hath been long used by Chirurgions, for they have with a feather applyed it to wounds almost uncureable, to separate impurities, for the accelaration of the cure, that afterwards other medicaments being applyed may the better operate. But it is better if it be mixed, with spirit of Salt, for they are easily mixed and it is made more mild thereby, and the too great corrosive faculty thereof is mitigated. Neither is there any other besides the spirit of Salt, with which this oil can be mixed, unless it be the strongest spirit of Nitre, for the weak spirit of Nitre precipitates the butter of Antimony, as you may see in the preparation of BEZOARDICUM MINERALE. But the strongest spirit of nitre dissolving this butter, makes a red solution of wonderful Virtue in Chymistry, of which we are not to treat in this place; and if this be drawn off again by distillation, it leaves behind the first time a fixed Antimony, and Diaphoretical, which otherwise must be drawn off twice, or thrice, viz. if it be weak, and not able to dissolve the butter without precipitation.

Now this BEZOARDICUM is the best, and safest Diaphoretick in all diseases that require sweat, as in the plague, French pox, fevers, scorbute, leprosy, & etc. if it be given from 6. 8. to twenty grains in proper vehicles; it penetrates the whole body, and evacuates all evil humours by sweat and urine.

The Oil of Arsenic and Auripigmentum.

As the spirit of salt doth not easily work upon Antimony by reason of the abundance of crude sulphur, unless it be reduced into flowers, in the preparation whereof, some part of its sulphur is burnt; so also ARSENIC and AURIPIGMENTUM are hardly dissolved with spirit of salt, unless they be reduced into flowers, and the spirit of salt be very strong, which may be able to work upon it. These may be distilled by retort like Antimony into a thick heavy oil; which being used in cancerous eating ulcers, exceeds that of Antimony in mortifying, mundifying, and purging those evils. After the same manner may corrosive oils be made out of all the realgars being ordained for outward uses.

Oil of Lapis Calaminaris.

Take of the best yellow or red LAPIS CALAMINARIS very subtilly powdered, as much as you please, and pour upon it five or six times as much of rectified spirit of salt, mix and stir them well together, and do not leave them long unstirred, but ever and anon shake the glass

with the materials; and this do oftentimes, or else the LAPIS CALAMINARIS will grow together into a very hard stone, which can be dissolved no more, and is prevented by the aforesaid often shaking: and when the spirit of salt will dissolve no more thereof in FRIGIDO, set the glass in warm sand so long, until the spirit be tinged with a most yellow colour, which then decant, and pour on fresh, and again set it in digestion to extract, and do not to forget to shake the glass often. The solution being finished filter it, and cast away the residue of the TERRA MORTUA. Afterwards set the solution in sand, and give fire, and almost three parts of the spirit of salt will go over insipid, which is nothing but the flegme, although the spirit was never so well rectified; the reason whereof is the most dry nature of LAPIS CALAMINARIS, to which the spirit of salt is very friendly, and therefore very hard to be separated from it. For I never knew any minerial or metal (besides ZINK) which exceeds LAPIS CALAMINARIS in dryness. At last when no more flegm will go over, let all things cool; which being done, take out the glass, and thou shalt find a red thick oil, as fat as oil olive, and not very corrosive; for that spirit of salt being almost mortified with the LAPIS CALAMINERIS is deprived of its acidity. This oil is to be kept from the air; or else within a few days it attracts much air which it converts into water, and thereby becomes weakened.

This Oil is of wonderful Virtue, being used as well inwardly as outwardly. And I wonder that in so long a time there hath been no body, who hath operated in LAPIS CALAMINARIS and described the nature thereof, seeing it hath in it a golden sulphur (of which thing in the fourth part)

for if the terrestreity thereof were separated from it artifically, pure gold would be manifested therein; now the greatest part thereof is volatile, and immature, and cannot easily be reduced into a body in melting, wherefore hitherto that stone hath not been esteemed of by Chymists, but to the wise was always precious, & etc.

The use of the Oil of LAPIS CALAMINARIS.

If it be given from 1. 2. 3. drops to ten, and indeed with sutable vehicles, it purgeth the dropsy, leprosy, gout, and other noxious fixed humours not yielding to vegetable Catharticks, of which more at large in the second Part of the spirit of urine, and salt of tartar. It serves outwardly for an excellent vulnerary balsome, the like to which can scarce be shewed, not only in reducing old corrupt wounds, but also in those that are green, for it doth powerfully dry, mundify, and consolidate.

It is also used in household affairs, for birdlime being dissolved in it, yields a certain tenacious matter serving to catch birds, mice, & etc. about the house or in the field. For it is as permanent in the heat of the Sun, as in the cold of Winter, wherefore it may be used at any time of the year, all small animals stick to it if they do but touch the matter.

A ligature of string smeered therewith, and bound about any tree prevents the spiders from climbing up thereon, and other kinds of insects that are noxious to the fruit; a thing worth taking notice of.

This oil is not by the pouring on of water corrupted, neither is it precipitated, as that of Antimony: wherefore it is useful for many things. Common yellow sulphur boiled in it, viz. in a strong fire, so as to be dissolved in it, swims upon it like fat, is thereby purified and made as transparent as yellow pellucid glass, and a better medicine then those common flowers of sulphur: it serves also for other uses, all which to relate here it would be too tedious.

This oil being mixed with clean sand, and distilled by retort in a fire that is very strong (otherwise the spirit of salt will not leave the LAPIS CALAMINARIS) yeilds a most fiery spirit, the LAPIS CALAMINARIS remaining in the bottom of the retort.

This spirit is so strong, that it can scarce be kept, it dissolves all metals, and all minerials (excepting silver and sulphur) wherefore by the help thereof many excellent medicaments are made, which cannot be made with the common spirit though never so well rectified, which although it be often rectifed, yet it is not without flegm, which cannot be separated from it by the power of rectification, so well as with LAPIS CALAMINARIS.

This spirit doth perform many things in medicine, & alchemy, as also in other arts, as you may easily conjecture; but here is not opportunity to speak more of these things, yet for the sake of the sick I shall add one thing to which few things are to be compared; the plain & short process whereof I would not have thee be offended at. And it is this, viz. mix this spirit with the best rectified spirit of wine, digest this mixture some while, and the spirit of salt will separate

the spirit of wine, and will make the oil of wine swim on the top, the volatile salt being mortified: and this oil is a most incomparable cordial, especially if with the said spirit of wine, spices have first been extracted, and with the said spirit of salt, gold hath been dissolved. For then in the digestion of this mixture, the oil of wine being separated, attracts the essence of the cordial species, and of other vegetables, being extracted before with the spirit of wine, as also the tincture of gold, and so by consequence a most efficacious incomparable and universal medicine for all diseases, fortifying the HUMIDUM RADICALE, that it may be able to overcome its enemies; for which let praise and glory be given to the immortal God for ever who hath revealed to us so great secrets.

Of the Extrinsecal use of the spirit of Salt in the Kitchen.

I said before that instead of Vinegar, and verjuice it may be used, as also instead of the juice of Limons, now it remains that I shew you how it is to be used, and that indeed as well for the sake of the healthy as the sick.

Let him therefore that will dress a pullet, pigeons, veal, & etc. in the first place put a sufficient quantity of spices, of water, and butter, and then as he pleaseth a greater, or lesser quantity of spirit of salt: and by this means fleshes are sooner made ready being boiled, then that common way; an old hen though the flesh thereof be old is made as tender as a chicken by the addition of this spirit: but he that

will use it instead of the juice of Lemons with rost meat, must put into it the pill of Lemons for preservation sake, because it preserves it. It is used instead of verjuice by it self alone, or mixed with a little sugar, if it be too acid.

He that will stew beef, and make it as tender as kid, must first dissolve it in tartar and a little salt before he wets the flesh therewith, and the flesh will not only be preserved but made tender thereby: but to keep flesh a long time you must mix some water therewith, and with weights press down the flesh, that it may be covered with the pickle: for by this means flesh may be preserved a great while.

After the same manner may all kinds of garden fruits be preserved, as cucumbers, purslain, fennel, broom, German capers, & etc. and indeed better than in vinegar. Also flowers, and herbs may a long while be preserved by the help thereof, so that you may have a rose all the winter.

It preserves also wine, if a little be mixed therewith. A little thereof being mixed with milk precipitates the cheese, which if it be rightly made is never corrupted, being like to such cheese as they call PARMESAN. The whey of that milk dissolves Iron, and cures any scab being washed therewith.

With the help of spirit of salt is made with honey, and sugar a most pleasant drink, not unlike to wine. There is made also of certain fruits with the spirit of salt a very good vinegar like to the Rhenish vinegar. Such and many more things, which I will not now divulge, may be done with spirit of salt.

And thus have I in some measure taught the use of the spirit of salt,

which I would not have you take as if I had revealed all things; for, brevities sake, as also some other reasons I have silently passed over many things. Neither do I know all things my self: but those things, which I do know, I have so far declared that others may from hence have hints of seeking further. He that would describe all, and every power and virtue thereof, had need to write a whole volumne, the which is not my purpose at this time to do, but may perhaps be done another time. There shall also be shewed in the second part of this book, some secrets which may be prepared by the help of this spirit: as how it may be dulcified to extract the tincture of gold, and of other metals, leaving a white body, which tincture is a medicine not to be slighted. Wherefore now seeing it is manifest how great things this spirit can do, every one will desire a good quantity for his houshold uses, especially seeing most excellent spirits may be made after an easy and short way.

How an acid spirit, or vinegar may be distilled out of all vegetables, as herbs, woods, roots, seeds, & etc.

First put a few living coals into the furnace, then put upon them the wood that is to be distilled, that it may be burnt: out of which, whilst it is burning goes forth the acid spirit thereof into the receiver, where being condensed it falls down into another receiver, resembling almost common vinegar in its smell, wherefore also it is called the VINEGAR OF WOODS.

And after this manner you may draw forth an acid spirit out of any

wood, or vegetable, and that in a great quantity without costs, because the wood to be distilled is put upon a very few living coals, and upon that another, for one kindles the other: and this spirit requires no more charges than of the wood to be distilled; which is a great difference betwixt this, and the common way of distilling, where besides retorts, is required another fire; and out of a great retort scarce a pound of spirit is drawn in the space of five or six hours, whereas in ours in the space of one day, and that without any cost or labour may be extracted twenty or thirty pound, because the wood is immediately to be cast into the fire to be distilled, and that not in pieces, but whole. Now this spirit (being rectified) may commodiously be used in divers Chymical operations, for it doth easily dissolve animal stones, as the eyes of Crabs, the stones of Perches, and Carps, Corals also and Pearl, & etc. as doth vinegar of wine. By means thereof also are dissolved the glasses of metals, as of tin, lead, Antimony, and are extracted, and reduced into sweet oils.

This vinegar being taken inwardly of it self doth cause sweat wonderfully, wherefore it is good in many diseases, especially that which is made of Oak, Box, Guaiacum, Juniper, and other heavy woods; for by how much the heaver the woods are, by so much more acid spirit do they yield.

Being used outwardly it mundifies ulcers, wounds, consolidates, extinguisheth, and mitigates inflammations caused by fire, cures the scab, but especially the decoction being made of its own wood in the same. Being mixed with warm water for a bath for the lower part of the body,

it cures occult diseases of women; as also malignant ulcers of the legs.

This spirit therefore deserves some place in the shops, i.e. it is unjustly rejected in the shops, seeing it is easily to be made. In distilling of wormwood and other vegetables, there remains in the bottom of the furnace ashes, which being extracted with warm water yields a salt by decoction, which being again dissolved in its own spirit or vinegar, doth by the evaporation of the flegm, being placed in a cold place pass into Crystalline salt, which is of a pleasant taste, not like unto a LIXIVIUM, nor unto other salts that are dissolved in the air. This salt is also more efficacious (being reduced into Crystals by its proper Spirit) than that which is made by the help of sulphur, or Aqua fortis, and oil of Vitriol, and otherways which Chymists, and Apothecaries use.

The spirit of paper and linen cloth.

Pieces of linen cloth gathered, and got from seamsters being cast into the furnace upon living coals, yield a most acid spirit, which tingeth the nails, skin, & hair with a yellow colour, restores members destroyed with cold, is good in a gangrene, and erysipelas if linen clothes wet in the same be applied thereto, etc. The same doth spirit made of paper, viz. of the pieces thereof.

The spirit of Silk.

After the same manner is there a spirit made of pieces of silk, which is not so sharp as that which is made of linen and paper, neither doth it tinge the skin, but is most excellent in wounds as well old as green, and it makes the Skin beautiful.

The spirit of mans hair, and of other animals, as also of horns.

Out of horns also, and hair is made a spirit, but most fetid, wherefore it is not so useful, although otherwise it may serve for divers arts: being rectified it comes clear and to be of the odour of the spirit of urine. It dissolves common sulphur, and yields a water, that cures the scab in a very short time.

Now for this business, shreds of wollen cloth undyed may serve, being cast in a good quantity into the furnace. Pieces of cloth dipt in this spirit and hanged in vineyards, and fields, keep out Deer and Swine from coming in, because they are afraid of the smell of that spirit, as of an huntsman that waits to catch them.

The spirit of vinegar, honey, and sugar.

He that will distil liquid things, must cast red hot coals into them, as for example into vinegar in the furnace, or if it be honey, or sugar, let them first be dissolved in water, by which means they will

be drank up by the coals, which being therewith impregnated, must afterwards at several times be cast into the furnace, and be burnt; and whilst the coals are burning, that which is incombustible comes forth. And by this means you may distil liquid things in a great quantity.

Vinegar which is distilled this way, is of the same nature, as that which is distilled in close vessels.

But honey and sugar that are distilled after this manner, are a little altered, and acquire other vertues: but how they shall be distilled without the loss of their volatile spirit shall be taught in the second part. Also after this manner may all liquid things being drunk up by living coals be distilled.

Of the use of distilled vinegar many things might be said, but because the Books of all the Chymists treat abundantly thereof, I account it needless to repeat what they have writ. Yet this is worth taking notice of, that the sharpest vinegar hath a great affinity with some metals, which may be extracted by the help thereof; also dissolved, and reduced into medicaments; yea; many things may be made with the help thereof, as the books of all the Chymists testify.

But there is yet another vinegar, of which there is often mention made in the books of Philosophers, by the help whereof, many wonderful things are performed in the solution of metals, the name whereof the ancients have been silent in; of which I do not here treat, because it cannot be made by this furnace; but I shall treat of it in another part; yet so that I incur not the Curse of the Philosophers.

How spirits may be made of the salt of tartar, vitriolated tartar, the spirit of salt tartarizated, and of other such like fixed salts.

As many Chymists as there hath been, almost all have been of the opinion that a spirit cannot be drawn out of salt of tartar, and other fixed salts. For experience hath taught that by retort little or no spirit can be drawn from thence, as I had often experience of before the invention of this furnace: the reason of which thing was the admixtion of sand, earth, bole, powder of tiles, & etc. for to prevent the flowing of the salt of tartar, being by this means dispersed. But this is done through the ignorance of Authors, who have been ignorant of the properties of salt of tartar. For a stony matter, as sand, flint, bole, & etc. being mixed with salt of tartar, feeling the heat of the fire, and being made red with the same, is joined to it most closely, so as no spirit can be drawn from thence, but become a most hard stone. For sand, and such things that are like to it, have so great an affinity with the salt of tartar, that being once united can scarce ever be separated. Yet it may be made by Art by the addition of pure sand, or flint, because the whole substance of the salt of tartar may be turned into a spirit in the space of one or two hours, as shall be taught in the second part, and it excells all other medicaments in virtue, in curing the stone, and gout. And if by the regiment of art there be left any CAPUT MORTUUM in the distillation, it hath, being dissolved in the air, a power to putrify metals being prepared, and mixed with it, in the space of few hours, so as to make them become black, and to

grow up like trees with their roots, trunks, and boughs, which by how much the longer they are so left, become the better. Of calx of lead being subtilized, and of salt of tartar may be made a SPIRITUS GRADATORINS of wonderful virtues as well in Medicine as Alchemy. There is made of the CAPUT MORTUUM, PER DELIQUIUM a green liquor which doth wonderful things; whence it is proved, THAT SATURN IS NOT THE LOWEST OF THE PLANETS; enough to the wise.

And so is the Lac Virginis, and the Philosophical Sanguis Draconis made.

Sometimes there is found a certain earth, or bole, which hath no affinity with tartar, which being mixed with salt of tartar yields a spirit, but very little. But in this furnace may all fixed things be elevated, because the species not being included in it, but dispersed, being cast upon the fire, are from the fire elevated through the aire, and are being refregerated in the recipients again condensed, which cannot be well done by a close retort.

He that therefore that will make the spirit of the salt of tartar, need do nothing else than cast the calcined tartar into the fire, and it will wholly come over in a spirit; but then there are required glass receipients, because those that are earthen cannot retain it.

And this is the way whereby most fixed salts are distilled into a spirit by the first furnace. In the second furnace (viz. in the furnace of the second part) it may be done better, and easier, where together with the preparation shall be taught the use thereof.

The spirits, flowers, and salts of Minerals and stones.

By this way spirits may be raised from any mineral or stone, and that without the addition of any other thing: yet so as that the minerals, and stones, as flints, Crystals, talk, LAPIS CALAMINARIS, Marcasite, Antimony, being ground with an Iron ladle cast upon the coals, and there will arise together with a certain acid spirit, some salt and flowers, which are to be washed off from the recipients, and filtred, and the flowers will remain in CHARTA BIBULA, or filter for the water together with the spirit, and the salt passeth through the filter, all which may be separated, rectified and be kept close by themselves for their proper uses. Now this you must know, that you must choose such minerals which have not been touched by the fire, if you desire to have their spirit.

How minerals, and metals may be reduced into flowers, and of their virtues.

Hitherto the flowers of metals, and minerals have not been in use, excepting the flowers of Antimony, and sulphur, which are easily sublimed: for Chymists have not dared to attempt the sublimation of other metals, and fixed minerals, being content with the solution of them with Aqua fortis, and corrosive waters, precipitating them with the liquor of salt of tartar, and afterwards edulcorating, and drying them; and being so prepared they have called them their flowers: but by Flowers I understand the same matter which is by the help of fire without the

addition of any thing sublimed, and turned into a most subtile powder, not to be perceived by the teeth or eyes, which indeed is (in my judgement) to be accounted for the true flowers; when as the flowers which others make are more corporeal, and cannot be so well edulcorated, but retain some saltness in them, as may be perceived by the increase of their weight, and therefore hurtful to the eyes, and other parts.

But our flowers being by the force of the fire sublimed by themselves, are not only without saltness, but are also so subtile that being taken inwardly presently operate, and put forth their powers, viz. according to the pleasure of the Physican. Neither is their preparation so costly as the others.

Metals also, and minerals are maturated, and amended in their sublimation, that they may be the more safely taken; but in other preparations they are rather destroyed, and corrupted, as experience witnesseth: Now how these kind of flowers are to be made I shall now teach, and indeed of each metal by it self, whereby the artist in the preparation cannot err, and first thus.

Of Gold and Silver.

Gold and silver can hardly be brought into flowers, because many are of opinion, that nothing comes from them in the fire, especially from Gold, although it should be left there for ever: which although it be true, viz. that nothing comes from gold in the fire, although it should remain there a long time, and from silver but a little except

it have copper or any other metal mixed, which yet vapours away but by little and little.

Which I say although it be so, yet they being broken and subtilized and scattered upon coals, and so dispersed, may by the force of the fire and help of the air be sublimed, and reduced into flowers.

Now seeing the aforesaid metals are dear, and of a great price, and the furnace with its recipients large, I would not that any one should cast them in, especially gold, because he cannot recover them all; but I shall to those that desire to make these flowers shew another way in the second part, whereby they may make them without the loss of the metal; to which I refer the reader. For this furnace serves for the subliming of metals, and minerals, which are not so precious, the loosing of which, whereof is not so much regarded. And thus much is said to shew that gold, silver, although fixed, may be sublimed. Now other metals may more easily be sublimed, yet one more easily than another, neither need they any other preparation but beating small, before they be cast into the fire.

Flowers of Iron and Copper.

Take of the filings of Iron or Copper, as much as you please, cast them with an Iron laddle upon burning coals, viz. scatteringly, and there will arise from Iron a red vapour, but from Copper a green, and will be sublimed into the sublimatory vessels. As the fire abates it must be renewed with fresh coals, and the casting in of these filings

be continued, until you have got a sufficient quantity of flowers, and then you may let all cool. This being done take off the sublimatory vessels, take out the flowers, and keep them, for they are very good if they be mixed with unguents, and emplasters: and being used inwardly cause vomiting; therefore they are better in Chirurgery, where scarce any thing is to be compared to them. Copper being dissolved in spirit of salt, and precipitated with oil of vitriol, edulcorated, dryed, and sublimed, yields flowers, which being in the air resolved into a green balsom, is most useful in wounds, and old putrid ulcers, and is a most precious treasure.

Flowers of Lead and Tin.

You need not reduce these metals into small crums, it is sufficient if they be cast in piece by piece, but you must under the grate put an earthen platter glazed, and filled with water, to gather that which flows down melted, which is to be taken out, and cast again into the fire, and this so often until all the metal be turned into flowers, which afterwards are again, the vessels being cold, to be taken out, as hath been said of the flowers of MARS and VENUS. And these flowers are most excellent being mixed with plasters and ointments in old and green wounds, for they have a greater power to dry, than metals calcined, as experience can testifie.

Of Mercury.

This is easily reduced into flowers, because it is very volatile, but not for the aforesaid reason, because it leaps in the fire, and seeks to descend. And if you desire to have the flowers thereof, mix it first with sulphur that you may pulverize it, and cast into a red hot crucible set in the furnace, a little quick Mercury, viz. by times with a ladle, presently it will fly out, and some part thereof will be resolved into an acid water, which is to be preferred before the flowers in my judgement; but the rest of the Mercury drops into the receiver. But here are required glass vessels, because the aforesaid water is lost in earthen. And this water without doubt doth something in Alchymy: It is also good being applyed outwardly, in the scab, and venereal ulcers.

The flowers of Zink.

It is a wonderful metal, and is found in the spagyrical anatomy to be meer sulphur, golden, and immature. Being put upon burning coals doth suddenly fly away wholly; it is inflamed also, and partly burns like common sulphur, with a flame of another colour, viz. golden purple: and yields most gallent white, and light flowers.

The use.

Being given from 4, 5, 6, grains to 12, they provoke sweat wonderfully,

and sometimes vomit, and stools, according to the offending matter. The virtues thereof being externally used are also wonderful, for there are not found better flowers, for they do not only speedily consolidate fresh wounds, but also old, such as always drop water, in which cases they excell all other medicaments. For they are of such dryness, which hath joined with it a consolidating virtue, as that they do even things incredible. They may be used divers ways, as to be strewed by themselves, putting over them a stiptick plaster, or being brought into an unguent with honey to be put into wounds; which unguents in deep wounds may be boiled to a hardness for the making of small suppositories, which are to be put into the wounds, which must afterwards be covered with some plaster, and preserved from the air. Being applyed after this manner they cure fundamentally, being mixed with plaisters also they do wonderful things.

If they be mixed with rose, or rain-water, so as to be united together, and afterwards some of this mixture be sometimes every day dropt into red eyes that water, yielding not to other ophthalmicks, do restore, and heal them.

These flowers being taken up in lint and strewed upon those places of Children that are galled with their urine (those places being first washed with water) heal them quickly. They heal also quickly any excoriation which is contracted by lying long in any sickness, and is very painful, if they be strewed thereon.

These flowers also are more easily dissolved in corrosive waters, than other metals, and minerals, neither doth the spirit leave them

in the fire, but an insipid phlegm only distils off, leaving a fat and thick oil, as is above said concerning the LAPIS CALAMINARIS, being ordained for the same uses, but more efficacious then that. Which spirit if it be by the violence of fire driven forth, is of so great strength, that it can scarce be kept. And not only spirit of salt, but also Aqua fortis, and Regia may after this manner be exalted, so as to be able to do wonderful things in the separation of metals; but here is not the place for these things, they shall be spoken of in the fourth part.

But you need not make flowers for this work, because crude Zink doth the same, although the flowers do it something better: whence it appears that a metal contracts a higher degree of dryness in sublimation.

Flowers of Antimony.

There is no difficulty to make the flowers of Antimony, for Chymists have a long time made use of them, and because their preparation was tedious, they were not sold at a low rate.

Wherefore there was no body willing to attempt any thing else in them, because they were used only for vomiting; the dose whereof was from 1. 2. 3. 4. grains to 8. and 10. in effects of the stomack and of the head, as also in fevers, plague, morbus gallicus, & etc. Neither is it a wonder if Chymists tried no further in them, for we see that there are found men in these days who perswade themselves that there is nothing which was not found out by the learned ancients, can be

found out in these days, and if there were any thing to be yet found out it was found out already by them. But this opinion truly is very foolish, as if God gave all things to the ancients, and reserved nothing for them that should come after. Neither indeed do they understand nature in their operations, which works incessantly, and is not wearied in her labours, & etc. But however it is manifest that God hath revealed things in these times which were hid from them of old, and he will not cease to do the same even to the end of the world.

But to return to our purpose again, which is to shew an easier way of making the flowers of Antimony, whereby a greater quantity may be had, as also that they may serve for other uses.

Take of crude Antimony powdered as much as you please, and first make your furnace red hot, then cast in at once a pound of Antimony, or thereabouts, viz. scatteringly upon the coals; and presently it will flow, & being mixed with the coals by the force of the fire will be sublimed through the air into the receivers like a cloud, which will there be coagulated into white flowers. Note, that when the first coals are burnt up, more must be put in to continue the sublimation, and those must be first kindled before they are put in, lest the flowers be by the dust of the coals arising together with them discoloured, and contract thence a gray colour: but it matters not if you will not use them by themselves to provoke vomiting, because there is no danger thereby, for that colour comes only from the smoke of the coals, wherefore you need not be afraid of them. But let him that dislikes this colour, first kindle the coals before he put them into the furnace, and then

he shall have white flowers. Also you must not shut the middle hole through which the coals, and Antimony are cast in, that thereby the fire may burn the more freely: for else the flowers of the superior pots will be yellow and red, by reason of the sulphur of the Antimony, which is sublimed higher than the regulus. Now you may by this way make a pound of the flowers with 3, 4, or 5, pounds of coals. It is a little that goes away from the Antimony, viz. the combustible sulphur, which is burnt, all the rest going into flowers. You must have a care to provide a sufficient quantity of subliming pots by reason that a large space is required for the sublimation of the flowers.

The flowers that are prepared after this way, are sold at a lower rate, so that one pound thereof is cheaper, than half an ounce of those that are made after the other manner. Also they are safer, as being made with an open free flame of the fire, for they do not provoke vomit so vehemently; moreover the flowers of the lower pots are not vomiting, but diaphoretical, as if they had been prepared with nitre, for thus they are corrected by the fire: And by this way at one and the same operation divers flowers of divers operations may be made, for the flowers of the lower pots are diaphoretical, of the middle a little vomitive, but of the uppermost vehemently vomitive. For by how much the more they have endured the fire, by so much the better are they corrected; from whence the diversity of their power proceeds. Wherefore each of them are to be kept by themselves, and the uppermost for plasters or butter, or oil, and those to be made sweet or corrosive thereby: The middle for purging, and vomiting, but the lowermost for sweat, being

more excellent than BEZOARDICUM MINERALE, or ANTIMONIUM DIAPHORETICUM made with nitre. Truly I do not believe that there is an easier way of making vomiting, and diaphoretical flowers, than ours. Now for the use of them, you must know that those that are vomitive are to be administered to those that are strong, and accustomed to vomit: but to Children, and old Men with discretion, as hath been said above of the butter of Antimony: but those that are diaphoretical may be given without danger to Old and Young, to those that are in health, and to the sick; in any affliction that requires sweat; as in the Plague, Morbus Gallicus, Scorbute, Leprosy, Fevers, & etc. The Dose of them is from 3, 6, 9, 12, grains to 24. with proper vehicles to sweat in the bed; for they do expel as well by sweat, as by urine, all evil humours. And because they that are vomitive are in a greater quantity than those that are diaphoretical, and not so necessary as these, and there may be many more doses out of them; it is necessary to shew you how those that are vomitive may be turned into diaphoretical; and that may be done three ways; the two former, whereof I have before shewed concerning the butter of Antimony made of flowers with spirit of salt, the third is this, viz. put the flowers in a crucible covered (without luting) lest any thing fall into it, so set them by themselves in a gentle fire, that they melt not, but be made only darkly glow for the space of some hours; then let them cool, for they are become fixed and diaphoretical. Although they had before contracted some yellowness or ash-colour, yet by this means they are made white, fixed, and diaphoretical. Also these flowers, are used in stiptick plasters by reason of their dry nature, with which they are endued.

Also they are melted into a yellow transparent glass, neither is there taught an easier way of reducing Antimony by it self into a yellow transparent glass, where crude Antimony is first sublimed, and being sublimed is melted into glass.

This sublimation serves instead of calcination, by the help whereof 20 pound are more easily sublimed, than by the help of the other one pound is brought into calx.

Neither is there here any danger of the ascending fumes, because when the Antimony is cast into the fire you may be gone, which is safe, and easy calcination, whereas the common way requires the continual presence of the artist stirring the matter, who also takes out the matter when it is once grown together, and grinds it again; by which means he hath much to do, before the matter come to a whiteness; but by our way, the matter is at the first time made sufficiently white, and more than by that common way of calcination and agitation. I suppose therefore that I have shewed to him that will make glass of Antimony, the best, and hitherto unknown way; which being taught, I hope there is no man will hereafter like a fool go that tedious way of the Ancients, but rather follow my steps. For by this way may any Physican, most easily be able to prepare for himself vomitive and diaphoretical flowers, and also glass of Antimony PER SE.

Of those Flowers may be made oils both sweet and corrosive, and other medicaments, as hath been above said of the spirit of salt, and shall afterwards be spoken in the Second Part.

Let him that will make Flowers of the Regulus, fairer than those

which are made of crude Antimony, cast it being powdered into the fire, and in all things proceed as hath been said, and he shall have them, & etc. for they are easily sublimed. Now, how the regulus is to be made after a compendious manner, you shall find in the Fourth Part. The scoriae also are sublimed, so as nothing is lost. But he that will make Flowers that shall be dissolved in the air into a liquor must add some calcined tartar, or some other fixt vegetable salt, and he shall have Flowers that will be dissolved in any liquor: but he that will make red Flowers as well those that are diaphoretical, as those that are purging, must mix iron, and he shall have Flowers like to Cinnabar: Let him that desires green, mix copper, if purple, LAPIS CALAMINARIS.

And thus out of any mineral may be made Flowers whether it be fixed, or volatile; for it is forced to fly on high being cast into the fire. And these may be used diversly in Chyrurgery, in plasters and unguents; for they dry, and astring potently, especially those that are made of LAPIS CALAMINARIS. Neither are they to be slighted that are made of the golden, and silver marcasite. Those that are made of arsenick & auripigmentum, are poisionus, but are useful for Painters. Arsenic & auripigmentum being calcined with nitre, and then sublimed, yield Flowers that are safely to be taken inwardly, expelling all poisons by sweat and stool: For they are corrected two ways, viz. first by the nitre, secondly by the fire in the subliming: they are not therefore to be feared, because that Arsenic was poisionus before the preparation thereof. For by how much the greater poison it was before preparation, so much the greater medicine afterwards.

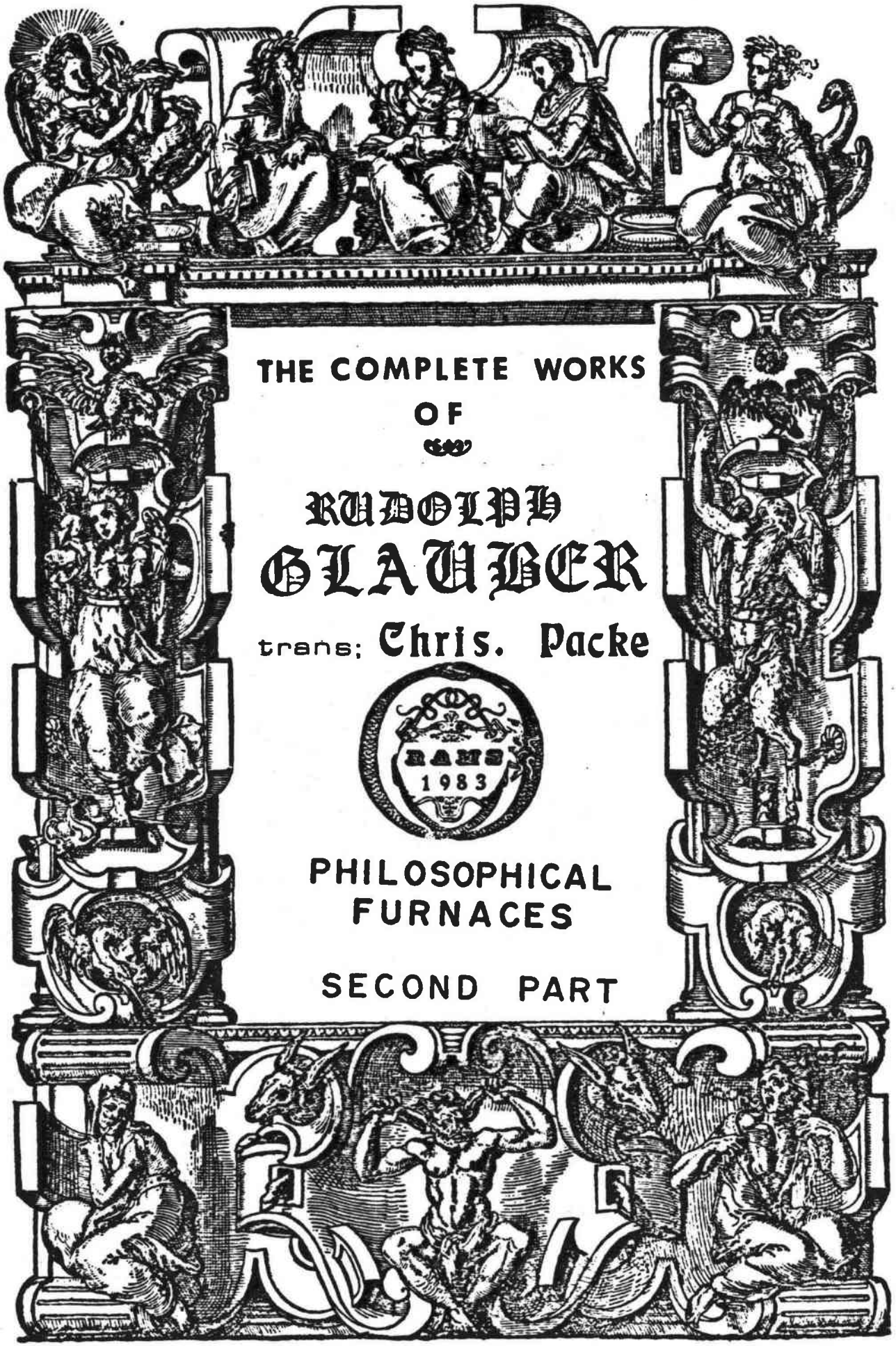
The Flowers of sulphur are taught in the Second Part, although they may also be made by this furnace, viz. the natures and properties thereof being known by an expert Artist, or otherwise it is burnt.

So also stones being prepared are brought into Flowers, and many other things, of which we need not say any thing, only let him that pleaseth make tryal thereof.

And now I suppose I have made plain, and shewed you clearly how distillation is to be made in this our first furnace; wherefore I will now end. He therefore that understands and knows the fabrick of the furnace (which he may understand by the delineation thereof) and the use thereof, will not deny but that I have done a good work, and will not disapprove of my labour.

And this is the best way of distilling, and subliming incombustible things. In the Second Part you shall find another furnace in which are distilled combustible things, as also most subtil spirits, & etc. The first furnace serves also for other uses, as the separation of metals; of the pure from the impure; for the making of the central salt, and of the HUMIDUM RADICALE of them all. But because it cannot be done after the aforesaid way, by which things, are cast into the fire to get their flowers, and spirits, but after a certain secret Philosophical manner, by the power of a certain secret fire, hitherto concealed by the Philosophers (neither shall I prostrate that secret before all): It is sufficient that I have given a hint of it for further enquiry, and have shewed the way to other things.

Finis.



THE COMPLETE WORKS
OF

RUDOLPH GLAUBER

trans: Chris. Packe

PHILOSOPHICAL FURNACES

SECOND PART

The
Second Part
of
PHILOSOPHICAL FURNACES:

Wherein is Described the Nature of the Second Furnace; by the help whereof, all volatile, subtile, and combustible things may be distilled; whether they be Vegetables, Animals, or Minerals, and that after an unknown and very compendious Way; whereby nothing is lost, but even the most subtile spirits may be caught and preserved, which else without the means of this Furnace is impossible to be done by Retorts or other Distilling Instruments.

Of the Structure of the Second Furnace.

The Distilling Vessel must be made of Iron, or good earth, such as can abide in the fire (whereof in the fifth Part of this Book it shall be taught) and you may make it as big or as little as you please, according as your occasion shall require. That of iron is most fit to be used for such spirits, as are not very sharp or corroding, else they would corrode the vessel: but that of earth may be used for such things, as shew their activity upon the Iron, and do make it to melt, as sulphur, Antimony and the like; and therefore you ought to have two such vessels, viz. one of iron, and one of earth, to the end that for both sorts of materials (corrosive or not corrosive) you may have proper vessels, and

fit furnaces for their distilling, and that they may not be spoiled by things contrary and hurtful to them. The shape of the vessel is shewed by the foregoing figure, viz. the lower part of it somewhat wider than the upper part, and twice as high as wide; at the top having a hollow space between the two edges or brims, whereunto the edge of the lid may close and enter in an inch deep. The lid must have a ring or handle, by which it may be taken off and put on again with a pair of tongs. The lid must have a deep edge answering to the hollow space aforesaid. The lower part must have three knobs or shoulders thereby to rest upon the wall of the furnace; the form whereof is no other, than that of a common distilling furnace with a sand Copple; as the figure of it doth shew: but if you will not have the furnace, then it needeth no knobs or shoulders, if so be the distilling vessel be flat at the bottom, or else have legs, for to stand upon them: Beneath the edge of the vessel there comes forth a spout or pipe of a span in length, and one or two inches wide, and somewhat narrower before than behind, through which the spirits are conveyed into the Receiver.

See the fourth Figure before the first part, wherein the Letter A, represents the Furnace, with the Iron distilling Vessel fastened into it, whereunto a Receiver is applied.

B. The Distiller, with his left hand taking off the lid, and with his right hand casting in his prepared matter.

C. The external form of the distilling vessel.

D. The internal form of the vessel.

E. Another distilling vessel, which is not fastened to a furnace, but only standeth upon Coals.

The way or manner to perform the Distillation.

When you intend to distil, then first make a fire in the furnace, that the distilling vessel come to be very hot. But if it be not fastened to the Furnace, then set it upon a grate, and lay some stones about it, and coals between, and so let it grow hot, and lay melted lead in the space between the two edges or brims, to the end, that the lid, when it is put on, may close exactly, so that no spirit can get through. This done, take a little of the matter you intend to distil, and cast it in, and presently put on the lid, and there will be no other passage left but through the pipe, to which there must be applyed and luted a very big receiver. As soon as the species cast in come to be warm, they let go their spirit, which doth come forth into the receiver: and because there was but little of the matter cast in, it hath no power to force through the lute, or to break the receiver, but must settle it self. This done, cast in a little more of your matter, cover it and let it go till the spirit be settled: continue this proceeding so long, until you have spirits enough: but take heed, that you cast in no more at once, than the receiver is able to bear, else it will break. And when your vessel is full, the distillation not being ended, then take off the lid, and with an iron ladle take out the Caput Mortuum; and so began again to cast in, and still but a little at a time, and continue this as long as you please.

Thus in one day you may distil more in a small vessel, than otherways you could do in a great retort; and you need not fear the least

loss of the subtile spirit, nor the breaking of the receiver by the abundance of the spirits: and you may cease or leave off your distilling, and begin it again when you list: also the fire cannot be made too strong, so that it might cause any hurt or damage; but by this way you may make the most subtile spirits, which is impossible to be done by any Retort. But if you distil a subtil spirit by a Retort, as of Tartar, Harts-horn, Sal armoniack, or the like, you cannot do it without prejudice (though there were but half a pound of the matter in it) the subtilest spirits coming forth with force, seek to penetrate through the lute, if that be not good, but if that be good, so that the spirits cannot pass through it, then they break the receiver, because it cannot possibly hold such a quantity of subtile spirits at once. For when they are coming, they come so plentifully, and with such a force, that the receiver cannot contain them, and so of necessity must fly asunder, or must pass through the lutum; All which is not to be feared here, because there is but little cast in at once, which cannot yield such a quantity of spirits, as to force the receiver to break: And when there comes forth no more spirits, and the former is settled, then more of the matter is to be cast in; and this is to be continued so long, until you have spirits enough. Afterward take off the receiver, and put the spirit into such a Glass (as in the fifth part of this book, amongst the Manuals, shall be discovered) wherein it may be kept safely without wasting or evaporating.

In this manner all things, Vegetable, Animal, or Mineral, may be distilled in this Furnace, and much better, than by means of a Retort:

especially such subtile spirits (as by the other way of distilling cannot be saved, but pass through the lutum) are got by this our way; and they are much better than those heavy oils, which commonly are taken for spirits, but are none, being only corrosive waters. For the nature and condition of a spirit is to be volatile, penetrating and subtile, and such are not those spirits of salt, Vitriol, Allome and Nitre, which are used in Apothecary shops, they being but heavy oils, which even in a warm place do not evaporate or exhale.

But a true spirit, fit for Medicinal use, must rise or ascend before the phlegm, and not after; for whatsoever is heaver than flegm is no volatile spirit, but a heavy spirit or (rather called) a sower heavy oil. And it is seen by experience, that the Apothecarys spirit of vitriol will cure no falling sickness, which virtue is ascribed to that spirit, and indeed justly: for the true spirit of vitriol performeth that cure out of hand. Likewise their spirit of Tartar (as they call it) is no spirit, but only a stinking phlegm or vinegar.

The way to make such true spirits, I will now shew, because much good may be done by them in all manner of Diseases. And this way of distilling serveth only for those which seek after good Medicines: but others which care not whether their medicines be well prepared or no, need not take so much pains as to build such a furnace, and to make their spirits themselves. For at any time they can buy for a small matter, a good quantity of dead and fruitless spirits at the common sellers and Apothecaries.

Hence it is no marvel, that now adays so little good is done by

Chymical medicaments, which of right should far out-strip all the Galenical in goodness and virtue. But alas! it is come to that pass now, that a true Chymist, and honest Son of HERMES, is forced almost to blush, when he heareth men talk of Chymical medicines, because they do no such miracles, as are ascribed unto them. Which infamy is occasioned by none more, than by careless Physicans, which though they make use of Chymical medicines, (because they would fain be esteemed to know more than others) yet they do take greater care for their kitchen, than for the welfare of their Patients; and so buying ill-prepared Medicines of unskillful stillers, and withal using them undiscreetly (whereby they many times do more hurt than good to the sick) they lay such foul aspertions upon the noble Art of Chymistry.

But an industrious and accurate Physican is not ashamed to make his Medicines himself, if it be possible, or at least to have them made by good and well exercised Artists: whereupon he may better rely, and get more credit, than one that knoweth not whereof, nor how his Medicine which he doth administer to his patients is prepared. But such wicked and ignorant men will one day fall short of their answer before the Judgement of the righteous Samaritan.

How to make the Acid Oil and the volatile spirit of Vitriol.

Hitherto I have taught, how to distil in general, and to get the subtile spirits. There remaineth now to describe what Manuals or Preparations are fitting for every matter in particular; and first;

Of Vitriol.

To distil Vitriol, there needs no other preparation, but only that it be well viewed, and if there be any filth amongst it, that the same be carefully pickt out, lest being put together with the Vitriol into the distilling vessel, the spirit be corrupted thereby. But he that will go yet more exactly to work, may dissolve it in fair water, then filtrate it, and then evaporate the water from it till a skin appear at the top, and then set it in a cold place, and let it shoot again into Vitriol; and then you are sure that no impurity is left in it.

Now your vessel being made red hot, with an Iron ladle cast in one or two ounces of your Vitriol at once, put on the lid, and presently the spirits together with the phlegm will come over into the receiver, like unto a white cloud or mist; which being vanished, and the spirits partly settled, carry in more Vitriol, and continue this so long, until your vessel be full: Then uncover your vessel, and with a pair of tongs or an iron ladle take out the Caput Mortuum, and cast more in; and continue this procedure as long as you please, still emptying the vessel when it is filled, and then casting in more matter, and so proceeding until you conceive that you have got spirits enough. Then let the fire go out, and let the furnace cool; take off the receiver, and pour that which is come over into a retort, and set the retort in sand, and by a gentle fire distil the volatile spirit from the heavy oil; having first joined to the retort the receiver, which is to receive the volatile spirit, with a good lutum, such as is able to hold such subtile

spirits, the making whereof shall be taught in the fifth part of this Book, amongst the Manuals.

All the volatile spirit being come over, which you may know by the falling of bigger drops, then take off the receiver, and close it very well with wax, that the spirit may not make an escape; then apply another (without luting it) and so receive the phlegm by it self, and there will remain in the retort a black and heavy corrosive oil, which if you please, you may rectifie, forcing it over by a strong fire, and then it will be clear; if not, let all cool, then take out your Retort together with the black oil, and pour upon it the volatile spirit, which in the rectifying went over first, put the retort into the sand, and apply a receiver, and give it a very gentle fire, and the volatile spirit will come over alone, leaving its phlegm behind with the oil, which by reason of its dryness doth easily keep it. Thus the spirit being freed from all phlegm, is become as strong as a meer fire, and yet not corrosive. And if this spirit be not rectified from its own oil, it will not remain good, but there doth precipitate a red powder after it hath stood for some time , and the spirit loseth all its virtue, insomuch that it is not to be discerned from ordinary water, which does not happen when it is rectified. The reason of this precipitation is no other than the weakness of the spirit, which is accompanied with too much water, and therefore not strong enough for to keep its sulphur, but must let it fall; but after it is rectified by its own oil, it can keep its sulphur well enough, because then it is freed from its superfluous moisture. However the red powder is not to be thrown away, but ought

to be kept carefully; because it is of no less virtue than the spirit it self. And it is nothing else but a Volatile sulphur of Vitriol. It hath wonderful virtues, some of which shall be related.

The Use and Dose of the Narcotick Sulphur of Vitriol.

Of this sulphur 1, 2, 3, 4, or more grains (according to the condition of the patient) given at once mitigates all pains, causeth quiet sleep; not after the manner of Opium, Henbane, and other like medicines, which by stupifying and benumbing cause sleep, but it performeth its operation very gently and safely, without any danger at all, and great Diseases may be cured by the help thereof. PARACELSUS held it in high esteem, as you may see, where he doth write of SULPHUR EMBRYONATUM.

Of the Use and Virtue of the volatile spirit of Vitriol.

This sulphurous Volatile spirit of Vitriol, is of, a very subtile and penetrating quality, and of a wonderful operation; for some drops thereof being taken and sweated upon, doth penetrate the whole body, openeth all obstructions, consumeth those things that are amiss in the body, even as fire. It is an excellent medicine in the falling sickness, in that kind of madness or rage which is called MANIA, in the Convulsion of the Mother, called SUFFOCATIO MATRICIS, in the Scurvy; in that other kind of madness which is called Melancholia Hypochondriaca; and other Diseases proceeding from Obstructions and Corruption of the

Blood: It is also good in the Plague, and all other Fevers: mingled with spirit of wine, and daily used, it doth wonders in all external accidents: Also in the Apoplexy, shrinking and other diseases of the Nerves, the distressed limb rubbed therewith, it doth penetrate to the very marrow in the bones; it doth warm and refresh the cold sinews, grown stiff: In the Cholick, besides the internal use, a little thereof in a clyster applyed, is a present help: Externally used in the Gout, by anointing the places therewith, asswageth the Pains, and taketh away all tumours and inflammations: It doth heal scabs, tetters and ringworms, above all other medicines; it cureth new wounds and old sores, as Fistulaes, Cancers, Wolves, and what name soever else they may have: It extinguisheth all inflammations, scaldings, the Gangrene, disspatcheth and consumeth the knobs and excrescencies of the skin. In a word, this spirit, which the wise men of old called SULPHUR PHILOSOPHORUM, doth act universally in all diseases, and its virtue cannot sufficiently be praised and expressed: And it is much to be admired, that so excellent a Medicine is no where to be found.

If it be mingled with Spring water, it doth make it pleasantly sowerish, and in taste and virtue like unto the natural sowre water of wells.

Also by this spirit, many diseases may be cured at home; so that you need not go to baths afar off, for to be rid of them.

Here I could set down a way, how such a spirit may be got in great abundance for the use of bathing, without distillation, whereby miraculous things may be done, but by reason of the ungratefulness of men, it shall be reserved for another time.

Of the virtue and use of the corrosive oil of Vitriol.

This oil is not much used in Physick, although it be found almost in every Apothecaries shop, which they use for to give a sowerish taste to their syrups and conserves. Mingled with spring water and given in hot diseases, it will extinguish the unnatural thirst, and cool the internal parts of the body. Externally it cleanseth all unclean sores, applyed with a feather; it separateth the bad from the good, and layeth a good foundation for the cure.

Also if it be rectified first, some metals may be dissolved with it and reduced into their Vitriols, especially Mars and Venus; but this is to be done by adding common water thereunto, else it will hardly lay hold on them. The way of doing it is thus.

How to make the Vitriol of Mars and Venus.

Take of your heavy oil, just as it came over, viz. together with its phelgm (but that the Volatile spirit be drawn off from it first) as much as you please, put it into a glass body together with plates of copper or iron, set it in warm sand, and let it boil until that oil will dissolve no more of the metal, then pour off the liquor, filter it through brown paper, and put it into a low gourd glass, and set it sand, and let the plegm evaporate until there appear a skin at the top, then let the fire go out, and the glass grow cool; then set it in a cold place, and within some days there, will shoot fair Crystals; if

of Iron, greenish; if of Copper, then something blueish; take them out and dry them upon filtering paper, the remaining liquor, which did not shoot into Vitriol, evaporate again in sand, and then let it shoot as before; continue this proceeding, until all the solution (or filtered liquor) be turned to Vitriol. This Vitriol is better and purer than the common; for it yieldeth a better Volatile spirit, and for that reason I did set down the way how to make it. There also may be made a good Vitriol of both these metals by the means of ordinary yellow brimstone; but because the making of it is more tedious, than of this here set down, I think it needless to describe its preparation in this place.

The way to make a fair blue Vitriol out of LUNA (that is, silver.)

Dissolve the shavings or filings of silver with rectifed oil of Vitriol, adding water thereunto, but not so much as to Iron or Copper: Or else, which is better, dissolve calcined silver, which hath been precipitated out of Aqua fortis either with Copper or salt water; the solution being ended pour it off and filtre it, and drop into it of spirit of urine or Sal armoniack, as long as it doth hiss, and almost all the silver will precipitate again out of the oil, and so there will fall a white powder to the bottom; This precipitated silver together with the liquor pour into a phial-glass, set it to boil in sand for twenty four hours, and the liquor will dissolve again almost all the precipitated silver-calx and become blue thereby. Then pour off the solution (or liquor) and filter it through brown paper, and abatract

the moisture till a skin arise at the top; then in a cold place let it shoot to Vitriol. With the remaining liquor proceed further, as above in the preparation of the Vitriol of Iron and Copper hath been taught.

By this way you will get an excellent Vitriol out of silver, which from 4, 5, 6, to 10 grains used only of it self, will be a good purge, especially in diseases of the brain.

If you have a good quantity of it, that you may distill a spirit thereof, you will get not only an acid (or sower) but also a volatile spirit, which in the infirmities of the brain is most excellent; that which in the distilling remains behind, may be reduced again into a body, so that you lose nothing of the silver, save only that which is turned into spirit.

Moreover, the acid (or sower) oil of common Vitriol, doth precipitate all metals and stones of beasts or fishes; also pearls and corals, they being first dissolved in spirit of salt or of Nitre, and maketh fair light powders of them (which by the Apothecaries are called Magisteries) much fairer than by precipitation with salt of Tartar is done, especially of corals and pearls, such a fair glistering and delicate powder is made; and likewise also of mother of pearl, and other shells of snailes, that it giveth as fair a gloss to them, as the fairest oriental pearls have; which way hath not been made common hitherto, but being known only to few, hath been kept very secret by them, as a singular Art. Such Magisteries commonly were precipitated out of vinegar only by salt of Tartar, which for lightness, whiteness and fair gloss

are not comparable at all to ours: But if instead of the oil of Vitriol you take oil of sulphur, then these powders will be fairer than when they are done by the oil of Vitriol, in so much, that they may be used for painting for a black skin.

Having made mention of Magisteries, I cannot forbear to discover the great abuse and error, which is committed in the preparing of them.

PARACELSUS in his Archidoxes teacheth to make Magisteries, which he calleth extracted Magisteries: but some of his disciples teach to make precipitated Magisteries which are different from the former. PARACELSUS is clean of another opinion in the preparing of his Magisteries, than others in the making of theirs: doubtless PARACELSUS his Magisteries were good cordial living medicines, whereas the other are but dead carkases, and although they be never so fair, white and glistering, yet in effect they prove but a gross earthly substance, destitute of virtue.

I do not deny, but that good medicines may be extracted out of pearls and corals, for I my self also do describe the preparations of some of them; but not at all after such a way as theirs is. For what good or exalting can be expected by such a preparation, where a stony matter is dissolved in corrosive waters, and then precipitated into stone again? Can its virtue be increased thereby? surely no, but rather it is diminished, and made much the worse thereby. For it is well known, that the corrosive spirits (no less than fire) do burn some certain things; for not all things are made better by fire or corrosives, but most of them are absolutely spoiled by them. Some perchance will say, that

such preparations of Magisteries are only for to be reduced into a finer powder, that so much the sooner they may perform their operation. To which I answer, that pearls, corals, and other things of the like nature, if they be once dissolved by corrosive waters, and then precipitated and edulcorated, never or hardly can be dissolved again by acid spirits. Whence it is evident that by such preparations they are not opened or made better, but rather closed or made worse. And we see also by daily experience that those Magisteries do not those effects, which are ascribed unto them. By which it appeareth clearly, that to the Archeus of the stomach they are much less grateful than the crude unprepared corals and pearls; whose tender essence being not burnt up by corrosives, do oftentimes produce good effects. For our Ancestors have ascribed unto corals and pearls, that they purifie the impure and corrupt blood in the whole body, that they expel Melancholly and sadness, comforting the heart of man, and making it merry, which also they effectually perform: whereas the Magisteries do not. And this is the reason, why unprepared corals, pearls and stones of fishes have more effect, than the burnt Magisteries. For it is manifest and well known, that the abovesaid diseases for the most part do proceed from obstructions of the spleen, which obstructions are nothing else, but a tartarous juice or a sower flegme which hath possessed and filled up the entrals, and coagulated it self within them. By which obstruction not only head-ache, giddiness, panting of the heart, trembling of the limbs, a spontaneous lassitude, vomits, unnatural hunger; also, loathing of victuals; then hot flushing fits, and many more strange symptoms are caused; but also

a most hurtful rottenness and corruption is introduced into the whole mass of blood, from whence the leprosie, scurvey, and other loathsome or abominable scabs do spring.

Of which evil the only cause (as hath been said) is a crude acid Tartar, from which so many great diseases do rise.

This to be so may easily be proved; for it is notorious, that melancholick folks, hypocondriaques, and others do often cast up a great quantity of acid humour, which is so sharp that no vinegar is camparable to it, and doth set their teeth on such an edge, as if they had eaten unripe fruit.

What remedy now? take away the cause and the disease is taken away. If you could take away the peccant matter by purgings, it would be well, but it remaineth obstinate and will not yield to them. By vomit it may be diminished in some measure. But because that not every one can abide vomiting, it is therefore no wisdom to turn evil into worse. Shall, then this tartar be killed and destroyed by contraries, which indeed in some sort may be effected; as when you use vegetables or animals, whose virtue consisteth in a volatile salt: such are all species or sorts of cresses, Mustard-seed, horse-radish, scurvy grass, also the spirit of Tartar, or Harts-horn, and of urine and the like, which by reason of their penetrating faculty pass through all the body, finding out the Tartar thereof, destroying the same, as being contrary unto it; and in this combat two contrary natures is kindled, a great burning heat, whereby the whole body is throughly heated and brought to sweating; and whensoever by these contraries a sweating is caused, there is

always mortified some of this hurtful Tartar. But because that of that acid humor but a little at a time can be mortified and edulcorated by contrary volatile spirits, and that therefore it would be required to use them often, for to kill and expell all the Tartar; and because also (as hath been mentioned before) a strong sweat always is caused by every such operation, whereby the natural spirits are much weakened, so that the patient would not be able to hold out long, thereby, but by taking away of one evil, another and greater one would be occasioned.

And therefore such things must be offered to that hungry acid humour, by which the corrosive nature thereof, may be mortified and grow sweet, with that proviso nevertheless, that those things be such as are not contrary or hurtful to the nature of man, but grateful and friendly, as are corals, pearls and crabs eyes, & etc.

For amongst all stones none are more easily to be dissolved than Pearls, Corals, Crabs eyes, and other stones of fishes.

But the truth of this, viz. that every corrosive is killed by feeding upon pearls and corals, and thereby can be made sweet; and besides, how a sowre coagulated Tartar, by the help of corals or pearls may be reduced to a sweet liquor (a pleasant and acceptable medicine to the nature of man) which never can be coagulated again by any means, shall be afterwards proved and taught when I shall come to treat of Tartar.

Now in tartareous coagulations and obstructions of the internals proceeding from the predominancy of an acid humor there is no better remedy, than to give the patient every morning fasting from 1/24 ounce to 1/8 ounce (more or less, according to the condition of the patient)

of red corals and pearls made into powder, and let him fast two or three hours upon it, and so continue daily until you see amendment: By this means the hurtful acid humor is mortified, and dulcified by the corals and pearls, so that afterwards it may be overcome by nature, whereby the obstructions are removed, and the body freed from the disease.

This my opinion of the abuse of Magisteries and the good use of corals I could not conceal, although I do know for certain, that it will take but with few, in regard that it will seem very strange to most. However, happily there may be some yet, that will not be unwilling to search into the truth, and to consider further of it, and at last will find this not to be so strange, as it seemed to them at the first; but he that cannot believe or comprehend it, may keep to his Magisteries.

And if it seem so strange unto any, that corals or pearls made into powder shall be concocted in the stomach, and so put forth their virtue, what will you say then, if I do prove, that even whole pearls, crabs-eyes, and corals being swallowed, are totally consumed by the Melancholy humor, so that nothing cometh forth again among the excrements? and which is more, even the like may be said of hard and Compact metals, as Iron, and Speaucer or Zink: But this must be understood only of those that are of a Melancholick constitution but not so in others, viz. those that are of a sanguine, and those that are of a phlegmatick constitution, to whom such like things are seldom prescribed. For I have seen many times, that against obstructions, to strong bodies there hath been given at once from 1/24 to 1/8 ounce of the shavings or filings of Iron, and they found much good by it, yea more help then by other costly medicines

of the Apothecaries, whereof they had used many before, but to no purpose, by reason whereof their excrements came from them black, just as it useth to fall out with those that make use of medicinal sowre waters, which run through iron mines, and thereby borrow a spiritual mineral virtue.

Now if those filings of iron had not been consumed in the stomach, how come it that the excrements are turned black? so then it is sufficiently proved, that even a hard unprepared metal can be consumed in the stomach: and if so, why not as well soft pearls and corals?

Which is also to be seen by children, that are troubled with worms, if there be given unto them 4, 6, 8. to 16 grains of the finest filings of steel or iron, that all the worms in the body are killed thereby, their stomach and guts scowred very clean, and their stools also turned black. But this must be observed by children, when the worms are killed, and yet remain in the guts (because that the iron in a small quantity is not strong enough for to expel them, but only make the body soluble) that a purge must be used after, for to carry them out; for else if they do remain there, others will grow out of their substance. But to those that are more in years, you may give the Dose so much the stronger, as from 1/24 to 1/8 ounce that the worms also may be carried out, they being better able to endure it than little children, and although sometimes a vomit doth come, yet it doth no hurt, but they will be but so much the healthier afterward.

And thus Iron may be used, not only against worms, but also against all stomach-agues, head-ache, and obstructions of the whole body, without

any danger and very successfully, as a grateful or very acceptable medicine to Nature; for after a powerful magnetical way it doth attract all the ill humors in the body; and carrieth them forth along with it. Of whose wonderful virtue and nature, there is spoken more at large in my Treatise of the Sympathy and Antipathy of things. Which some Physicans perceiving and supposing by Art to make it better, they spoiled it, and made it void of all virtue: for they taking a piece of steel, made it red-hot, and held it against a piece of common Sulphur, whereby the steel grew subtile, so they did let it drop into a vessel filled with water; then they took it out, and dryed it, and made it into powder, and used it against obstructions, but to no effect almost; for the Iron was so altered by the sulphur, and reduced to an insoluble substance (which ought not to have been so) that it could perform no considerable operation: But if they had made the steel more soluble (whereas they made it more insoluble) than it was of it self before, then they had done a good work: for he that knoweth sulphur, doth know well enough, that by no AQUA FORTIS or AQUA REGIS it can be dissolved; and how could it then be consumed by an animal humor?

Hitherto it hath been proved sufficiently, that in some men, especially in those that are of a Melancholick constitution there is an acid humor, which can sufficiently dissolve all easily soluble metals and stones: and that therefore it is needless to torture, and dissolve pearls, corals and the like with corrosive waters before they be administered to patients: but that the Archeus of the stomach is strong enough by the help of the said humors to consume those easily soluble things, and

to accept of that which serveth his turn, and to reject the rest.

But it is not my intent here, that this should be understood of all metals and stones, for I know well, that other metals and stones (some excepted) before they are duly prepared, are not fit for Physick, but must be fitted first, before they be administred or given unto patients.

For this relation I made only for to shew, how sometimes good things (though with intent to make them better) are made worse, and spoiled by those that do not make an exact search into nature and her power.

I hope this my admonition will not be taken ill, because my aim was not vain-glory, but only the good of my neighbour.

Now let us return again to Vitriol.

Of the sweet oil of Vitriol.

The Ancients make mention of a sweet and green oil of Vitriol, which doth cure the falling sickness, killeth worms, and hath other good qualities and virtues besides: and that the Oil is to be distilled PER DESCENSION. To attain unto this oil the latter Physicans took great pains, but all in vain: because they did not understand at all the Ancients about the preparing of this oil, but thought to get it by the force of fire, and so using violent distillations, they got no sweet oil, but such as was very sowre and corrosive, which in taste, efficacy and virtue, was not comparable at all to the former.

However they ascribed unto it (though falsely) the same virtues,

which the ancients (according to truth) did unto theirs. But daily experience sheweth, that the oil of vitriol as it is found ordinarily, cureth no falling sickness, nor killeth worms, whereas this Philosophical doth it very quickly. Whence it appeareth, that the other is nothing like unto the true medicinal oil of vitriol, neither is it to be compared to it.

I must confess indeed, that PER DESCENSION out of common vitriol, by the force of the fire, there may be got a greenish oil, which yet is not better than the other, because it proveth as sharp in taste, and of as corroding a quality, as if it had been distilled through a Retort.

Those that found out this oil, as PARACELSUS, BASILIUS, and some few others, did always highly esteem it, and counted it one of the four main pillars of Physick. And PARACELSUS saith expresly in his writings, that its viridity or greenness must not be taken away or marred (which indeed a very little heat can do) by the fire, for (saith he) if it be deprived of its greenness, it is deprived also of its efficacy and pleasant essence. Whence it may be perceived sufficiently, that this sweet green oil is not to be made by the force of the fire as hitherto by many hath been attempted, but in vain.

And it is very probable, that the ancients, which did so highly praise the oil of vitriol, happily knew nothing of this way of distilling, which is used by us now a days: for they only simply followed Nature, and had not so many subtle and curious inventions and ways of distilling.

But however it is certain, that such a sweet and green oil cannot

be made of vitriol by the force of the fire, but rather must be done by purification, after a singular way; for the Ancients many times understood purification for distillation: as it is evident, when they say, distill through a filtre, or through filtering paper: which by us is not accounted for distillation, but by them it was.

However, this is true and very sure, that a great Treasure of health (or for the health of man) lyeth hidden in Vitriol: yet not in the common, as it is sold every where, and which hath endured the heat of the fire already; but in the Ore as it is found in the earth, or its mine. For as soon as it cometh to the day light, it may be deprived by the heat of the Sun of its subtile and penetrating spirit, and so made void of virtue; which spirit, if by Art it be got from thence, smelleth sweeter then musk and amber, which is much to be admired, that in such a despicable mineral and gross substance (as it is deemed to be by the ignorant) such a royal medicine is to be found.

Now this preparation doth not belong to this place, because we treat here only of spirits, which by the force of fire are driven over. Likewise also, there doth not belong hither the preparation of the green oil, because it is made without the help of fire. But in regard, that mention hath been made of it here, I will (though I kept it always very secret) publish it for the benefit of poor patients, hoping that it will do much good to many a sick man.

For if it be well prepared, it doth not only cure perfectly every Epilepsie or Convulsion in young and old; and likewise readily and without fail killeth all worms within and without the body, as the Ancients

with truth ascribed unto it; but also many Chronical diseases and such as are held incureable, may be happily overcome and expelled thereby, as the plague, pleuresie, all sorts of fevers and agues, what ever they be called, head-ache, collick, rising of the mother; also all obstructions in the body, especially of the spleen and liver, from whence MELANCHOLIA HYPOCHONDRIACA, the scurvy, and many other intolerable diseases do arise: Also the blood in the whole body is by the means thereof amended and renewed, so that the Pox, Leprosie, and other diseases proceeding from the infection of the blood are easily cured thereby: Also it healeth safely and admirably all open sores and stinking ulcers turned to fistula's in the whole body, and from what cause so ever they did proceed, if they be anointed therewith, and the same also be inwardly used besides.

Such and other diseases more (which it is needless here to relate) may be cured successfully with this sweet oil; especially, if without the loss of its sweetness it be brought to a red colour; for then it will do more then a man dare write of it, and it may stand very well for a PANACIA in all diseases.

The preparation of the sweet oil of Vitriol.

Commonly in all fat soils or clayie grounds, especially in the white, there is found a kind of stones, round or oval in form, and in bigness like unto a pigeons or hens-eggs, and smaller also, viz. as the joint of ones finger, on the outside black, and therefore not esteemed when

it is found, but cast away as a contemptible stone. Which if it be cleansed from the earth, and beaten to pieces, looks within of a fair yellow and in streaks, like a gold Marcasite, or a rich gold Ore, but there is no other taste to be perceived in it, then in another ordinary stone; and although it be made into powder, and boiled a long time in water, yet it doth not alter at all, nor is there in the water, any other taste or colour, than that which it had first (when it was poured upon the stone) to be perceived. Now this stone is nothing else, but the best and purest Minera (or Ore) of Vitriol, or a seed of Metals; for Nature hath framed it round, like unto a vegetable seed, and sowed it into the earth, out of which there may be made an excellent medicine, as followeth.

Take this Ore or Minera beaten into pieces, and for some space of time, lay or expose it to the cool air, and within twenty or thirty days it will magnetically attract a certain saltish moisture out of the air, and grow heavy by it, and at last it falleth asunder to a black powder, which must remain further lying there still, until it grow whitish, and that it do taste sweet upon the tongue like vitriol. Afterward put it in a glass-vessel, and pour on so much fair rain water, as that it cover it one or two inches; stir it about several times a day, and after a few days the water will be coloured green, which you must pour off, and pour on more fair water, and proceed as before, stirring it often until that also come to be green: this must be repeated so often, until no water more will be coloured by standing upon it. Then let all the green waters which you poured off, run through filtering paper,

for to purifie them; and then in a glass-body cut off short let them evaporate till a skin appear at the top: then set it in a cold place, and there will shoot little green stones, which are nothing else but a pure vitriol: the remaining green water evaporate again, and let it shoot as before: and this evaporating and Crystallising must be continued until no vitriol more will shoot, but in warm and cold places there remain still a deep green pleasant sweet liquor or juice: which is the true sweet and green oil of Vitriol, and hath all the virtues above related.

But now this green oil further without fire may at last (after the preparing of many fair colours between) be reduced to a blood red, sweet and pleasant oil, which goeth far beyond the green both in pleasantness and virtue, and is in comparision to it like a ripe grape to an unripe: Hereof happily shall be spoken at another time, because occasion and time will not permit me now to proceed further in it. And therefore the Philo-Chymical Reader is desired for the present to be contented with the green oil, to prepare it carefully, and to use it with discretion; and doubtless he will get more credit by it, and do more wonderful things then hitherto hath been done by the heavy corrosive oil.

The use and Dose of the sweet oil of Vitriol.

Of this green oil, there may be taken from 1. 2. 4. 8. 10. or 12. drops at once, according to the condition of the patient and the disease, in fit Vehicles, in Wine or Beer, in the morning fasting, as other

medicines are usually taken: Also the Dose may be increased or lessened, and as often reiterated as the disease shall require.

This Oil expelleth all ill humors, not only by stoole and vomits, but also by urine and sweating, according as it doth meet with superfluities; and this very safely, and without any danger at all; whereby many diseases radically or perfectly may be cured.

Let no man wonder that I ascribe such great virtues unto this oil, it coming from such a despicable stone, and its preparation requiring no great Art or pains, as those intricate deceitful processes do, that are every where extant in books quite filled up with them. And it is no marvel, that men are in love with such false and costly processes; for the most of them do not believe, that any good is to be found in things that are not in esteem; but only make great account of dear things, far fetcht, and requiring much time and pains for to be prepared.

Such men do not believe the word of God, testifying, THAT GOD IS NO RESPECTOR OF PERSONS, but that all men that fear and love him, are accepted of him. If this be true (which no good Christian will doubt) then we must believe also, that God created Physick or the matter of Physick as well for the poor as for the rich. Now if it be also for the poor, then certainly such will be the condition thereof, that it may be obtained by them, and easily prepared for use. So we see that Almighty God causeth not only in great mens grounds to come forth good Vegetables, Animals and Minerals, for the curing of the infirmities of mankind, but that the same also are found every where else. Whereby we perceive, that it is also the will of God, that they shall be known

by all men, and that he alone, as the Maker of all good, may be praised and magnified by all men for the same.

I doubt not but there will be found self-conceited scoffers, that will despise this so little regarded subject, as if no good thing could be made of it, because they could find nothing in it themselves. But be it known to them, that neither to me nor them all things have been discovered, but that yet many wonderful works of Nature are hidden to us: and besides that I am not the first that writ of Vitriol and its medicine. For the Ancients, our dear Ancestors, had always Vitriol in very great esteem, as the following Verse doth prove.

Visitabis Interiora Terra, Rectificando
Invenies Occultum Lapidem, Veram Medicinam.

Whereby they would give us to understand, that a true medicine is to be found in it. And the same also was known to the latter Philosophers: for BASILIUS and PARACELSUS have always highly commended it, as in their writings is to be found.

It is to be admired, that this Ore or Metallical seed, which may justly be called the gold of Physicans (in regard that so good a medicine can be made of it) is not changed or altered in the earth, like other things that grow in it, but keepeth always the same form and shape, until it cometh to the air, which is its earth or ground, wherein it putrefieth and groweth. For first it swelleth and groweth like as a vegetable seed doth in the earth: and so taketh its increase and grows out of the air, just as a seed of an herb in the earth; and the air is not only its Matrix, wherein it groweth and doth increase like a

vegetable, but it is also its Sun which maketh it ripe. For within four weeks at the furthest it putrefieth and groweth black: and about a fortnight after it groweth white, and then green; and thus far it hath been described here: But if you proceed further Philosopher-like therewith, there will come forth to light at the last the fairest red, and most pleasant Medicine, for which God be praised for ever and ever Amen.

Of the Sulphureous volatile and Acid spirit of common Salt, and of Allom.

The same way, which above hath been taught for the making of the volatile spirit of vitriol, must be likewise used in the making of the volatile spirits of common salt and allome.

The manner of preparing.

Allome is to be cast in as it is of it self, without mixing of it, but salt must be mixed with bole, or some other earth, to keep it from melting: with the spirit volatile, there goeth also along an acid spirit, whose virtue is described in the first part. The Oil of Allome hath almost the like operation with the oil of vitriol. Also the spirit volitile of both these, is of the same nature and condition with that which is made of vitriol: but common salt, and allome, do not yield so much as vitriol; unless both, viz. salt and allome be mixed together, and so a spirit distilled of them.

Of the sulphureous volatile spirit of Minerals and Metals, and of their preparation.

Such a penetrative sulphureous spirit may be made also of Minerals and Metals, which in virtue goeth beyond the spirit of vitriol, that of common salt, and that of allome, viz. after the following manner.

The preparation of the volatile spirits of Metals.

Dissolve either Iron or Copper, or Lead or Tin with the acid spirit of vitriol, or of common salt: abstract or draw off the phlegm; then drive the acid spirit again from the Metal, and it will carry along a volatile spirit, which by rectifying must be separated from the corrosive spirit. And such Metallical spirits are more effectual than those that are made of the salts.

The preparation of the volatile spirit of Minerals.

Take of Antimony made into fine powder, or of golden Marcasite, or of some other sulphureous Mineral, which you please, two parts, mix therewith one part of good purified Salt nitre, and cast in of that mixture a small quantity, and then another, and so forth after the manner above described; and there will come over a spirit which is not inferiour to the former in efficacy and virtue; but it must also be well rectified.

Another way.

Cement what laminated or granulated Metal you please, (except gold) with half as much in weight of common sulphur, closed up in a strong melting pot or crucible, such as doth not let the sulphur go through, for the space of half an hour, until that the sulphur hath penetrated and broken the plates of Metal: Then beat them into powder, mix them with the like quantity in weight of common salt, and so distil it after the way above mentioned, and you will get a volatile spirit of great virtue: and every such spirit is to be used for such special part or member of the Body, as the Metal is proper for, out of which the spirit is made. So silver for the brain; Tin for the lungs, Lead for the spleen, and so forth.

The spirit of Zink.

Of Zink there is distilled both a volatile and also an acid spirit, good for the heart; whether it be made by the help of the spirit of vitriol, or of salt, or of allome: or else by the means of Sulphur; for Zink is of the nature of gold.

The volatile spirit of the dross of Regulus Martis.

The black scoria of the REGULUS MARTIS, being first faln asunder in the air, yields likewise a very strong sulphureous volatile spirit,

not so much unlike in virtue unto the former.

The like Sulphureous volatile spirits may be made also of other minerals, which for brevities sake we omit, as also in regard, that they are almost the same in virtue.

How to make a white acid, and a red volatile spirit out of Salt Nitre.

Take two parts of Allome, and one part of salt nitre, make them both into powder, mix them well together, and cast into the still a little and a little thereof, as above in the making of other spirits hath been taught, and there cometh over an acid spirit together with the volatile spirit; and so many pounds as there is of the materials, which are to be cast in, so many pounds of water must be put into the receiver, to the end that the volatile spirits may so much the better be caught and saved. And when the distillation is performed, the two spirits may be separated by the means of a gentle rectification made in BALNEO; and you must take good heed, that you get the volatile spirit pure by changing the receiver in good time, so that no flegme be mixed with the red spirit, whereby it will be weakened and turn white. The mark whereby you may perceive, whether the spirit or the flegme doth go forth is this: when the volatile spirit goeth, then the receiver looketh of a deep red: and afterward when the flegme doth come, the receiver looks white again: and lastly, when the heavy acid spirit goeth, then the receiver to be red again, but not so as it was, when the first volatile spirit came over.

This spirit may also be made and distilled after another way, viz. mixing the salt nitre with twice as much bole or brick dust, and so framed into little balls to prevent melting; but no way is so good as the first; especially when you will have the red volatile spirit.

Of the use of the red volatile spirit.

This volatile spirit, which (being quite freed from flegm) remaineth always red, and doth look like blood, in all occasions may be accounted like in virtue unto the former sulphureous spirits, especially in extinguishing of inflammations and Gangreens it is a great treasure, clothes being dipt in it, and laid upon the grieved place; Also it goeth almost beyond all other medicines in the Erysipelas and colick: and if there be any congealed blood in the body (which came by a fall or blow) this spirit outwardly applyed with such waters as are proper for the grief, and also taken inwardly, doth dissolve and expell it: and being mingled with the volatile spirit of urine it doth yield a wonderful kind of salt, as hereafter shall be taught.

The use of the white acid spirit of salt nitre.

The heavy and corrosive spirit of salt nitre is not much used in Physick, though it be found almost in all Apothecaries shops, and there is kept for such use, as above hath been mentioned of the spirit of vitriol, viz. to make their conserves, and cooling-drinks taste sowerish.

Also it is used by some in the colick, but it is too great a corrosive, and too gross to be used for that purpose; and although its corrosiveness may be mitigated in some measure, by adding of water thereto, yet in goodness and virtue it is not comparable at all to the volatile spirit, but is as far different from it, as black from white, and therefore the other is fittest to be used in Physick; but this in dealing with metals and minerals, for to reduce them into vitriols, calxes, flores, and crocus.

Aqua Regis.

If you dissolve common salt (which hath been decrepitated first) in this acid spirit of salt nitre, & rectifie it by a glass retort in sand) by a good strong fire, it will be so strong, that it is able to dissolve gold, and all other metals and minerals, except silver and sulphur; and several metals may by the means thereof be separated much better than by that Aqua regis which hath been made by adding of Salt Armoniack. But if you rectifie it with LAPIS CALAMINARIS or Zink, it will be stronger yet, so as to be able to dissolve all metals and Minerals (silver and sulphur excepted) whereby in the handling of Metals, much more may be effected, than with common spirit of salt nitre or Aqua fortis, as hereafter shall be taught: and first in the preparing of gold.

The Preparation of Aurum Fulminans, or Aurum Terrestrams.

Take of fine granulated or laminated gold (whither it be refined by Antimony or AQUA FORTIS) as much as you please: put it in a little Glass body, and pour four or five times as much of AQUA REGIS upon it, set it stopt with a Paper in a gourd in warm sand; and the AQUA REGIS within the space of one or two hours will dissolve the gold quite into a yellow water: but if it have not done so, it is a sign that either the water was not strong enough, or that there was too little of it for to dissolve it. Then pour the solution from the gold, which is not dissolved yet, into another glass, and pour more of fresh AQUA REGIA upon the gold: set it again to dissolve in warm sand or ashes, and the remaining gold will likewise be dissolved by it, and then there will remain no more, but a little white calx, which is nothing else but silver, which could not be dissolved by the AQUA REGIA (for the AQUA REGIA, whether it be made after the common way with salt Armoniack, or else with common salt, doth not dissolve silver) so in like manner common AQUA FORTIS, or spirit of salt nitre dissolveth no gold; but all other metals are dissolved as well by strong AQUA FORTIS as by AQUA REGIS. And therefore you must be careful to take such gold as is not mixed with Copper, else your work would be spoiled: for if there were any Copper mixed with it, then that likewise would be dissolved and precipitated together with the gold; and it would be a hindrance to the kindling or fulminating thereof: but if you can get no gold, that is without Copper, then take Ducats or Rose-nobles, which ought to have no

Addition of Copper, but only of a little Silver, which doth not hurt, because that it cannot be dissolved by the AQUA REGIA, but remaineth in the bottom in a white powder. Make those Ducats or Rose-nobles red hot, and afterward bend them and make them up in Rolls, and throw them into the AQUA REGIA for to dissolve. All the gold being turned into a yellow water, and poured off, pour into it by drops of pure oil made of the Salt of Tartar, PER DELIQUIUM, and the gold will be precipitated by the contrary liquor of Salt of Tartar into a brown yellow powder, and the solution will be clear. But you must take heed, to pour no more oil of Tartar into it than is needful for the precipitation of the gold; else part of the precipitated gold would be dissolved again, and so cause your loss. The gold being well precipitated, pour off the clear water from the gold calx by inclination, and pour upon it warm rain or other sweet water, stir it together with a clean stick of wood, and set it in a warm place, until the gold is settled, so that the water standeth clear upon it again; then pour it off, and pour on other fresh water, and let it extract the saltness out of the gold calx; and this pouring off, and then pouring on of fresh water again, must be reiterated so often, until no sharpness or saltness more be perceived in the water that hath been poured off: Then set the edulcorated gold into the Sun or another warm place for to dry. But you must take heed that it have no greater heat than the heat of the Sun is in MAY or JUNE, else it would kindle or take fire, and (especially if there be much of it) give such a thunder-clap, that the hearing of those that stand by, would be much endangered thereby, and therefore I advise you to beware, and

cautious in the handling of it, lest you run the hazard both of your gold and of your health by your over-sight.

There is also another way for to edulcorate your precipitated gold, viz. thus, Take it together with the salt liquor, and pour it into a funnel lined with brown Paper laid double, and so let the water run through into a glass vessel, whereupon the funnel doth rest, and pour on other warm water, and let it run through likewise; do this again and again, until that the water come from it as sweet as it was poured on. Then take the Paper with the edulcorated calx, out of the funnel, lay it, together with the paper, upon other brown paper lying severally double together, and the dry paper will attract all the moistness out of the gold calx, so that the gold will be dryed the sooner. Which being dry, take it out of the filtering paper, and put it into another that is clean, and so lay it aside, and keep it for use. The salt water that came through by filtering, may be evaporated in a little glass body (standing in sand) to the dryness of the salt, which is to be kept from the air: for it likewise useful in Physick; because some virtue of the nature of gold is yet hidden in it: though one would not think it, in regard that it is so fair, bright and clear, which for all that may be observed by this, that when you melt it in a clean covered crucible or pot, and pour it afterward into a clean Copper morter or bason (being first made warm) you get a purple-coloured salt, whereof 6, 9, 12, to 24 grains given inwardly, doth cleanse and purge the stomach and bowels, and especially it is used in fevers and other diseases of the stomach. But in the crucible, out of which the salt hath been poured, you will

find an earthy substance, which hath separated it self from the salt, and looketh yellowish; this being taken out and melted in a little crucible by a strong fire, turneth to a yellow glass, which is impregnated with the Tincture of Gold, and doth yield a grain of Silver in every regard like unto common cupellated silver, wherein no gold is found, which is to be admired: because that all Chymists are of opinion, that no AQUA REGIA can dissolve silver which is true. The question therefore is, from whence or how this silver came into the salt, since no AQUA REGIA doth dissolve silver? whereupon some perchance may answer, that it must have been in the oil of Tartar, in regard that many do believe, that the salts likewise may be turned into metals, which I do not gainsay, but only deny that it could have been done here; for if that silver could have been existing in the AQUA REGIA, or salt of Tartar (whereas AQUA REGIA cannot bear any) it would have been precipitated together with the gold. But that it was no common silver, but gold which turned to silver after it was deprived of its Tincture, I shall briefly endeavour to prove. For that the salt waters (of AQUA REGIA and salt of Tartar) out of which the gold hath been precipitated, is of that nature, before it be coagulated to salt, though it be quite clear and white, that if you put a feather in it, it will be dyed purple within few days, which purple colour comes from the gold, and not from silver, in regard that silver doth dye red or black: and hence appeareth, that the salt water hath retained something of gold.

Now some body preadventure may ask, if that the said salt water hath retained some gold, how is it then, that in the melting, no gold comes

forth, but only silver? To which I answer, that some salts are of that nature, that in the melting, they take from gold its colour and soul; whereof if the gold be truly deprived, it is then no more gold, nor can be such; neither is it silver, but remaineth only a volatile black body, good for nothing, which also proveth much more unfixt than common Lead, not able to endure any force of fire, much less the cupel: But like MERCURY or ARSENICK vanisheth (or flyeth away) by a small heat. Hence it may be gathered, that the fixedness (or fixity) of gold doth consist in its soul or Tincture, and not in its body, and therefore it is credible, that gold may be anatomized, its best or purer part separated from the grosser (or courser) and so that a Tingent medicine (or Tincture) may be made of it. But whether this be the right way, whereby the universal medicine of the ancient Philosophers (by whose means all metals can be changed or transmuted into gold) is to be attained unto, I will not dispute; yet I believe that peradventure there may be another subject, endued with a far higher Tincture than gold is, which obtained no more from nature, then it doth need it self for its own fixedness. However, we may safely believe, that a true Anima or Tincture of gold, if it be well separated from its impure black body, may be exalted and improved in colour; so that afterwards of an imperfect body a greater quantity, than that was from which it was abstracted, may be improved and brought to the perfection of gold. But waving all this, it is true and certain, that if the gold be deprived of its Tincture, the remaining body can no more be gold; as is demonstrated more at large in my Treatise (de Auro potablili vero) of the true

potable Gold: And this I mentioned here only therefore, that in case the lover of this Art, in his work should meet perchance with such a white grain, he may know, from whence it doth proceed.

I could have forborn to set down the preparation of the fulminating gold, and so save paper and time, in regard that it is described by others: but because I promised in the first part to teach how, to make the flores of gold, and that those are to be made out of fulminating (or thundering gold), I thought it not amiss to describe its preparation, that the lover of this Art need not first have his recourse to another book for to find out the preparation, but by this my book may be finished with a perfect instruction for the making of the flores of gold, and this is the common way for to make AURUM FULMINANS, known unto most Chymists; but in regard that easily an error may be committed in it, either by pouring on too much of the liquor of Tartar (especially when it is not pure enough, so that not all the gold doth precipitate, but part of it remaineth in the solution, whereby you would have loss; or else, the gold falling or precipitating into a heavy calx, which doth not fulminate well, and is unfit for to be sublimed into flores.

Therefore I will here set down another and much better way, whereby the gold may be precipitated quite and clean out of the AQUA REGIA without the least loss, and so that it cometh to be very light and yellow, and doth fulminate twice as strong as the former, and there is no other difference between this and the former preparation, but only that instead of the oil of Tartar, you take the spirit of urine, or of salt armoniack for to precipitate the dissolved gold thereby; and the gold (as before

said) will be precipitated much purer, than it is done by the liquor of the salt of Tartar, and being precipitated, it is to be edulcorated and dryed, as above in the first preparation hath been taught.

The use of Aurum Fulminans.

There is little to write of the use of AURUM FULMINANS in physick; for because it is not unlockt, but is only a gross calx and not acceptable to the nature of man, it can do no miracle. And although it be used to be given PER SE from 6, 8, 12, grains to 1/24 ounce for to provoke sweating in the Plague, and other malignant fevers, yet it would never succeed so well as was expected. Some have mixed it with the like weight of common sulphur, and made it red hot (or calcined it) whereby they deprived it of its fulminating virtue, supposing thus to get a better medicine, but all in vain, for the gold calx would not be amended by such a gross preparation. But how to prepare a good medicine out of AURUM FULMINANS, so that it may be evidently seen, that the gold is no dead body, nor unfit for physick, but that it may be made quick and fit for to put forth or shew forth those virtues which it pleased God to treasure up in it, I shall here briefly discover.

First, get such an instrument (as above hath been taught) made for you out of Copper, but not too big, nor with a lid at the top, but only with a pipe, unto which a receiver may be applyed, which must not be luted to it; but it sufficeth, that the pipe enter far into the belly of the receiver; and at the lower part it must have a flat bottom, that

it may be able to stand: over the bottom there must be a little hole with a little door, that closeth very exactly: and there must be also two little plates or scales of silver or copper, as big as the nail of ones finger, whereupon the AURUM FULMINANS is to be set into the Instrument; which is to stand upon a Trevet, under which you are to lay some burning Coals for to warm or heat the bottom withal. The Instrument together with the glass Receiver being so ordered, that it stands fast and also the bottom thereof being warmed or heated, then with little pincers one of the little scales, containing 2, 3, or 4, grains of AURUM FULMINANS must be conveyed upon the Instrument set upon the warm bottom, and then shut the little door, and when the gold doth feel the heat, it kindleth and giveth a clap, and there is caused a separation, and especial unlocking of the gold; for as soon as the clap is gone, the the gold doth go through the pipe like a purple coloured smoak into the receiver, and sticks on every where like a purple coloured powder. When the smoak is vanished, which is soon done, then take the empty scale out of the Instrument or Oven, and set it with the gold, which will likewise fulminate and yield it flores. Then the first being cooled in the mean time, is to be filled again and put in, instead of that which is empty, and taken out, putting in one scale after another by turns, continue it so long till you have got flores enough: After the sublimation is performed, let the Copper Vessel grow cold, and then sweep or brush the gold powder which is not sublimed with a haires foot, or goose feather out of the vessel, which powder serves for nothing, but to be melted with a little borax, and it will be good gold again, but

only somewhat paler than it was before it was made into fulminating gold. But the flores in the receiver cannot be brushed out thus, especially when they are cast in with an addition of salt Nitre, as by the flores of silver hereafter shall be taught, because they are something moist, and therefore pour in as much of dephlegmed Tartarised spirit of wine unto it, as you think to be enough, for to wash off the flores with. This done, pour out the spirit of wine, together with the burnt Phoenix, into a clean glass, with a short neck, set it (being well luted first) into a gentle Balneum, or into warm ashes for some days, and the spirit of wine in the mean time will be coloured with a fair red, which you must pour off and then pour on other fresh spirit and set it in a warm place for to be dissolved, this being likewise coloured, put both the extracts together in a little glass body, and abstract the spirit of wine (in Balneo) from the Tincture, which will be a little in quantity, but of a high red colour and pleasant in taste. The remaining flores from which the Tincture is extracted, may be with water washed out of the glass, and then dryed if they are to be melted; and they will yield a little pale gold, and the most part turneth into a brown glass, out of which perchance something else that is good may be made, but unknown to me as yet.

N. B. if you mix the AURUM FULMINANS with some salt nitre, before fulmination, then the flores will be the more soluble, so that they yield their Tincture sooner and more freely, than alone of themselves; and if you please, you may add thereto thrice as much salt nitre, and so sublime them in flores, in the same manner, as shall be taught for the making of the flores of silver.

The use of the Tincture of Gold.

The extracted Tincture is one of the chiefest of those medicines, which comfort & cheer up the heart of man, renew and restore to youthfulness, and cleanse the impure blood in the whole body, whereby many horrible diseases, as the leprosie, the pox, and like may be rooted out.

But whether this Tincture by the help of fire may be further advanced into a fixed substance I do not know; for I have proceeded farther in it, than here is mentioned.

Of the flores of Silver and of its medicine.

Having promised in the first part of this book (when I was describing the preparation of flores out of Metals) to teach in the second part to make the flores of gold and silver, those of gold being dispatcht; there followeth now in order after the gold, to speak also of silver and of its preparation, which is to be thus performed.

Take of thin laminated or small granulated fine silver as much as you please, put it into a little separating glass body, and pour upon it twice as much in weight of rectified spirit of salt nitre, and the spirit of salt nitre will presently begin to work upon the silver and to dissolve it. But when it will not dissolve any more in the cold, then you must put the glass body into warm sand or ashes, and the water will presently begin to work again; let the glass stand in the warm ashes, until all the silver be dissolved. Then put the solution out

of the little glass body, into another such as is cut off at the top, and put on a little head or Limbeck, and in sand abstract the moity of the spirit of salt nitre from the dissolved silver; then let the glass body remain in the sand till it be cool; after take it out, and let it rest for a day and a night, and the silver will turn into white foliated crystals, from which you must pour off the remaining solution which is not turned; and from thence abstract again the moity of the spirit, and let it shoot or turn in a cold place; and this abstracting and crystallising you are to reiterite, until almost all the silver is turned to Crystals; which you must take out and lay upon filtering paper to dry, and so keep it for such further use, as hereafter shall be taught. The remaining solution, which is not crystallised, you may in a copper vessel by adding of sweet water thereto, precipitate over the fire into a calx, and then edulcorate and dry it, and keep it for other use, or else melt it again into a body. Or else you may precipitate the same with salt water, and so edulcorate and dry it; and you will have a calx, which doth melt by a gentle fire, and is of a special nature, and in the spirit of urine, of salt Armoniack, of Harts-horn, of Amber, of Soot, and of hair it doth easily dissolve; and it may be prepared or turned into good medicines, as shortly in our treating of the spirit of urine shall be taught. Or else, you may choose not to precipitate the remaining solution of silver, but with the spirit of urine to extract an excellent Tincture, as hereafter shall be taught.

Of the use of the crystals of silver.

These crystals may be safely be used in Physick alone by themselves 3, 6, 9, 12 grains thereof being mixed with a little sugar, or else made up into pills; they do purge very gently and without danger; but by reason of their bitterness they are somewhat untoothsome to take; also, if they be not made up into pills, they colour the lips, tongue and mouth quite black (but the reason of that blackness belongeth not to this place to treat of, but shall by and by follow hereafter). Also if they touch metals, as Silver, Copper and Tin, they make them black and ugly, and therefore they are not much used. But if you put into the solution of silver (before it be reduced into Crystals) half as much quicksilver as there was of the silver, and so dissolve them together and afterwards let them shoot together, there will come forth very fair little square stones like unto Allome, which do not melt in the air, as the former foliated ones use to do; neither are so bitter, and they purge also quicker and better, than those that are made only of silver.

How to sublime the Crystals of silver into flores, and then to make a good Medicine of the flores.

Take of the foresaid Crystals of Silver as many as you please, and upon a grinding stone made warm first, grind as much purified and well dryed salt nitre amongst it, then put into your Iron distilling vessel

(to the pipe whereof there is to be applyed and luted a great receiver) coals made into powder two inches high, and make a fire under it, that the vessel every where together with the coals that are in it, become red hot. Then take off the lid, and with a ladle throw in at once of your Crystals of silver 1/8 ounce more or less, according as you think that your receiver in regard of its bigness is able to bear. This done, presently put on the lid, and the salt nitre together with the crystals of silver will be kindled by the coals that lye on the bottom of the vessel, and there will come forth a white silver fume through the pipe into the receiver, and after a while when the cloud is vanished in the receiver, cast in more, and continue this so long, and until all your prepared silver is cast in; then let it cool, and take off the receiver, and pour into it good Alcolized spirit of wine, and wash the flores with it out of the receiver, and proceed further with them, as above you have been taught to proceed with the gold, and you will get a greenish liquor, which is very good for the brain.

Take the coals out of the distilling vessel, and make them into fine powder, and wash them out with water, to the end that the light coal dust may be got from it, and you will find much silver dust (or a great many little silver grains) which the salt nitre could not force over, which you may reduce, for it will be good silver.

There may also be made a very good medicine out of the crystals of silver, which will be little inferiour to the former, whereby the diseases and infirmities of the brain may be very well remedied, which is done thus.

How to make a green oil out of Silver.

Pour upon Crystals of silver twice or thrice as much (in weight) of the strongest spirit of Salt Armoniack, put it in a glass with a long neck well closed, into a very gentle warmth for the space of 8 or 14 days in digestion, and the spirit of salt Armoniack will be tinged with a very fair blue colour from the silver, then pour it off, and filtre it through brown paper, and then put it in a little glass retort or glass body, and abstract in Balneo by a gentle fire, almost all the spirit of salt Armoniack (which is still good for use) and there will remain in the bottom a grass-green Liquor, which is to be kept for a Medicine.

But in case that you should miss, and abstract too much of the spirit from the Tincture of silver, so that the Tincture be quite dry and turned to a green salt, then you must pour upon it again as much of the Spirit of Salt Armoniack, as will dissolve the green salt again to a green Liquor, but if you desire to have the Tincture purer yet, then abstract all moistness from it, to a stony dryness: upon which you must pour good spirit of Wine, which will quickly dissolve the stone, and then filtre it, and there will remain feces, and the Tincture will be fairer: from which you must abstract most of the spirit of wine, and the Tincture will be so much the higher in virtue. But if you please, you may distil that green salt or stone (before it be extracted again with the spirit of wine) in a little glass retort, and you will get a subtle spirit and a sharp oil, and in the bottom of the retort there remaineth a very fusile silver which could not come over.

It is to be admired, that when you pour spirit of salt Armoniack, or spirit of wine upon that stone, for to dissolve it, that the glass comes to be so cold by it, that you hardly are able to endure it in your hand, which coldness in my opinion cometh from the silver (being so well unlock) which naturally is cold.

The use of the green Liquor in Alchemy, and for Mechanical Operations.

This green Liquor serveth not only for a medicine, but also for other Chymical operations (for both Copper and glass may be easily and very fairly silvered over therewith) very useful for those that are curious and love to make a shew with fair household-stuff; for if you get dishes, treacher-plates, salters, cups and other vessels made of glass, after the same fashion as those of silver use to be made, you may easily and without any considerable charge silver them over therewith within and without, so that by the eye they cannot be discerned from true silver plate.

Besides the above-related good Medicines, there may be made another and especial good one out of the crystals of silver, viz. dissolving and digesting them (for a space of time) with the universal water, which hath been distilled by nature it self; and is known to every body; and after its digesting for a short time, and change into several colours, there will be found a pleasant essence, which is not so bitter as the above-described green liquor, which is not brought yet by heat to ripeness and maturation.

N. B. In this sweet universal Menstruum, may also all other metals by a small heat and the digestion of a long time be ripened and fitted for Medicines (having first been reduced into their vitriols and salts) and then they are no more dead bodies, but by this preparation have recovered a new Life, and are no more the metals of the covetous, but may be called the metals of the Philosophers, and of the Physicans.

Besides Physick or physical use.

Lastly, there may be many pretty things more effected (besides the medicinal use) by means of the Crystals of silver, viz. when you dissolve them in ordinary sweet rain water, you may dye beards, hair, skin, and nails of men or beasts into carnation or pink red, brown and black, according as you have put more or less thereof in the water; or else, according as the hair was more or less times wetted therewith, whereby the aspect of Man and Beast (which sometimes in several occasions may not be contemned) is changed, so that they cannot be known.

This colouring or dye may be also performed with Lead or Mercury no less than with silver, but otherwise prepared, whereof in the fourth part.

Now I have taught how to make flores and tinctures of gold and silver by help of the acid spirit of Nitre. There may be many other medicines taught to be made out of them, but in regard that they belong not to this place, they shall be reserved for other places of the second and also for the other following parts.

As by the help of the spirit of Nitre, good Medicines may be made out of gold and silver, so the like may be done out of other inferiour metals. But in regard that their description is fitter for other places of this Book, I omit them here. Yet nevertheless, I thought good to describe one preparation of every metal; after silver therefore followeth now Copper.

A medicine out of Copper externally to be used.

Dissolve burnt plates of Copper in spirit of salt, and abstract the spirit again from thence to a dryness, but not too hard, and there will a green mass remain behind, which you may cast in by little and little, and so distil it, as of silver hath been taught. It doth yield a strong and powerful spirit, and flores also for outward use in putrid wounds, to lay a good ground thereby for the healing.

A medicine out of Iron and Steel.

In the same manner you may proceed with iron and steel, and there will remain behind a good crocus of a great stipticity or astringency, especially out of iron or steel, and may with good success be mixed with ointments and plaisters.

Of Tin and Lead.

If Tin or Lead be dissolved therein, after the abstracting of part of the spirit, they will shoot into clear and sweet crystals. But Tin is not so easily dissolved as Lead; both may safely be used for medicines. Also there may be spirits and flores got out of them by distilling. The rehearsing of the Preparation is needless, for what for the preparing of silver hath been taught, is to be understood also of other metals.

The use of the Crystals of Lead and Tin.

The Crystals of Lead are admirably good to be used in the plague for to provoke sweating and expel the venome out of the body; they may also with credit be used in the bloody flux. Externally dissolved in water, and clothes dipt therein and applied, they excellently cool and quench all inflammations, in what part of the body soever they do befal. Likewise the spirit thereof used per se (and the flores mixed among ointments) do their part sufficiently.

But the crystals of Tin do not prove altogether so quick in operation, though they do act their part also, and they are more pleasant than those that are made of Lead; for in Tin there is found a pure sulphur of gold; but in Lead a white sulphur of silver, as is proved in my TREATISE OF THE GENERATION AND NATURE OF METALS.

Of Mercury.

When you dissolve common Mercury in rectified spirit of Nitre, and abstract the spirit from it again, then there will remain behind a fair red glistering precipitate; but when the spirit is not rectified, it will not be so fair, because that the impurity of the spirit remains with the Mercury and pollutes it. This calcined Mercury is called by some MERCURIUS PRAECIPITATUS, and by others TURBITH MINERALE, wherewith the Surgeons, and sometimes other unskillful Physicans do cure the Pox; they give at once 6, 8, 10 grains, (more or less) according to its preparation and force in operation to the patient; for if the spirit be not too much abstracted from it, it worketh much stronger, than by when a strong fire it is quite separated from it; for the spirits that remain with the Mercury make it quick and active, which else without the spirits would not be such.

The other metals also, if they be not first made soluble by salts or spirits, can perform either none of but very small operation, unless it be Zink or Iron, which being easily soluble, are able to work without any foregoing dissolution, as hath been shewn above, when we treated of the oil of vitriol. But that the sharp spirits are the cause of that operation, may hence be perceived, and made manifest that although you take 1/4 ounce of quick-silver, and pour it down into the stomach, yet it would run out again beneath, as above it was poured in. But if it be prepared with spirits of salt, then but few grains of it will work strongly, and the more it is made soluble, the stronger it worketh;

as you may see when it is sublimed from salt and vitriol, that it groweth so strong thereby, that one grain doth work more than eight or ten grains of Turbith Mineral, and three or four grains thereof would kill a man, by reason of its mighty strength. Also it worketh extremly, and much more than the sublimate, when it is dissolved in spirit of Nitre and crystalized, so that you cannot well take it upon your tongue without danger: Which some perceiving, evaporate the AQUA FORTIS by a gentle heat from it, so that the MERCURIUS remained yellow, which in a smaller dose wrought more than the red, from which the spirits were quite evaporated. And they used it only externally, strewing it into impure sores, for to corrode or fret away the proud flesh, not without great pain to the patient: but also without distinction of young or old gave it inwardly for to purge; which is one of the most hurtful Purges that can be used. For this evil guest, however he be prepared, cannot leave his tricks, unless he be reduced into such a substance, as that it never can be brought back to a running Mercury, for then much good can be done in physick without any hurt or prejudice to the health of man, whereof perchance something more shall be said in another place.

I cannot omit for the benefit of young innocent Children, to discover a great abuse. For it is grown very common almost among all that deal in physick, that as soon as a little child is not well before they know whether it will be troubled with worms, or with any thing else, they presently fall upon Mercury, supposing that in regard it hath no taste, it is so much the better for to get the Children to take it for to kill the Worms.

But those men do not know the hurtful nature of it, which it doth shew against the sinews and Nerves: For some are of opinion, that if they know to prepare Mercury so, that it can be given in a greater dose (as is to be seen in sublimed MERCURIUS DULCIS) that then it is excellently prepared: but they are in a great error, and it were much better, it were not so well prepared, that the less hurt might be done to Man, in regard that then they durst not give it in so great a dose. For if that which is prepared with AQUA FORTIS or spirit of salt nitre be used in the pox to men that are advanced in years, it cannot do so much hurt, because it is given in a small dose, and doth work with them, whereby nature gets help for to overcome and expel that hurtful venome, and its malignity is abated by the strong salivation, which provident nature hath planted in it, so that not so much mischief can come by it, as by MURCURIUS DULCIS, whereof is given to little weak Children from ten to thirty grains at once, which commonly (unless they be of a strong nature, and do grow out of it) doth cause a weakness and lameness in their limbs, so that (if they do not come to be quite lame at last) they have a long time to struggle withal, till they overcome it.

In like manner those also do err, which do shake Mercury in water or beer so long, until the water come to be gray-coloured, and so give that water or beer to little children to drink for the Worms, pretending that they do not give the substance or body of Mercury; but only its virtue; but this gross Preparation is no better than if they had ministered the running Mercury it self. Neither have I ever seen that the use of MERCURIUS DULCIS, or of the grey coloured water was seconded with

good success in killing of the Worms. But it is credible, that it may be done by yellow or red precipitate, in regard of its strong operation. But who would be such an Enemy to his Child, as to plague and torture it with such a hurtful and murthering medicine, especially there being other medicines to be had, which do no harm to the children, as is to be found in iron or steel, and the sweet oil of vitriol.

And so much of the abuse of Mercury: I hope it will be good warning unto many, so that they will not so easily billet such a tyrannical guest in any ones house, whereby the ruin thereof of necessity must follow. And that cure deserveth no praise at all, whereby one member is cured with the hurt of two or three other members. As we see by the Pox, when one infected member is cured by Mercury, and that but half, and not firm at all, that all the rest of the body is endangered thereby for the future. And therefore it would be much better that such crude horse-physick might be severed from good medicaments, and such used instead of them, as may firmly, safely, and without prejudice to other parts perform the cure, of which kind several are taught in this book. But in case that you have Patients, which have been spoiled by such an ill-prepared Mercury, then there is no better remedy to restore them, than by medicines made of metals, wherewith Mercury hath great affinity, as of gold and silver: for when they are often used, they attract the Mercury out of the members, and carry it along with them out of the body, and so do rid the body thereof. But externally the precipitated Mercury may more safely be used, than internally, in case there be nothing else to be had, viz. to corrode or eat away the proud

flesh out of a wound. But if instead of it there should be used the corrosive oil of Antimony, Vitriol, Allome or common salt it would be better, and the cure much the speedier; and it would be better yet, that in the beginning good medicaments were used to fresh wounds, and not by carelessness to reduce them to that ill condition, that afterwards by painful corrosives they must be taken away. But such a Mercury would serve best of all for soulders, beggers, and children that go to school; for if it be strewed upon the head of children, or into their clothes, no louse will abide there any longer. In which case Mercury must by his preparation not be made red, but only yellow, and it must be used warily, and not be strewed on too thick, lest the flesh be corroded, which would be the occasion of great mischief.

Of Aqua fortis.

Out of Salt nitre and vitriol, taking of each a like quantity (for if the water is to be not altogether so strong) two parts of vitriol to one part of salt nitre, a water distilled is good to dissolve metals therewith, and to separate them from one another; as gold from silver, and silver from gold, which is in the fourth part punctually shall be taught.

The AQUA FORTIS serveth also for many other Chymical operations to dissolve and fit metals thereby, that they may be reduced the easier into medicaments: but because the spirit of salt nitre and AQUA FORTIS are almost all one, and have like operations: for if the AQUA FORTIS

be dephlegmed and rectified, you may perform the same operations with it, which possibly may be performed with the spirit of salt nitre; and on the other side the spirit of salt nitre will do all that can be done with the AQUA FORTIS, whereof in the fourth part shall be spoken more at large.

Now I know well that ignorant laborators (which do all their work according to custom, without diving any further into the Nature of things, will count me an Heretick (because I teach, that the AQUA FORTIS made of vitriol and salt nitre is of the same nature and condition with the spirit of salt nitre, which is made without vitriol) saying that the AQUA FORTIS doth partake likewise of the spirit of vitriol, because vitriol also is used in the preparation of it. To which I answer, that although vitriol be used in the preparation of it, yet for all that in the distilling, nothing or but very little of its spirit comes over with the spirit of salt nitre, and that by so small a heat it cannot rise so high, as the spirit of salt nitre doth: and the vitriol is added only therefore unto the salt nitre that it may hinder its melting together, and so the more facilitate its going into a spirit. And the more to be convinced of this truth, the unbelieving may add to such spirit of salt nitre, as is made by it self, a little of oil of vitriol likewise made by it self, and try to dissolve silver guilded with it, and he will find that his spirit of salt nitre by the spirit of vitriol is made unfit to make a seperation; for it preyeth notably upon the gold, which is not done by AQUA FORTIS.

Of the Sulphurised Spirit of Salt Nitre.

There may also be made a spirit of salt nitre with sulphur, which is still in use with many, viz. they take a strong earthen retort, which hath a pipe at the top, and fasten it into a furnace, and having put salt nitre into it, they let it melt, and then through the pipe they throw pieces of sulphur of the bigness of a pea, one after another, which being kindled, together with the nitre doth yield a spirit called by some spirit of salt nitre, and by others oil of sulphur, but falsely; for it is neither of both, in regard that metals cannot be dissolved therewith as they are done with other spirit of salt nitre or sulphur; neither is there any great use for it in physick, and if it were good for any Chymical operations, by the help of my distilling instrument might easily be made and in great quantity.

N. B. But if salt nitre be mixed with sulphur in due proportion, and in the first furnace be cast upon quick coals, then all will be burnt, and a strong spirit cometh over, whose virtue is needless here to describe; but more shall be mentioned of it in another place.

Of the Clissus.

Among the Physicans of this latter age, there is mention made of another spirit, which they make of Antimony, Sulphur, and salt nitre, a like quantity taken of each, which they call CLISSUS, and which they have in high esteem, and not without cause, because it can do much good if it be well prepared.

The inventor, for the making thereof used a retort with a pipe, as was mentioned by the sulphurized spirit of salt nitre, through which pipe he threw in his mixture. And it is a good way if no better be known: but if the Author had known my invention and way of distilling, I doubt not but he would have set aside his, that hath a nose or pipe retort, and made use of mine.

The materials indeed are good, but not the weight or proportion; for to what purpose so great a quantity of sulphur, it being not able to burn away all with so small a quantity of salt nitre. And if it doth not burn away, but only sublime & stop the neck of the retort, whereby the distillation is hindered, how can it then yield any virtue? Therefore you ought to take not so much sulphur, but only such a quantity as will serve to kindle the salt nitre, viz. to 1. lb. of salt nitre four drams of sulphur: but because Antimony also is one of the ingredients, which hath likewise much sulphur (for there is no Antimony so pure, but it containeth much combustible sulphur, as in the fourth part of this book shall be proved:) therefore it is needless to add so much sulphur unto Antimony, to make it burn, because it hath enough of it self. And therefore I will set down my composition, which I found to be better than the first.

Take Antimony 1. lb., salt nitre 1/2 lb., sulphur 3 ounces; the materials must be made into small powder and well mixed, and at once cast in 3 ounces thereof, and there will come over a sulphureous acid spirit of Antimony, which will mix it self with the water, which hath been put before in the receiver; which after the distillation is finished

must be taken out and kept close for its use. It is a very good diaphoretick (for sweat provoking) medicine especially in fevers, the plague, epilepsie, and all other diseases, whose cure must be performed by sweating. The CAPUT MORTUUM may be sublimed into flores in that furnace, which is described in the first part.

Of the Tartarised spirit of nitre.

In the very same manner there may also be distilled a good sweat-provoking spirit out of salt nitre and Tartar, a like quantity taken of each, which is very good to be used in the plague and malignant fevers.

The CAPUT MORTUUM is a good melting powder for to reduce the calxes of metals therewith; or else you may let it dissolve in a moist place to oil of Tartar.

Of the Tartarised spirit of Antimony.

A much better spirit yet may be made of Tartar, salt nitre, and Antimony, a like quantity being taken of each, and made into fine powder, and mixed well together, which though it be not so pleasant to take, is therefore not to be despised. For not only in the plague and fevers, but also in all obstructions and corruptions of blood it may be used with admiration of its speedy help.

The CAPUT MORTUUM may be taken out, and melted in a crucible, and it will yield a REGULUS, the use whereof is described in the fourth part.

Out of the scoria or dross a red Tincture may be extracted with spirit of wine, which is very useful in many diseases. But before you extract with spirit of wine, you may get a red lixivium out of it with sweet water, which lixivium may be used externally for to mend the faults of the skin and to free it from scabbiness.

Upon this lixivium if you pour Vinegar or any other acid spirit, there will precipitate a red powder, which if it be edulcorated and dryed may be used in physick. It is called by some sulphur AURATUM DIAPHORETICUM: but it is no Diaphoretick, but maketh strong vomits, and so in case of necessity, when you have no better medicine at hand, it may be used for a vomitory from 6, 7, 9, 10, 15.

Also out of the scoria there may be extracted a fair Sulphur with the spirit of urine and distilled over the Limbeck, which is very good for all diseases of the lungs.

Of Stone-coles.

If you mix stone-coals with a like quantity of salt nitre, and distill them, you will get an admirable spirit and good to be used outwardly; for it cleanseth and consolidateth wounds exceedingly, and there will also come over a metallical virtue in the form of a red powder, which must be separated from the spirit, and kept for its use. But if you cast in stone-coals alone by themselves, and distill them, there will come over not only a sharp spirit, but also a hot and blood red oil, which doth powerfully dry and heal all running ulcers; especially it

will heal a scald head better than any other medicine, and it doth consume also all moist and spongious excrescencies in the skin, where ever they be: but if you sublime stone-coles in the furnace described in the first part, there comes over an acid metallical spirit, and a great deal of black light flores, which suddenly stanch bleeding, and used in plaisters, are as good as other metallical flores.

Of the Sulphureous spirit of salt nitre or Aqua fortis.

If you take one part of sulphur, two parts of nitre, and three parts of vitriol, and distill them, you will get a graduating AQUA FORTIS, which smelleth strongly of sulphur; for the sulphur is made volatile by the salt nitre and vitriol. It is better for separating of metals, than the common AQUA FORTIS.

If silver be put in, it groweth black, but not fixed; some of it poured into a solution of silver a great deal of black calx will precipitate, but doth not abide the trial. You may also abstract a strong SULPHUREOUS volatile spirit from it, which hath like virtue as well internally as externally for bathes, and may be used like unto a volatile spirit of Vitriol or Allome.

Of the Nitrous spirit of Arsenick.

If you take white Arsenick and pure salt nitre of each a like quantity ground into fine powder, and distill them, you will get a blue

spirit, which is very strong, but no water must be put into the receiver, else it would turn white, for Arsenick, from which the blue cometh, is precipitated by the water. This spirit dissolveth and graduateth copper as white as silver, and maketh it malleable but not fixed. The remaining CAPUT MORTUUM maketh the copper white, if it be cemented therewith, but very brittle and unmalleable, but how to get good silver out of Arsenick and with profit, you shall find in the fourth part. In physick the blue spirit serveth for all corroding cancerous sores, which if they be anointed therewith, will be killed thereby, and made fit for healing.

To make a spirit of Sulphur, crude Tartar and Salt nitre.

If you grind together one part of Sulphur, two parts of Crude Tartar, and four parts of salt nitre, and distill it Philosopher-like, you will get a most admirable spirit, which can play his part both in Physick and Alchymy. I will not advise any body to distill it in a retort; for this mixture, if it groweth warm from beneath, it fulminateth like Gunpowder; but if it be kindled from above, it doth not fulminate, but only burneth away like a quick fire: metals may be melted and reduced thereby.

To make a spirit out of Salt of Tartar, Sulphur, and Salt-nitre.

If you take one part of Salt of Tartar, and one part and a half of

Sulphur, with three parts of salt nitre, and grind them together, you will have a composition, which fulminateth like AURUM FULMINANS, and the same also (after the same manner as above hath been taught with gold) may be distilled into flores and spirits, which are not without special Virtue and Operation. For the corruption of one thing is the generation of another.

How to make a spirit of saw-dust, sulphur and salt nitre.

If you make a mixture of one part of Saw-dust made of Tilia or Linden-wood, and two parts of good sulphur, and nine parts of purified and well dryed salt nitre, and cast it in by little and little, there will come over an acid spirit, which may be used outwardly, for to cleanse wounds that are unclean. But if you mix with this composition minerals or metals made into fine powder, and then cast it in and distill it, there will come not only a powerful metallical spirit, but also a good quantity of flores, according to the nature of the mineral, which are of no small virtue: for the minerals and metals are by this quick fire destroyed and reduced to a better condition, whereof many things might be written: but it is not good to reveal all things. Consider this sentence of the Philosophers. IT IS IMPOSSIBLE TO DESTROY WITHOUT A FLAME, THE COMBUSTIBLE SULPHUR OF THE CALX, WHICH THE DIGGED MINE DOTH DOE.

Also fusible minerals and metals may not only be melted, therewith, but also cupellated in a moment upon a Table in the hand or in a nut-

shell; whereby singular proofs of ores and metals may be made, and much better, than upon a Cupel, whereof further in the fourth part of this book. Here is opened unto us a gate to high things; if entrance be granted unto us, we shall need no more books to look for the Art in them.

To make metallical spirits and flores by the help of salt-nitre and linnen cloth.

If metals be dissolved in their appropriated Menstruums, and in the solution (wherein a due proportion of salt nitre must be dissolved) fine linnen rags be dipt and dryed, you have a prepared metal, which may be kindled, and (as it was mentioned above concerning the saw-dust) through the burning away and consuming of their superfluous sulphur, the mercurial substance of the metal is manifested. And after the distillation is ended, you will find a singular purified calx, which by rubbing coloureth other metals, as that of gold doth guild silver, that of silver silvereth over copper, and copper calx maketh iron look like copper, & etc. which colouring though it cannot bring any great profit, yet at least for to shew, the possibility, I thought it not amiss to describe it; and perchance something more may be hid in it, which is not given to every one to know.

Of Gun-powder.

Of this mischievous composition and diabolical abuse of Gunpowder

much might be written: but because this present world taketh only delight in shedding innocent blood, and cannot endure that unrighteous things should be reproved, & good things praised, therefore it is best to be silent, and to let every one answer for himself, when the time cometh that we shall give an account of our steward-ship, which perhaps is not far off; and then there will be made a separation of good and bad, by him that tryeth the heart, even as gold is refined in the fire from its dross. And then it will be seen what Christians we have been. We do all bear the name, but do not approve our selves to be such by our works; every one thinketh himself better than others, and for a words sake which one understandeth otherwise, or takes in another sense than the other (and though it be no point, whereon salvation doth depend) one curseth and condemneth another and persecuteth one another unto death, which Christ never taught us to do, but rather did earnestly command us that we should love one another, reward evil with good, and not good with evil, as now a days every where they use to do; every one standeth upon his reputation, but the honor of God and his command are in no repute, but are trampled under foot, and Lucifers pride, vain ambition, and Pharisaical hypocrisie or shew of holiness; hath so far got the upper hand with the learned, that none will leave his contumancy or stubbornness, or recede a little from his opinion, although the whole world should be turned upside down thereby. Are not these fine Christians? By their fruit you shall know them, and not by their words. Wolves are now clothed with sheep skins, so that none of them almost are to be found, and yet the deeds and works of wolves are every where extant.

All good manners are turned into bad, women turn men, and men women in their fashion and behaviour, contrary to the institutition and ordinace of God and Nature. In brief, the world goeth on crutches. If HERACLITUS and DEMOCRITUS should now behold this present world, they would find exceeding great cause for their lamenting and laughing at it. And therefore it is no marvel, that God sent such a terrible scourge as gun-powder is upon us; and it is credible, that if this do not cause our amendment, that a worse will follow. viz. thunder and lightning falling down from Heaven, whereby the world shall be turned upside down for to make an end of all pride, self-love, ambition, deceit and vanity. For which the whole Creation doth wait, fervently desiring to be delivered from the bondage thereof.

Now this preparation, which is the most hurtful poison, a terror unto all the living, is nothing else but a FULMEN TERRESTRE denouncing unto us the wrath and coming of the Lord. For Christ to judge the world is to come with thundering and lightning: and this earthly thunder perchance is given us for to put us in mind and fear of that which is to come, but this is not so much as thought on by men, who prepare it only for to plague and destroy mankind therewith in a most cruel and abominable manner, as every one knoweth.

For none can deny but that there is no nimbler poison, than this gun-powder. It is written of the Basiliske, that he killeth man only by his look, which a man may avoid, and there are but few (if any at all) of them found: but this poison is now prepared and found every where.

How often doth it fall out, that a place wherein this powder is kept

is striken with thunder as with its like, in so much that all things above it are in a moment destroyed, and carried up into the air? Also in sieges, when an Ordnance is discharged, or Mines blown up, all whom it lays hold on, are suddenly killed, and most miserably destroyed. What nimbler poison then could there be invented? I believe there is none, who will not acknowledge it to be such.

And seeing that the ancient Philosophers and Chymists were always of opinion, that the greater the poison is, the better medicine may be made of it, after it is freed from the poison, which with us their posterity is proved true by many experiences; as we see by Antimony, Arsenick, Mercury, and the like minerals, which without preparations are meer poison, but by due preparation may be turned into the best and most effectual medicaments, which though not every one can comprehend or believe, yet Chymists know it to be true, and the doing of it is no new thing to them. And because I treat in this second part of medicinal spirits, and other good medicaments, and finding that this which can be made out of gunpowder, is none of the least, I would not omit in some measure, and as far as lawfully may be done, to set down its preparations: which is thus performed.

How to make a spirit of Gunpowder.

Your distilling vessel being made warm, and a great receiver with sweet water in it, being applied to it without luting, put a dish with gunpowder, containing about 12 or 15 grains a piece, one after another

into it; in the same manner as above was taught to do with gold. For if you should put in too much of it at once, it would cause too much wind and break the receiver.

As soon as you have conveighed it into the vessel, shut the door, and the gunpowder will kindle, and give a blast that it maketh the receiver stir, and a white mist or steam will come over into the receiver. As soon as the powder is burnt, you may cast in more before the mist is settled, because else the distilling of it would cost too much time, and so you may continue to do until you have spirit enough. Then let the fire go out, and the furnace grow cool, and then take off the receiver, pour the spirit with the water that was poured in before (the flores being first every where washed off with it) out of the receiver into a glass body, and rectifie it in a B. through a limbick, and there will come over a muddy water, tasting and smelling of sulphur: which you must keep. In the glass body you will find a white salt, which you are to keep likewise. Take out the CAPUT MORTUUM, which remained in the distilling vessel, and looks like gray-salt, calcine it in a covered crucible, that it turn white, but not that it melt; and upon this burnt or calcined salt, pour your stinking water, which came over through the limbeck, and dissolve the calcined white salt with it, and the feces which will not dissolve cast away. Filtre the solution, and pour it upon the white salt, which remained in the glass body, from which the sulphureous spirit was abstracted before, and put the glass body (with a limbeck luted upon it) into sand, and abstract the sulphureous water from it, which will be yellowish, and smell more of sulphur

than it did before. This water if it be abstracted from the salt several times, will turn white, almost like unto milk, and taste no more of sulphur, but be pleasant and sweet. It is very good for the diseases of the lungs. Also it doth guild silver, being anointed therewith, although not firmly, and by digestion it may be ripened and reduced into a better medicine.

The salt which remained in the glass body, urge with a strong fire, such as will make the sand, wherein the glass standeth red hot, and there will sublime a white salt into the limbeck, in taste almost like unto salt Armoniack, but in the midst of the glass body, you will find another, which is yellowish, of a mineral taste and very hot upon the tongue.

The sublimed salts, as well the white which did ascend into the limbeck, as the yellow, which remained in the glass body are good to be used in the plague, malignant fevers and other diseases, where sweating is required; for they do mightily provoke sweating, they comfort and do cleanse the stomach, and cause sometimes gentle stools.

But what further may be done in Physick with it, I do not know yet.

In Alchymy it is also of use, which doth not belong to this place. Upon the remaining salt which did not sublime you may pour rain water, and dissolve it there in the glass body, (if it be whole still) else if it be broken, you may take out the salt dry, and dissolve and filtre and coagulate it again, and there will be separated a great deal of feces. This purified salt, which will look yellowish, melt in a covered crucible, and it will turn quite blood red, and as hot as fire upon the

tongue, which with fresh water you must dissolve again, and then filtre and coagulate; by which operation it will be made pure and clear, and the solution is quite green before it be coagulated, and as fiery as the red salt was before its dissolution.

This grass green solution being coagulated again into a red fiery salt, may be melted again in a clean and strong crucible, and it will be much more red and fiery.

N. B. And it is to be admired that in the melting of it many fire sparks do fly from it, which do not kindle or take fire, as other sparks of coals or wood use to do. This well purified red salt being laid in a cold and moist place, will dissolve into a blood red oil, which in digestion dissolveth gold and leaveth the silver: this solution may be coagulated, and kept for use in Alchemy.

There may be also a precious Tincture be extracted out of it with alcolized spirit of wine, which Tincture guildeth silver, but not firmly.

And as for use in Physick, it ought to be kept as a great Treasure. But if the red fiery salt be extracted with spirit of wine before gold be dissolved therewith, it will yield likewise a fair red Tincture, but not so effectual in Physick as that unto which gold is joined. And this Tincture can also further be used in Alchemy, which belongeth not hither, because we only speak of medicaments.

Of the use of the Medicine or Tincture made of Gunpowder.

This Tincture whether with or without gold, made out of the red salt,

is one of the chiefest that I know to make, if you go but rightly to work, and prepare it well; for it purifieth and cleanseth the blood mightily, and provoketh also powerfully sweat and urine; so that it may safely and with great benefit be used in the Plague, Fevers, Epilepsy, Scurvy, in MELANCHOLIA HYPOCHONDRIACA, in the Gout, Stone, and the several kinds of them; as also in all obstructions of the Spleen and Liver, and all diseases of the Lungs, and it is to be admired that of such a hurtful thing such a good medicine can be prepared. Therefore it would be much better to prepare good medicaments of it, to restore the poor diseased to health therewith, than to destroy with it those that are whole and sound.

I know a Chymist, that spent much time and cost to search this poisionous dragon, thinking to make the universal medicine or stone of the ancient Philosophers out of it. Especially because he saw, that so many strange changes of colours appeared, whereof mention is made by the Philosophers when they describe their medicine and the preparation thereof.

The Dragons blood, Virgins milk, Green and Red Lion, Black blacker than Black, White whiter than White and the like, more needless here to relate, which easily may perswade a credulous man as it happened also unto him. But afterward he found, that this subject in which he put so much confidence, was leprous and not pure enough, and that it is impossible to make that tingent stone of it, for to exalt men and metals, and so was glad to be contented with a good particular medicine and to commit the rest unto God.

And so much of that poisionous dragon, gunpowder: but that there is another and more purer dragon, whereof the Philosophers so often made mention, I do not deny; for nature is mighty rich, and could reveal to us many arcana by Gods permission: But because we look only for great honour and riches, and neglect the poor, there is good reason why such things remain hidden from wicked and ungodly men.

To make spirits and flores of Nitre and Coals.

If you distill Nitre (well purified from its superfluous salt) mixed with good coals, the Egyptian Sun bird doth burn away, and out of it doth sweat a singular water, useful for men and metals. Its burnt ashes are like unto calcined Tartar, and for the purging of metals not to be despised.

To make flores and spirits of flints, crystals or sand, by adding of coals and salt nitre to them.

Take one part of flints or sand, and three parts of Linden coals, with six parts of good salt nitre mixed well together, and cast of it in, and the combustible sulphur of the flints will be kindled by the piercing and vehement fire of the salt nitre, and maketh a separation, carrying over with it part thereof, which it turneth into spirits and flores, which must be separated by filtering. The spirit tasteth as if it had been made of the salt of Tartar and flints, and is of the

same nature and condition; and the remaining CAPUT MORTUUM also yieldeth such an oil or liquor in all like unto that, and therefore its condition is not described here, but you may find it where I shall treat of the spirit made of salt of tartar by adding of flints.

To make a spirit and oil out of Talck with salt nitre.

Take one part of Talck made into fine powder, and three parts of Linden-coals, mixe them with five or six parts of good salt nitre, cast in of that mixture one spoonful after another, and there will come over a spirit and a few flores, which must be separated as hath been taught above concerning flints.

The spirit is not unlike unto the spirit of sand: the CAPUT MORTUUM, which looks greyish, must be well calcined in a crucible, so that it melt, and then pour it out, and it will yield a white transparent mass, like as flints and crystals do, which in a cold moist celler will turn to a thick liquor, fatter in the handling than the oil of sand. It is something sharp like unto oil of Tartar; it cleanseth the Skin, Hair and Nails, and makes them white; the spirit may be used inwardly for to provoke sweat and urine: externally used, it cleanseth wounds, and healeth all manner of scabs in the body out of hand. What further may be done with it, I do not know yet: But how to bring Talck, pebbles, and the like stony things to that pass, that they may be dissolved with spirit of wine and reduced into good medicaments shall be taught in the fourth part.

To make a spirit, flores, and oil out of Tin.

If you mix two parts of the filings of Tin, with one part of good salt nitre, and cast it in, as you were taught to do with other things, then the sulphur of Tin will kindle the salt nitre, and make a flame, as if it were done with common sulphur; whereby a separation is made, so that one part of the Tin cometh over in flores and spirit, and the rest stayeth behind, which if it be taken out, some of it in a moist place will turn into a liquor or oil, which externally may be used with good success in all ulcers for to cleanse them. It hath also the virtue, if it be pertinently applyed to graduate and exalt wonderfully all the colours of vegetables and animals, which would be useful for dyers. The spirit of it mightly provoketh sweating: the flores being edulcorated and used in plasters, do dry and heal very speedily.

To make a spirit, flores and a liquor out of Zinck.

In like manner as hath been taught with Tin, you may also proceed with Zinck, and it will yield a good quantity of flores, and also a spirit and oil, almost of the same virtues with those made of Tin: and these flores corrected with salt nitre, are better than those which are taught to be made by themselves in the first part of the book.

To make a spirit, flores and oil of Lapis Calaminaris.

Mix two parts of salt nitre with one part of LAPIS CALAMINARIS and cast it in, and it will yield a sharp spirit very useful for separating of metals, and there will come over also a few yellow flores. The rest remaining behind is a dark green Mass very fiery upon the tongue, like salt of Tartar, and if it be dissolved with rain water, yieldeth a grass green solution, which being not presently coagulated into salt, the green separateth it self from the fixed salt nitre, and there falleth to the bottom a fine red powder, and if it be edulcorated and dried, and given from one grain to ten or twelve it causeth gentle stools and easy vomits, better than prepared Antimony; for LAPIS CALAMINARIS and Zinck are of the nature of Gold, as in the fourth part shall be proved: the white LIXIVIUM or lye, from which the green is precipitated, may be coagulated into white salt, like unto salt of Tartar; but if you coagulate the green solution, before the green be separated from the salt nitre, then you will get a very fair green salt, high in colour and much more fiery than salt of Tartar, whereby special things may be done in Alchemy, which doth not belong hither. And if you desire to make such a green salt for to use in Alchemy, you need not take so much pains, as first to distil a spirit out of the mixture, but take three or four parts of good salt nitre, and mix it with one part of LAPIS CALAMINARIS, and let this mixture boil together in a wind furnace, till the salt nitre be coloured green by the LAPIS CALAMINARIS, then pour it out and separate the green goldish salt from it, and make such good use of it as you think fit.

But if you will extract a good Tincture and medicine, make it into powder, and extract it with spirit of wine, and it will yield a blood red Tincture, both in Physick and Alchemy of good use.

Further you are to take notice, that among all metals and minerals, which I know (except gold and silver) there is none found, out of which can be extracted a greenness which is of fire-proof, but only out of LAPIS CALAMINARIS, which deserves to be well considered and further thought upon.

To make a spirit of salt nitre, sulphur and common salt.

Take one part of salt, two parts of sulphur, and four parts of salt nitre, grind all together, and cast in one spoonful after another to distil, and it will yield a sharp yellow spirit, which if it be put among common water, so that the water be not made too sharp of it, it is a good bath, good for many diseases; especially it healeth all scabs very suddenly. The CAPUT MORTUUM may also be dissolved in water and used among bathes, and it is good likewise, but the spirit is penetrating, and doth operate suddenly in shrinkings and other defects of the nerves; of such kind of bathes there shall be spoken more in the third part. Also the remaining fixed yellow salt is good to be used in Alchemy; for it graduateth silver by cementing.

To make a spirit, flores and oil out of salt nitre and Regulus Martis.

Take one part of REGULUS MARTIS STELLATUS (made of one part Iron or Steel, and three parts of Antimony, whose preparation is described in the fourth part) and three parts of pure salt nitre, mix and grind all together, and cast it in by little and little to distil, and there will come over a spirit together with a white sublimate, which must be separated with water, as hath been taught above with other flores, and both the spirit and the flores are good to provoke sweat. The remaining CAPUT MORTUUM, (as they usually call it) is not dead, but full of life and virtue, whereby much good may be done both in Physick and Alchmey, as followeth. The remaining Mass, which looks white, and is very sharp, and fiery (if the REGULUS have been pure, if not, then it will look yellowish) may be edulcorated with fresh water, and it will yield a LIXIVIUM or lye in all things like unto calcined Tartar, but sharper and purer, and may be used almost in all operations instead of salt of Tartar (but first the REGULUS ANTIMONIS must be precipitated from it by the help of water) and afterward it may be coagulated into salt and kept for its use; the edulcorated, as also that which was precipitated with water is a white and fine powder, useful in the plague, fevers, and other diseases to provoke sweating thereby, and may very safely be used, and although if it be given in a greater quantity than usual, it causes some vomits also, yet for all that it doth no hurt. It is easily taken because it hath no taste. It is given to children from 3, 4, to 12 grains: to elder folks from 1/48 to 1/16 of an ounce; they work

successfully in all diseases, where sweating is needful. This ANTIMONIUM DIAPHORITICUM, may also be melted into glass, and so extracted and dissolved with spirit of salt, and it may be prepared into several good medicaments: and if all that which may be done with it, should be described at large, it would require too much time. The LIXIVIUM, if it be coagulated, hath wonderful virtues, so that if one should describe them, he would hardly be credited by any body, because it is not made of costly things; and truly the life of man is too short to find out by experience all that lies hid in it: and it would be but a laughing matter to a proud fool, if one should reveal it: therefore it is better to keep counsel, than to sow strife. BASILIUS VALENTINUS in his Triumphant Chariot of Antimony, where he writeth of the signed star, hinted it sufficiently, but very few take notice of it. PARACELSUS also, here and there in his books under an unknown name, makes frequent mention of it; but its true preparation and use, by reason of the unthankful was never described by the Philosophers, which for instruction of Good Honest Men we do here mention.

Before you edulcorate the REGULUS (made by fulmination) you may extract of it a good medicinal Tincture with spirit of wine, and if you dissolve it with spirit of salt, there will shoot a white foliated Talck in all things like unto the Mineral Talck: wherefore a liquor may be made, which coloureth the skin very white, but if this calx of Antimony, before it be extracted with spirit of wine or dissolved with spirit of salt be made into fine powder, and exposed to the moist air, it will dissolve into a fat liquor, which though it be something sharp, yet

doth no hurt to the skin, if it be used with discretion, but rather cleanseth it more then any other thing, and so it doth likewise to the hair and nails; but as soon as the liquor hath been applyed for that purpose, it must be washed off again with water, lest it do not only take away the gross and unclean skin, but also work upon the tender white skin and do hurt, and therefore I give warning, that you use it discreetly: for according to the old proverb, you may misuse even that which else is good in it self. If you put some of it into warm water and bathe yourself in it, the gross skin will peal off the body, so that you will almost seem to be another body. And this bath also is good for many diseases: for it openeth the pores mightily, and cleanseth all the blood in the body, by drawing many ill humors out of it, which maketh a man light and strong, especially if he be purged first, before he useth the bath. It is also good for Melancholy, scurvy and leprosie, especially when the red Tincture drawn out of it with spirit of wine, be used besides. It is also good to be used in a foot bath for those that are troubled with corns and other excrescencies upon their feet, or with nails that cut the flesh; for it softeneth them and makes them fit for cutting, and as tractable as wax. For there is nothing known under the Sun, which softeneth more a hard skin, hair, nails and other excrescencies, than this oil. And this I did set down therefore, because I know, that many are so tormented therewith, that they cannot well endure their shoes upon their feet. But if you coagulate this oil into salt, and melt it in a crucible, and pour it out into a flat brass bason, that it flow at large and may be broken, then you

have the best Causticum, to open the skin withal where is need. If you dissolve crude Tartar with it and coagulate it again, you will get a salt which is used in many Chymical operations; and there may be extracted out of it a blood red Tincture with spirit of wine, which proveth very effectual against all obstructions.

Also every combustible sulphur may be easily dissolved with it, and used among bathes, it acteth his part admirably. If any oil of spices be boiled therewith, then the oil will dissolve in it, and they turn together to a balsome, which doth mingle it self with water, and is good to be taken inwardly for some infirmities: but women with child must not meddle with it, because it makes them miscarry. But after their delivery, it is good to expel after burthen and other reliques. But if you boil OLEUM with this liquor and rose water so long till the oil do incorporate with the liquor and waters and then separate the watery substance from it, you will get a soap as white as snow, which may be used for to wash the hands with it, and it doth smell very well. You may also wash the head with it; for it strengtheneth the brain and cleanseth the head and hair. This soap may be distilled, and it will yield a penetrating oil, very good for the sinews and nerves.

Now as this liquor of REGULUS ANTIMONII softeneth the skin, nails, hair, feathers, horns, and the like, and dissolveth them more than any thing in the world: In the like manner also it hath power to dissolve not only metals, but also the hardest stones, but not in that manner which is done by boiling, as was mentioned of sulphur, but after another way, which is not proper for this place. It sufficeth that I hinted it.

The fiery fixed salt nitre may be dissolved with spirit of salt or vinegar, and sublimed into a TERRA FOLIATA. What further can be effected with it, doth not belong to this place, and perchance some where else more shall be spoken of it.

To distil a Butrum out of Antimony, Salt and Vitriol, like unto that, which is made out of Antimony and Mercury Sublimate.

Take onepart of crude Antimony, two parts of common salt, and four parts of vitriol calcined white, beat all to powder and mix them well, and so cast it in as you were taught to do with other materials, and there will come over a thick oil of Antimony like butter, which may be rectified like any other oil, that is made after the common way with Mercury sublimate, and is also the same with it in use, which use you may see in the first part: the same also may be made better and in a greater quantity in the furnace described in the first part, and also with less coals and time by the help of the open fire, because it endureth greater heat than in the second furnace.

To distil Butrum of Arsenick and Orpiment.

After the same manner as was taught with Antimony, there may also out of Arsenick and Auripigment together with salt and vitriol a thick oil be distilled, which not only outwardly but also inwardly is safe to be used, and may be so corrected, that it shall be nothing at all

inferior in virtue unto the BUTYRUM ANTIMONII, but rather go beyond it: which perchance will seem impossible to many. But he that knows the nature and condition of minerals, will not be astonished at my words, but they will be to him as a light in a dark place.

To make a rare Spirit of Vitriol.

If common vitriol be dissolved in water, and you boil granualated Zinck in it, all the metal and sulphur contained in the vitriol will precipitate on the Zinck, and the solution will turn white, the precipitated matter is nothing else, but iron, copper, and sulphur, which the salt of vitriol did contain, and now is drawn from it by the Zinck.

The reason why the metal precipitates out of the salt upon the Zinck, belongeth to the fourth part, where you will find it sufficiently explained; The white solution, from which the metallical matter is separated, must be coagulated to the dryness of salt, and so by it self a spirit distilled of it, which riseth easily, and is in taste and virtue not unlike unto common oil of vitriol, but only that this is a little purer than the common.

Here perchance many may object: you take the green from the vitriol, which PARACELSUS doth not teach, but bids us to keep it. To which I answer, that I do not teach here to make the sweet red oil of vitriol, whereof PARACELSUS hath written, but the white acid oil; which is as good, or rather much better, than common oil, which is made of the common impure vitriol. To what purpose is it, that you take green vitriol

to distil, whereas the green doth not come over, and although that green should come over, why should that oil be better than the white? For the green in the common vitriol is nothing else but copper and iron, which the salt water running through the passages of Metals did dissolve and take into it self, and as soon as such a green vitriol feeleth the fire, the green turneth into red, which is nothing else but a calcined iron or copper, which in the reducing by a strong fire and by melting is made manifest.

PARACELSUS hath not taught us, that we should drive over the green by the force of the fire into a red and sweet oil, but he hath shewed us an other way, which is found out by few men, whereof in the beginning of the second part already hath been made mention.

This spirit or acid oil distilled out of the purified vitriol, is of a pleasant sowerness, and serveth for all those uses, which above by the vitriol were described. And this process is set down only for that end, that we may see, that when the vitriol is purified, that then it is easier distilled, and yieldeth a more pleasant spirit, than if it be yet crude and impure.

And that such a purifying of the vitriol is nothing else but a precipitating of the metal, which the water (as before said) running through the veins thereof hath assumed, is thus to be proved; dissolve any metal in its appropriate Menstruum, whether it be done with distilled acid spirits or sharp salts, adding common water to them, or else dry by the fire in a crucible, according as you please, and then put into that solution another metal, such as the dissolvent doth sooner seize on, then

upon that which it hath assumed, and then you will find, that the dissolvent doth let fall the assumed metal or mineral, and falls upon the other, which it doth sooner seize on, and dissolveth it as being more friendly to it; of which precipitation in the fourth Part shall be spoken more at large.

This one thing more is worthy your observation, that among all metals there is none more soluble than Zinck, and therefore that all the other (as well in the dry as in the wet way) may be precipitated thereby and reduced into light calxes, in so much that the calx of gold or silver precipitated in this manner (if so be you proceed well) retaineth its splendor or gloss, and is like a fine powder wherewith you may write out of a pen.

To make a subtile spirit and pleasant oil of Zinck.

Because I made mention here of Zinck, I thought good not to omit, that there may be made a penetrating spirit and wholesome oil out of it by the help of vinegar, which is thus to be done. Take of the flores (which were taught to be made in the first part) one part, put them into a glass (fit for digestion) and pour upon them 8, or 10 parts of good sharp vinegar made of honey; or in want thereof take wine vinegar, and set the glass with the flores and vinegar in a warm place to dissolve, and the solution being performed, pour off the clear, which will look yellow and after you have filtered it abstract the phlegm, and there will remain a red liquor or balsome, to which you must add pure sand,

well calcined, and distill it, and first there will come over an unsavory phlegme, afterward a subtle spirit, and at last a yellow and red oil which are to be kept by themselves separated from the spirit, as a treasure for to heal all wounds very speedily. The spirit is not inferior unto the oil, not only for inward use to provoke sweat thereby, but also externally for the quenching of all inflamations, and doubtless this spirit and oil is good for more diseases but because its further use is not known to me yet, I will not write of it, but leave the further trial to others.

To distil a spirit and oil out of Lead.

In the same manner as was taught of Zinck, there may be out of lead also distilled a subtle spirit and a sweet oil, and it is done thus: Pour strong vinegar upon MINIUM, or any other calx of lead, which is made per se, and not with sulphur, let it digest and dissolve in sand or warm ashes, so long till the vinegar be coloured yellow by the lead, and turned quite sweet. Then pour off the clear solution, and pour on other vinegar, and let this likewise dissolve, and this repeat so often till the vinegar will dissolve no more, nor grow sweet; then take all these solutions, and evaporate all the moisture, and there will remain a thick sweet yellow liquor, like unto honey, if the vinegar was not distilled and made clear, then no liquor remaineth, but only a white sweet salt. This liquor or salt may be distilled after the same manner as was taught with the Zinck, and there will come over not only a

penetrating subtle spirit, but also a yellow oil, which will not be much, but very effectual, in all the same uses, as of the spirit, and oil of Zinck was taught.

N. B. This is to be observed, that for to make this spirit and oil, you need no distilled spirit, but that it may be done as well with undistilled vinegar, and the undistilled yields more spirit than the distilled. But if you look for a white and clear salt, then the vinegar must be distilled, else it doth not shoot into crystals, but remaineth a yellow liquor like unto honey, and it is also needless to make the solution in glasses, and by digestion continued for a long time, but it may as well be done in a glazed pot, viz. pouring the vinegar upon the Mineum in the pot, and boiling it on a coal fire; for you need not fear that any thing of the vinegar will evaporate, in regard that the lead keeps all the spirits, and lets only go an unsavory phlegm. You must also continually stir the lead about with a wooden spatulla, else it would turn to a hard stone, and would not dissolve: the same must be done also when the solution is done in glasses; and the solution after this way may be done in three or four hours: and when both kind of solutions are done, there will be no difference betwixt them, and I think it providently done not to spend a whole day about that which may be done in a hour.

And if you will have this spirit and oil better and more effectual, you may mix 1 ounce of crude Tartar made into powder with 1 lb. of dissolved and purified lead, and so distil it after the same manner as you did distil it by it self, and you will get a much subtler spirit and a better oil than if it were made alone by it self.

To distil a subtile spirit and oil out of crude Tartar.

Many think it to be but a small matter to make the spirit of Tartar; for they suppose, that if they do but only put Tartar into a retort, and apply a receiver, and by a strong fire force over a water, they have obtained their desire: and they do not observe, that in stead of a pleasant subtle spirit, they get but a stinking vinegar or phlegm; the pleasant spirit being gone. Which some careful operators perceiving, they caused great receivers to be made, supposing by that means to get the spirit. Now when the distillation was done, weighing their spirits together with the remainder, they found, that they had suffered great loss, wherefore they supposed it to be an impossible thing, to get all the spirits, and to lose none, and indeed it is hardly possible to be done otherwise by a retort: for although you apply a great receiver to a small retort, and that there be also but a little Tartar in it, and the joints being well luted, so that nothing can pass through, and though you make also the fire never so gentle, hoping to get the spirit by that way, yet for all that you cannot avoid danger and loss. For at last the retort beginning to be red hot, and the black oil going, then and but then the subtilst spirits will come forth, which either steal through the joints, or else do break the retort or receiver, because they come in abundance and with great force, and do not settle easily: wherefore I will set down my way of making this most profitable, and excellent spirit.

The preparation and use of the spirit of Tartar.

Take good and pure crude Tartar, whether it be red or white, it matters not, make it into fine powder, and when the distilling vessel is red hot, then cast in with a ladle half an ounce and no more at once, and so soon as the spirits are gone forth and settled, cast in another half ounce and this continue, till you have spirit enough, then take out the remainder, which will look black, and calcine it well in a crucible, and put it in a glass retort, and pour the spirit that came over together with the black oil, upon it, drive it in sand at first gently, and the subtilst spirits will come over, and after them phlegme, at last a sowre vinegar together with the oil, whereof you must get each by it self. But if you desire to have the subtle spirit which came over first, more penetrating yet, then you must take the CAPUT MORTUUM that staid in the retort, and make it red hot in a crucible, and abstract the spirit once more from it, and the calcined Tartar will keep the remaining moistness or phlegm, and only the subtilst spirit will come over, which is of a most penetrating quality, whereof from half a dram to an ounce taken in wine or any other liquor provoketh a quick and strong sweat, and it is a powerful medicine in all obstructions, and most approved and often tried in the plague, malignant fevers, scurvy, MELANCHOLIA HYPOCANDRIACA, collick, contracture, epilepsy and the like diseases. And not only these mentioned diseases, but also many others more, which proceed from corrupt blood under God may successfully be cured with it.

The phlegm is to be cast away, as unprofitable: the vinegar cleanseth wounds: the oil allayeth swelling and pains, and doth cure scabs, and disperseth knobs that are risen upon the skin, as also other excrescencies of the same, if it be used timely, and the use thereof be continued.

N. B. If the black stinking oil be rectified from the calcined CAPUT MORTUUM, it will be clear and subtle, and it will not only asswage very speedily all pains of the gout, but also dissolve and expel the conglobated gravel in the reins, applyed as a plaister or unguent. In like manner it will dissolve and extract the coagulated Tartar in the hands, knees and feet, so that the place affected will be freed and made whole thereby: because in such a despicable oil there lyes hid a volatile salt which is of great virtue. But if you desire experimentally to know whether it be so, then pour upon this black stinking oil and acid spirit, as the spirit of common salt, or of vitriol or salt nitre, or only distilled vinegar, and the oil will grow warm and make a noise and rise, as if AQUA FORTIS had been poured upon salt of Tartar, and the acid spirit will be mortified thereby, and turn to salt. And this well purified oil doth dissolve and extract the Tartar out of the joints (unless it be grown to a hard stony substance) even as soap scoures the uncleanness out of cloaths, or to compare it better, even as like receiveth its like, and is easily mixed with it; and doth love it; but on the contrary, nothing will mix itself with that wherewith it hath no affinity at all. As if you would take pitch out of cloath by washing it in water, which never will be done by reason of the contrary nature;

for common water hath no affinity with pitch or other fat things, nor will it ever be taken out therewith without a mediator, partaking of both natures, viz. of the nature of pitch and that of the water, and such are sulphureous salts, and nitrous salts, whether they be fixed or volatile. As you may see at the soap boilers, who incorporate common water by the help of sulphureous salts with fat things, as tallow and oil. But if you take warm oil or any thin fat substance, and put it upon the pitch or rozin, then the oil easily accepteth of and lays hold on its like, and so the pitch is dissolved and gone out of the cloth, and the remaining fatness of the oil may be fetcht, out of the cloth with lye and common water or soap, and so the cloth recovereth its former beauty and pureness. And as it falleth out with sulphureous things, so it doth likewise with Mercurial. For example, if you would take the salt out of powdered flesh or pickled fish with a lixivium it would not succeed, because that the nitrous and acid salts are of contrary natures.

But if upon the powdered flesh or pickled fish you pour on water wherein some of the same salt (wherewithall the flesh was powdered) is dissolved, that salt water will extract the salt out of the flesh, as being its like, much more than common water, wherein there is no salt.

In this manner the hardest things also, as stones and metals, may be joined or united with water, whereof more in my other books are extant; it is needless here therefore to relate. I gave a hint of it, only for to shew, that always like with like must be extracted. True it is that one Contrary can mortifie another, and take the corrosiveness

from it, whereby the pains for a time are asswaged, but whether the cause of the disease it self be eradicated thereby, is a question.

Here may be objected, that I make a difference between the sulphureous and Mercurial salts, whereas neither Mercury nor sulphur apparently is to be seen in either. It is true, he that doth not understand nor know the nature of salts, is not able to apprehend it. And I have not time now to demonstrate it, but the same is shewed at large in my book DE NATURA SALIUM, that some of them are sulphureous, and some Mercurial: but he that looks for a further direction yet, let him read my book DE SYMPATHIA & ANTIPATHIA VERUM, wherein he shall find it demonstrated that from the Creation of the World to the time present, there were always two contrary natures fighting one against the other, which fight will continue so long till the Mediator betwixt God and Man, the Lord Jesus Christ shall put an end unto this strife, when he shall come to separate the good from the bad, by whose lightning and fire flame the proud and hurtful superfluous sulphur shall be kindled and consumed: the pure Mercurial being left in the center.

How to make precious spirits and oils out of Tartar joined with minerals and metals.

Take any metal or mineral, dissolve it in a fit menstruum, mix it with a due proportion of crude Tartar, so that the crude Tartar being made into powder together with the solution make up a pap as it were; then at once cast in one spoonful of it, and distil it into a spirit

and oil, which after the distillation must be separated by rectification, for to keep each by its self for its proper use.

The use of the metallized spirit and oil of Tartar.

This Tartarized spirit of metals is of such a condition, that it readily performeth its operation according to the strength of the spirit, and the nature of the metal or mineral, whereof it is made. For the spirit and oil of Gold and Tartar is good for to corroborate the heart, and to keep out its enemies: the spirit of silver and tartar doth serve for the brain; that of Mercury and Tartar, for the liver: of lead and tin for the spleen and lungs: of iron and copper for the reins and seminary vessels: that of antimony and tartar for all accidents and infirmities of the whole body; and these metallical spirits made with Tartar, provoke sweat exceedingly, whereby many malignities are expelled out of the body. Likewise also the oil hath its operation, though this of several metals, as of Mercury and Copper, is not well to be used inwardly, because it causeth salivations and strong vomits. But externally they are very good for to cleanse all putrid ulcers, and to lay a good and firm ground for healing them.

The remainder, whereof the spirit and oil is distilled, you may take out, and ruduce it in a crucible into a metal, so that what is not come over, may not be lost, but made to serve again.

And as you were taught to distil spirits and oils out of dissolved metals and crude Tartar; so you may get them likewise out of common

vitriol and Tartar, viz. thus, take one part of Tartar made into powder, two parts of good pure vitriol, mix them well together, and distil a spirit of them, which though it be unpleasant to take, for all that in all obstructions and corruption of blood whatsoever it is not to be despised, but very successfully performeth its operation; especially when it is rectified from its CAPUT MORTUUM, and so freed from its phlegm; and its best virtue, which consisteth in the volatility, be not lost in the distilling.

N. B. But if you will have this spirit more effectual, then you may join Tartar and vitriol by boiling them together in common water, and crystallizing; and then cast it in, and distil it, and there will come over a much purer and more penetrating spirit; because that is the solution and coagulation of both, many feces were separated: but if one part of vitriol you take two parts of Tartar, and dissolve it together, and so filter and coagulate it, then the Tartar with the vitriol will shoot no more, but there remaineth a thick liquor like unto honey, out of which with spirit of wine there may be extracted a good tincture against obstructions. This liquor taken from 1/24 to 1/8 ounce doth purge very gently, and sometimes it causeth a vomit, especially if the vitriol was not pure and good: and it may be also distilled into a spirit not inferour unto the former in virtue. Besides the way taught above, there is yet (for to distil a metallized spirit of Tartar) another way, whereby several metals and minerals may be reduced into pleasant spirits and oils, and of more virtue, and it is done in this manner.

Take of the Tartar of white Rhenish wine made into powder, pour

upon it sweet rain or running water, so that to 1 lb. of tartar there be 10 lb. or 12 lb. of water, or so much that the tartar may be dissolved by it in the boiling, and then boil the mixture with the water in a tinned kettle, or which is better, in a glazed pot, until it be quite dissolved, and in the mean while take off the skum (with a wooden skimmer) still as it riseth in the boiling: and when no more skum riseth, and all the tartar is dissolved, then pour the solution thus hot through a linnen cloth, tyed stright on an earthen glazed vessel, that the remaining sliminess may be separated. The tartar water being strained, let it stand for 24 or 30 hours without stiring, and there will stick a crystallized tartar to the sides of the vessel, which after the water is poured off may be taken out, and washed with cold water, and then dried. This purified tartar keep, until I shall teach you, what further is to be done with it; and this tartar is pure enough for the above said purpose, viz. to reduce metals into oil with it, as shall follow anon. It is also good taken of it self for an absersive to make the body soluble. But if you desire to have it yet whiter and fairer and in great Crystals, you must proceed thus.

You must know this that all salts, if they shall shoot into great crystals, there must be a great quantity of them, for of little there comes but little. And if you will make great and fair white crystals of tartar, which will be no better than the former, but only pleasant to the eye, then you must proceed in this manner.

Take of white tartar made into powder, about ten or thirty lb. pour so much water upon it, as is needful for to dissolve it, and boil it

by a strong fire in a tinned kettle, until all the tartar be dissolved, which you may know by stirring it with a wooden ladle, and skim off diligently all the filth rising on the water; and you must take heed, that you take neither too much nor too little water to it; for if you take too little, part of the tartar will remain undissolved, and so will be cast away and lost among the slime: but if you take too much of it, then the tartar is too much dispersed in the water, and cannot shoot well, and so will likewise be lost, being cast away afterwards with the water. For I have heard many a one complain, that they could get but little of a pound, and therefore supposed the tartar to have been naught, whereas the fault was not in the tartar, but in the workman, that managed not well his work, pouring away one half which did not shoot with the water: but if you proceed well, then four pound of common tartar will yield 3 lb. of pure white crystals. The solution being well made, and no skum more rising at the top, cover the kettle, and let it cool without removing from the warm place it stands in, which will be done within three or four days, if the kettle be big. But the fire must be taken away from under the kettle, and so let it stand for the time mentioned. In the mean time while the Tartar will crystallize to the sides of the kettle, which crystals after the time is expired, and the water poured off, are to be taken out and washed and boiled again with fresh water, and so skimmed and crystallized; and this proceeding must be still reitered, until (which is done the third or fourth time) the crystals are white enough: then take them out, dry and keep them for use; whereof from 1/8 to 1 ounce made into powder, and taken

in wine, beer, warm broth or other liquor, will give some gentle stooles, and serveth for those, which cannot endure strong-physick. This tartar may be sharpned with Diagridium or any other purging drug, that so you need not take it in so great a quantity at once, but a lesser dose may serve turn. But if you do not look for great crystals, but only for Tartar well purified, then you may use this following manual, and you will get exceeding fair and glistering crystals, which need no beating into powder, but by the working come to be so pure and fine, as if they had been ground upon a stone, and looking not like a dead powder, but having a gloss, like unto small glistering snow that fell in very cold weather, and it is done thus: when the crystals are come to be pure enough by often dissolving and coagulating, then dissolve them once again in pure water, and pour the solution into a clean vessel of wood, copper, or earth being glazed; and let it not stand still (as above taught with the crystals) but as soon as it is poured in, with a clean wooden stick stir about continually without ceasing, till all be cold, which will be done in half an hour. In this stirring the Tartar hath no time to shoot into crystals, but doth coagulate into the smallest glistering powder, pleasant to behold, and like unto frozen snow settleth at the bottom of the vessel, then pour off the water, and dry the powder, and keep it for use. The waters which you poured off, in regard that they contain yet some Tartar, ought not to be cast away (as others do) but evaporated, and the Tartar contained in them will be saved, and so nothing will be lost, and in this manner not only white Tartar may be reduced into clear crystals, but also the red being several times

dissolved and crystallized, loseth its redness, and turneth white and clear. Besides the abovesaid, there is another way to reduce the Tartar into great white crystals at once by precipitation; but these being good enough for our purpose, viz. to make good medicines out of metals, I hold it needless to loose more time by the relation of it, and so I will acquiesce.

Another way to make a metallised spirit of Tartar.

Take of purified Tartar dissolved and coagulated but once, as much as you please, pour so much rain or other sweet water to it as will serve to dissolve it; in which solution you must boil plates of metals, until the Tartar have dissolved enough of it, so that it will dissolve no more; the sign whereof is, when the solution is deep coloured of the metal, and during your boiling you must often supply the evaporated water with pouring on of other, lest the Tartar come to be too dry and burn; and this solution may be done best of all in a metallical vessel; as when you will make the solution of iron, you may do it in an iron pot; and for copper you may take a copper kettle, and so forth for other metals, a vessel made of the same is to be taken. But you must know that gold, silver, and crude Mercury, unless they be first prepared cannot be dissolved like iron and copper, but when they are prepared first for the purpose, then they will also be dissolved. In like manner some minerals also must be first prepared, before they can be dissolved with Tartar and water. But if you can have good glasses or glazed

vessels of earth, you may use them for all metals and minerals for to dissolve them therein, and the solution you may not only use of it self for a medicine, but also distil it, and make a very effectual spirit and oil of it as followeth.

To distil the spirit and oil of Lead and Tin.

Take the filings of Lead and Tin, and boil them with the water or solution of Tartar in a leaden or tin vessel, until the Tartar be sweetned by the water, so that it will dissolve no more, to which pass it will be brought within twenty four hours, for both these metals will be dissolved but slowley, but if you would perform this solution sooner, then you must reduce the metals first into a soluble calx, and then they may be dissolved in less time than an hour. The solution being done, you must filtre it, and in B. abstract all the moisture to the thickness or consistency of honey, and there will remain a pleasant sweet liquor, which of it self with out further preparation may safely be used inwardly for all such diseases, for which other medicaments, made of these metals are useful. Especially the sweet liquor of lead and tin doeth much good in the Plague, not only by driving the poison from the heart by sweating, but also by breaking or allaying the intolerable heat, so that a happy cure doth follow upon it: but externally the liquor of lead may be used successfully in all inflammations, and it health very suddenly, not only fresh wounds, but also old ulcers turned to fistulaes; for the Tartar cleanseth, and lead consolidates.

The liquor of tin is better for inward use than for outward whose operations is not so fully known yet, as that of lead. But if you will distil a spirit thereof, then cast it in with a ladle by little and little, as above in other distillations oftentimes was mentioned, and there will come over a subtle spirit of tartar, carrying along the virtue and best essence of the metal, and therefore doth also prove much more effectual than the common spirit of tartar, which is made alone by itself, and this spirit as well that which is made of tin, as that of lead, if it be well dephlegmed first, may be used and held for a great treasure in all obstructions, especially of the Spleen; and few other medicines will go beyond them; but besides there must not be neglected the use of good purging medicines, if need require them. With the spirit there cometh over also an oil, which is of a quick operation, especially in wounds and sores of the eye, where other ointments and plasters may not so fitly be used, for it doth not only allay the heat and inflammation, a common symptom of the eye wounds, but also doth hinder and keep back all other symptoms which few other medicaments, are able to do; and for the residue, if it be driven further by the strongest fire, then there will come over a sublimate, which in the air dissolveth into oil, which is also of a powerful operation, not only in physick, but also in Alchemy.

And the lead runeth together into a fair white REGULUS, which is much whiter, purer and fairer than other common lead: but the tartar retains the blackness, and raiseth it self to the top as a fusible dross, which is impregnated with the sulphur of lead, wherewith you may colour

hair, bones, feathers and the like, and make them to be, and remain brown and black.

I made trial once of such a distillation in an iron vessel, whereby the same in the inside was so whitened by the purified lead, that it was like unto fine silver in brightness; which afterwards trying again, it would not fall so fair as at first; whereat none ought to wonder, for I could write something more (if it were fit) of tartar, knowing well what may be effected with it, if I did not stand in fear of scoffers, which vilify all what they do not understand. I durst presume to call tartar the Sope of the Philosophers; for in the cleansing of some metals, by long experience I found it of admirable virtue; though I would not be understood thus, as if I did count it to be the true AZOTH UNIVERSALIS PHILOSOPHORUM, whereby they wash their Laton: but I cannot deny, but that it is of particular use for the washing and cleansing of several metals; for it is indued with admirable virtues for the use of metals, whereof in other places more shall be said hereafter.

How to make a Tartarised spirit and oil out of Iron or Steel and Copper.

If you intend to make a good medicine out of iron or steel or copper joined with tartar, then for the iron or steel take an iron pot, and for copper a kettel of copper, make them very clean and put in it the filings of iron, or steel, or copper, which you please, and twice as much of pure tartar made into powder, and so much water, that the tartar may be dissolved well by it in the boiling, and so boil the metal with

the tartar-water so long, till it be deeply coloured by the metal, as red by the iron, and deep green by the copper; and when the water in the boiling doth waste, you must still supply it with other, that the tartar may not burn; for there must be always so much water, that no skin of the tartar may rise at the top, but that it remain always open, and there must not be too much water neither, lest it be too sweet, and not able to dissolve the metal. The solution of iron or steel being come to be red and sweet, and in taste like unto vitriol, but green and bitter of copper, pour it off warm by inclination into an other clean vessel, and let it stand so long again in a very gentle heat of coals, till almost all the water be evaporated, and the dissolved metal with the tartar remain in the consistency of honey.

Which metallical liquor may be used inwardly and outwardly (especially that of iron) which doth purge gently, and openeth the obstructions of the Liver and Spleen: cleanseth the Stomach, and killeth Worms: externally used it is a good wound balsome, and goes far beyond all such as are made of vegetables. It is singular treasure, not only for to cure new wounds; but also for to cleanse and heal old corrupt exulcerated sores, turned to fistulaes; but the liquor of copper is not safe for to be used inwardly, for it is not only very unpleasant in taste, but also causeth vehement vomits: and therefore I would not advise any one to be forward to use it, unless it be for strong folks and for to kill worms in them, for which purpose it is excellent good and surpasseth all other medicines whatsoever; but to little children it ought not to be given at all, in regard that it is of far too strong an operation for them.

N. B. And if you will use it to strong bodies against the worms or stomach-agues, you must observe that the patient (in case that he cannot get it up) thrust his finger into the throat to further the vomiting, that it may not stay behind, but come forth again out of the body, which is done health followeth upon it; but if it remain in the body, it causeth a loathsomeness to use it any more. And therefore you must take heed to use it warily: and in regard that this liquor is very bitter, you may mix it with some sugar, to facilitate the taking thereof, but that of iron needeth no such correction, it being sweet enough of it self, and therefore I commend and prefer it before the other: but if you will needs have that of copper (because it worketh so strongly) then the Patient must keep in from the cold air, and not presently after the operation load the stomach with strong drink and superfluity of meat, contenting himself with some warm broth and a little cup of wine or beer, and the next day his meat and drink will taste the better with him, and do him so much the more good.

But externally, this liquor is of the same use with that of iron or steel, yea, proveth more effectual and speedier in healing. It would be good that Surgeons knew how to prepare it, and would use it instead of their salves, wherewith many fresh wounds are spoiled and turned into horrid ulcers, especially it requiring so little cost and pains to make it. And if you would have these liquors purer yet, you must pour spirit of wine, and extract them, and they will easily yield their tincture, and leave many faeces behind which are good for nothing: but the tincture will be so much the better, purer, and more effectual, so that you need

use but four or five drops for purging, whereas of the gross liquor you must have from 4, 6, 8, to 12 or 16 drops: and this extracted tincture worketh also much better externally, and keepeth longer than the balsome or liquor; which in time is corrupted, but the extraction is never spoiled. But if you will distil the liquor or balsome, it is needless that it be extracted first, but may be distilled so as the boiling made it, after the same manner, as above was taught for Lead, and there will come over a yellow spirit and oil from iron or steel, and from copper a greenish spirit and oil.

The spirit and oil of iron may safely be used in the plague, fevers, obstructions, and corruptions of the blood, from 1/8 to 1 ounce. It is much better to provoke sweat, than that which is made of crude Tartar, without addition of a metal: the like doth that also which is made of copper and more effectually yet, and sometimes causeth a vomit, if it be used in a greater quantity, than is fitting.

N. B. Although the Chymists do prefer copper before iron, as a more firm and ripe metal, neverthe less, it is found by experience, that iron or steel by reason of its sweetness is better to be used for an inward medicine than copper. But for external use, copper (if it be well prepared) hath the preheminence, being an appropriate medicine for all ulcers and open sores, in all parts of the body, if the same inwardly be kept clean by fitting purges. For not only the now described medicine, but also many more besides, are taught to be made out of copper in other places of my books.

A Country-physick and purge I will teach for those, which either

live far from Apothecary-shops, or have no money to spare for physick; and it is made out of iron and copper, whereby they may cleanse their slimy stomachs, spoiled by a disorderly diet, whence head-aches, worms, agues, and other diseases are occasioned, warning withal those that are either too old or too young, or else decayed and weak, and so not strong enough for such powerful physick, that they will forbear to use it, lest besides the worms, they kill and expel life it self also; but those that are of a strong constitution, and a middle age, and of a sound heart, may safely use this purge, whereby stomach-agues, belly-worms, and many other occult diseases may be cured with good success. The preparation is done thus: Take 1 ounce of pure tartar made into powder, & 1 ounce or 1/2 ounce of sugar or honey, and 5 ounces or 6 ounces of spring water or rain water, put all into a clean copper vessel which is not greasy, and boil it upon a coal fire as long or somewhat longger than you use to boil an egg, or at the furthest half a quarter of an hour; take off the skum in boiling, let it stand till it be milk-warm, so that it may be drunk. This potion tasting almost like warm wine sweetened with sugar, give unto the patient to drink, and let him fast upon it, and within half an hour it will begin to work upwards and downwards; whereat you need not be amazed, but only keep the body warm, and within an hour it will have done working. But if you will drive out worms from little children by purging, then instead of the copper-vessel, take a clean iron-vessel, and put in a less quantity of tartar, sugar and water, and boil it as abovesaid, and give it to them, and it will purge only downwards, but sometimes it will also give

a gentle vomit, which will do them no hurt, but rather will cleanse the stomach the better. But if the drink be too weak, so that it doth not work, it may be used again the next day (but you must take more of the ingredients, or else let them boil longer) there is no danger in it at all, if you proceed aright, and it is much pleasanter to take, than the bitter worm-seed, wherewith they usually torment children.

The reason why this decoction works in this manner is, that the tartar and sugar being boiled in metallical vessels with water, work upon the metal, and extract virtue out of it, which causeth vomiting and purging (the Tartar also being helpful to it.)

How to make a Tartarised spirit of Mercury.

Vulgar Mercury cannot be dissolved like the former metals with tartar and water, without any foregoing preparation; but must be sublimed first with salt and vitriol, or crystallised with AQUA FORTIS, and then it may be dissolved by boiling with tartar and water, and reduced into a balsome, like other metals, but is not to be used inwardly, unless it be digested a sufficient time, so that its fierceness be allayed; Externally it may safely be used in all desperate, especially venereal sores, and it is very effectual and profitable medicine for them. But most of all it doth serve for Alchemy, although few do know this guest, because he will not be seen by every one. The spirit which comes over from it by distillation, is an admirable thing not only in physick, but also in Alchemy: yet you must take heed, that instead of a friend, you

do not harbor a great enemy; for its force and virtue is very great and powerful.

How to make a Tartarised spirit of Gold and Silver.

Gold and silver also can by no means be dissolved with tartar in a wet way: but in a dry way adding its helper to it, it will easily dissolve, which doth not belong hither; but if you will draw a spirit of it, then the gold and silver must be first by dissolving and coagulating be reduced to crystals, and dissolved with purifyed tartar and water, and of Gold you will get a yellow solution, and of silver a white inclining unto green, which being reduced to the consistency of honey, may be used safely and without fear. The solution of Gold doth loosen and keep the body open; it effectually strengtheneth the stomach, heart, lungs, and liver, and other principal members: and that of silver purgeth very forcibly, according to the quantity given, like another purge, but without harm or danger, so that in all diseases where purging is necessary, it may be used safely from 1/24 to 1/8 ounce but that of gold is used in a smaller quantity: and both the liquor of gold and of silver may very successfully be used externally: but because for external uses inferour metals will serve the turn, it is needless to use costly things thereto.

The spirit which is forced from it by distillation, is endued with great virtue: for the volatile part of the metal cometh over joined with the spirit of tartar, the remainder may be reduced, so as it was taught

of other metals. This spirit, especially that of Gold, is exceeding good in the plague and other diseases, where sweating is necessary: for it driveth not only by sweating, all Malignities from the Heart, but also doth strengthen the same, and preserveth it from all hurtful symptoms. Like wise also that of silver is very commendable, especially it if be first dephlegmed from its CAPUT MORTUUM, as above was taught in the preparation of the common spirit of tartar. For any Physican expert in Chymistry may easily guess what the spirit of tartar well rectified and impregnated with the virtues of gold may effect, and therefore it is needless to make any further mention of it, but it shall be left to the trial thereof.

To make a Tartarised spirit of Antimony.

Crude Antimony cannot be dissolved in such a manner as above hath been taught: but if it be first prepared into flores, or a VITRUM, it yieldeth easily its virtue in boiling, and it is done thus: Take to one part of the flores or of small ground VITRUM ANTIMONII made PER SE, three parts of pure tartar, and 12, or 15 parts of clean water, boil the Antimony with the tartar and water in a glazed pot for three or four hours, and the evaporated water must be still supplyed with other that the tartar may not burn for want of water, and the VITRUM must be sometimes stirred about with a wooden spatula (which the flores being light do not need): Thus done, the tartar water will be deep coloured by the Antimony, and leave the remaining Antimony settled in the bottom,

from which pour off the solution, and after having filtred it, evaporate the water from it, and then extract it once more with spirit of wine, and you will get a blood red EXTRACTION, whereof 1, 2, 3 to 10 or 12 drops given at once, causeth gentle vomits, and stools, which may be safely used by old and young in all diseases that have need of purging, and you need not fear any danger at all: For I know no vomit, which purgeth more gently than this, and if you please, you may make it work only (PER INFERSORIA) downward, so that it shall cause no vomits at all: and you need do nothing else but make a toast of brown bread, and hold it hot to your nose and mouth, and when this is almost cold, have another hot in readiness, and so use one after another by turns, till you feel no more loathing, and that the virtue of Antimony hath begun to work downward: This is a good secret for those that would use Antimonial physick, but that they are afraid of vomiting, which they are not able to endure. But if you will not spend so much pains, as to make such an Extract, then do as you was taught above to do with the copper, and take ten or twelve grains of prepared Antimony for an old body, but for a young one 5, 6 grains or more or less according to the condition of the person, and 1 ounce or 1/8 ounce of pure tartar, and together with 4 ounces of water put it in a little pipkin, and boil it a quarter of an hour, then pour the solution only into a cup, and dissolve a little sugar in it, whereby the acidity of the Tartar will be somewhat qualified. The DECOCTION drink warm, and keep your self as it is fit, and it will work much better, than if it had been steeped over night in wine, which not every one can abide to take fasting; but this DECOCTION,

because it tasteth like warm and sweet wine, is much pleasanter to take.

N. B. It is to be admired, that well prepared Antimony is never taken in vain: for although it be given in a very small quantity, so that it cannot cause either stools or vomits, yet it worketh insensibly, viz. it cleanseth the blood, and expelleth malignities by sweat, so that mighty diseases may be rooted out thereby without any great sensible operation. Which many times happened unto me, and gave me occasion to think further of it; and therefore I sought how to prepare Antimony so, that it might be used daily without causing of vomits or stools, which I put in execution accordingly, and found it good, as afterward shall follow.

Of the solution above described, viz. of the flores of Antimony with tartar make a good quantity, and after the evaporation of the water distil a spirit of it, and there will also come over a black oil, which must be separated from the spirit, and rectified PER SE, and externally applied it will not only do the same wonderful operations, which above have been ascribed to the simple oil of tartar, but it goeth also far beyond it, for the best essence of Antimony hath joined it self thereunto in the distilling and so doubled the virtue of the oil of Tartar, and this oil may with credit be used not only for all podagrical tumors to allay them very readily, but also by reason of its dryness it doth consume all other tumors in the whole body, whether they be caused by wind or water: for the volatile salt by reason of its subtilty, conveyeth the virtue of Antimony into the innermost parts of the body in a marvellous and incredible way, whereby much good can be performed in Chyrurgery.

As for the spirit, you may not only use it very successfully, in the Plague, Pox, Scurvy, MELANCHOLIA HYPOCONDRIACA, Fevers, and other obstructions and corruptions of blood, but also if you put some of it into new wine or beer, and let it work with it, the wine or beer comes to be so virtuous thereby, that if it be daily used, it doth stay and keep off all diseases proceeding from superfluous humors and corrupted blood, so that neither Plague, Scurvy, MELANCHOLIA HYPOCHONDRIACA, or any other disease of that kind can take root in those that daily use it, wherein no metal or mineral (except gold) can be paralleled with it: but in case you have no conveniency to make that spirit, and yet you would willingly have such a medicinal drink made of Antimony, then take but of the solution made with tartar, before it be distilled, and put 1 lb. or 1/2 lb. of it into 18 or 20 gallons of new wine or beer, and let it work together, and the virtue of the Antimony by the fermentation of the wine will grow the more volatile and efficacious to work. And if you cannot have new wine (in regard that it doth not grow every where) you may make an artificial wine of Honey, Sugar, Pears, Figs, Cherries or the like fruit, as in the following third part shall be taught, which may stand in stead of natural Wine.

These medicinal wines serve for a sure and safe preservative, not only to prevent many diseases, but also if they have possessed the body already, effectually to oppose and expel them. Also all external open sores (which by daubing and plastering could not be remedied) by daily drinking thereof may be perfectly cured. For not only BASILIUS VALENTINUS, and THEOPHRASTUE PARACELSUS, but many more before and after them

knew it very well, and have written many good things of it, which few did entertain, and (because their description was somewhat dark) most despised and defamed them for untruths.

In like manner, and much more may this my writing be lightly esteemed of, because I do not set down long and costly processes, but only according to truth, and in simplicity do labour to serve my neighbour, which doth not sound well in the ears of the proud world, which rather tickle and load themselves with vain and unprofitable processes, than harken unto the truth; and it is no wonder, that God suffereth such men, which only look after high things, and despise small things, to be held in Error.

Why do we look to get our Medicines by troubling our brains, & by subtle and tedious works, whereas God through simple nature doth teach us otherwise. Were it not better to let simple nature instruct us? Surely if we would be in love with small things, we should find great ones. But because all men do strive only for great and high things, therefore the small also are kept from them; and therefore it would be well, that we could fancy this maxim, that also things of small account can do something, as we may see by Tartar and despicable Antimony, and not only so many coals, glasses, materials, and the like, but also the precious time would not be wasted so much in preparing of medicaments: for all is not gold that glitters, but oftentimes under a homely coat some glorious thing is hid; which ought to be taken notice of.

Some may object why do I teach to join the Antimony first with the Tartar by the help of common water before its fermentation with the

wine: whether it would not be as good to put it in of it self in powder, or to dissolve it with spirit of salt (which would be easier to do than with Tartar) and so let it work? To which I answer, that the working wine or drink, receiveth no metallical calx or solution, unless it be first prepared with tartar or spirit of wine. For although you dissolve Antimony, or any other metal or mineral in spirit of salt, or of vitriol, or of salt nitre, or any other acid spirit, and then think to let it work with wine or any other drink, you will find that it doth not succeed; for the acid spirit will hinder the fermentation, and let fall the dissolved metals, and so spoil the work; and besides, Tartar may be used among all drinks, and doth more agree with ones taste and stomach, than any corrosive spirit.

In the same manner as was taught of Antimony, other minerals and metals also may be fitly joined with wine or other drink, and the use of such Antimonial wine is this, viz. that it be drank at meals and betwixt meals like other ordinary drink to quench thirst, but for all that, it must not be drank in a greater quantity, than that Nature be able to bear it. For if you would drink of it immoderately, it would excite vomits, which ought not to be, for it is but only to work in an insensible way, which if it be done, it preserveth not only the body from all diseases proceeding from corrupted impure blood, as the Plague, Leprosie, Pox, Scurvy, and the like, but by reason of its hidden heat, whereby it doth consume and expel all evil and salt humors (as the Sun dryeth up a pool) by sweat and urine, and so doth unburthen the blood from all such sharp and hurtful humors, & etc. It doth not only cure

the abovesaid diseases, but also all open sores, ulcers, fistulaes, which by reason of the superfluity of salt humors can admit of no healing, and it doth dispatch them in a short time in a wonderful manner, and so firmly that there is no relapse to be feared.

This drink is not only good for the sick, but also for the whole (though in a smaller quantity) because that it wonderfully cleanseth the whole body, and you need not fear the least hurt either in young or old, sick or healthy. And let no man stumble at it, that many ignorant men do defame Antimony and hold it to be poison, and forbid it to be used, for if they knew it well, they would not do it; but because such men know no more, than what they get by reading, or by hear-say, they pronounce a false sentence; and it might be replyed unto them, as APOLIES did to the Shoe maker; NE SUTOR ULTRA CREPIDAM: but what shall we say? NON OMNIS FERE OMNIA TELLUS. When an Ass after his death doth rot, out of the carcass groweth Beetles, which can fly higher than the Ass from whence they came; in the like manner we wish it may fare with the haters of royal Antimony, viz. that their posterity may get seeing eyes, and what they know not, they may forbear to despise and scoff at.

I must confess, that if Antimony be not well prepared, and besides, be indiscreetly used by the unskillful, that it may prejudice a man in his health, which even the vegetables also may do. But to reject it by reason of the abuse, would be a very unwise act: if perchance a child should get into his hand a sharp-edged knife, and hurt himself or others, because it doth not understand how to use a knife, should therefore the use of a knife be rejected and forbidden to those that are grown

up and know how to use it? Good sharp tools make a good workman; so good quick working and powerful medicines make a good physican; and and the sharper the tool is, the sooner a stone-carver or other craftsman may spoil his work by one cut which he doth amiss: which also must be understood of powerful medicines, for if they be used pertinently, in a short time more good may be done with them, than with weak medicaments in a long time. Now as a sharp tool is not to be handled but by a good workman, so likewise a powerful medicine ought to be managed by an understanding and conscientious physican, who according to the conditions of the person, and the disease, knows to increase or abate the strength of the medicine, and not by such a one, as doth minister it ignorantly without making any difference at all.

Let no man marval, that I ascribe such great virtues unto Antimony, it being abundantly enriched with the PRIMUM ENS of gold. If I should say ten times as much more of it, I should not lie. Its praise is not to be expressed by any mans tongue; for purifying of the blood, there is no mineral like unto it; for it cleanseth and purifieth the whole man in the highest degree, if it be well prepared first, and then discreetly used. It is the best and next friend to gold, which by the same also is freed and purified from all addition and filth, as we said even now, of man. Every Antimony for the most part agreeth with gold and its medicine; for out of Antimony, by the cleansing Art may be made firm gold, as in the fourth part shall be taught, and which is more, by a long digestion a good part of the same is changed into gold. Whereby it is evident, that it hath the nature and property of gold, and it

is better to be used for a medicine, than gold it self, because the golden virtue is as yet volatile in this, but in the other is grown fixed and compacted, and may be compared to a young child in respect of an old man. Therefore it is my advice, that in Antimony medicine should be sought, and not to trifle away time and cost in vain and useless things.

Further note, That if you desire to contract nearer together the virtue of Antimony or any other mineral or metal, as above was taught to be done with the Tartar, you must by exhalation of the superfluous moisture in Balneo, reduce the solution to a honey thick liquor, and pour spirit of wine upon it for to extract, and within few days it will be very red; then pour it off and pour on other, and let this likewise extract: continue this proceeding with shifting the spirit of wine, till the spirit of wine can get no more Tincture; then put all the coloured spirit of wine together into a glass with a long neck, and digest it so long in a warm Balneum, till the colour or best essence of Antimony be separated from the spirit of wine, and settled to the bottom like a blood red thick fat oil, so that the spirit of wine is turned white again; which is to be separated from the fair and pleasant oil of Antimony, which is made without any corrosive, and is to be kept as a great treasure in physick. The spirit of wine retains somewhat of the virtue of Antimony, and may be used with success of it self both inwardly and outwardly. But the Tincture as a Panacea in all diseases acteth its part with admiration, and as here mentioned of Antimony, so in the same manner all metals by the help of Tartar and spirit of wine may without

distilling be reduced into pleasant and sweet oils, which are none of the meanest in Physick: for every knowing and skillful Chymist will easily grant, that such a metallical oil, as without all corrosives out of the gross metals is reduced into a pleasant essence, cannot be without great and singular virtue.

How to make good spirit and oils out of Pearls, Corals, Crabs-eyes, and other light solable stones of beasts and fishes.

Take to one part of pearls or corals (made into fine powder three or four parts of pure Tartar, and so much water as will dissolve the Tartar by boiling; put the corals, Tartar and water together into a glass body, which must stand in sand, and give it so strong a fire, that the water boil in the glass body with the Tartar, and may dissolve the corals. (This solution may be done also in a clean earthen pot that is glazed, and the evaporated water must be supplyed with other, as above was taught to be done with the metals.) The corals being dissolved, let them cool, filtrate the solution, and abstract all the moisture from it in Balneo, and there will remain a pleasant honey-thick liquor, which may be used in Physick either of it self, or else once more extracted with spirit of wine and purified, or else distilled, as you please.

The extract or Tincture is better than the liquor, and the spirit is better than the extract or tincture: and all three may well and safely be used; they strengthen the heart and brain; especially those which are made of pearls and corals, they expel the urine and keep the body

soluble. Those of crabs eyes and of perches and other fishes open and clense the passages of the urine from all slime and impurity, and they powerfully expel the stone and gravel in the reins and bladder.

N. B. The distilled spirit of corals being well rectified, is good for the Epilepsy, Melancholy, and Apoplexy, It expelleth and driveth out all poison by sweating, because it is of a golden nature and quality, whereof in another place more shall be said.

To distil a spirit out of Salt of Tartar and crude Tartar.

If you take a like quantity of crude Tartar and of salt of Tartar, and dissolve it with clean water, and evaporate the water still skimming it, till no skin more do rise, and then let it cool, there will shoot white crystals, which being distilled as common Tartar, they will yield a purer subtler and pleasanter spirit, than the crude Tartar doth, in all to be used as above hath been taught of the simple spirit of Tartar: therefore it is needless here to describe its use. Before you distil a spirit thereof, you may use them in stead of TARTARUS VITRIOLATUS for purging, they will cause gentle stools, and drive also the urine and stone, and are not unpleasant to take. The dose is from 1/24 to 1 ounce in waters fit for your purpose. This salt dissolved with water purifieth metals (if they be boiled therein) and maketh them fairer then common Tartar doeth.

How to get a powerful spirit out of the salt of Tartar, by the help of pure sand or pebble-stones.

In the first part of this book I taught how to make such a spirit, but because the materials, which are to be distilled in that furnace must be cast upon quick coals, whereby the remainder is lost, and that also not every one hath the conveniency to set up a furnace that requireth more room than this here doth: therefore I will set down how it may be got with ease in this our present furnace, without the loss of the remainder, which is not inferour to the spirit it self. And it is done thus:

Make a fair white salt of calcined Tartar by dissolution, filtration and coagulation, pulverise that salt in a warmed morter, and add to it a fourth part of small pulverised crystal or flints or only of fine sand, washed clean, mix it well, and cast one spoonful thereof at once into your red-hot vessel (which must be made of earth) and so cover it, and the mixture as soon as it is red hot, will rise and boil (as common Allome doth, when it cometh to a sudden heat) and yield a thick white heavy spirit; and when it ceaseth to come forth, then cast in another spoonful, and stay out the time of its settling, and then another part again, till all your mixture be cast in. When no more spirit goeth forth, then take off the lid from the distilling vessel, and with an iron ladle take out that which stayed behind, whilest it is yet red-hot and soft, and it will look like unto a transparent clear white fusible glass, which you must keep from the air, for it will dissolve in it, till I teach you what you are to do with it.

The spirit which came over, may either be kept as it is, or else rectified PER ARENAM in a glass retort, and used in Physick; it is clean of another taste than the spirit of common salt or vitriol, for it is not so sharp; it smelleth of the flints after a sulphureous manner, and tasteth urine-like, and it is very good for those that are troubled with the gout, stone and Tisick: for it provoketh urine and sweat mightily, and (because it cleanseth and strengtheneth the stomach) it also maketh one have a good appetite to his Victuals. What it can do else is unknown to me as yet, but it is credible that it may act its part in many other diseases, which is left free for every one to try. In my opinion (since the spirit of the salt of Tartar is good to be used of it self for the stone, and that here it is strengthened by the sand, which have the signature of the stone of the Microcosme) there is hardly any particular medicine, which can go beyond it, but I leave every one to his own opinion and experience. Externally used, it quincheth inflammations and maketh a pure skin, & etc. The remainder, which I bid you keep, and looks like a transparent clear glass, is nothing else but the most fixt part of the salt of Tartar and flints, which joined themselves thus in the heat, and turned to a soluble glass, wherein lyes hid a great heat and fire. As long as it is kept dry from the air, it cannot be perceived in it: but if you pour water upon it, then its secret heat will discover it self. If you make it to fine powder in a warm morter, and lay it in a moist air, it will dissolve and melt into a thick fat oil, and leave some faeces behind. This fat liquor or oil of flints, sand or crystal may not only be used inwardly of it self,

but also serveth to prepare minerals and metals into good medicines, or to change them into better by Chymical art. For many great secrets are hid in the contemptible pebble or sand; which an ignorant and unexpert man (if they were disclosed to him) would hardly believe: for this present world is by the devils craft so far possessed with cursed filthy avarice, that they seek for nothing but money, but honest and ingenious sciences are not regarded at all; and therefore God doth close our eyes that we cannot see what lyeth before them, and we trample upon with our feet. That worthy man PARACELSUS hath given it us sufficiently to understand, when he saith in his book (containing the vexations of Alchymists) that many times a despicable flint cast at a Cow is more worth than the Cow; not only because that gold may be melted out of it, but also that other inferior metals may be purified thereby, so that they are like unto the best gold and silver in all trials; and although I never got any great profit by the doing of it, yet it doth suffice me that I have seen several times the possibility and truth thereof, which in its proper place likewise shall be taught.

This liquor of flints is of that nature toward the metals, that it maketh them exceeding fair, but not so, as women do scowre their vessels of tin, copper, iron, & etc. with lye and small sand, till all filth be scoured off, and that they get a bright and fair gloss: but the metals must be dissolved therein by Chymical art, and then either after the wet or dry way digested in it for its due time; which PARACELSUS calleth to go into the mothers womb, and be born again: if this be done rightly, then the mother will bring forth a pure child. All metals are engendered

in sand or stone, and therefore they may well be called the mother of metals, and the purer the mother is, the purer and sounder child she will bear, and among all stones there is none found purer than the pebble, crystal or sand, which are of one nature (if they be simple and not impregnated with metals:) And therefore the pebble or sand is found to be the fittest bath to wash the metal withal. But he that would take this bath to be the Philosophers secret Menstruum, whereby they exalt the King unto the highest purity, would be mistaken; for their Balneum is more friendly to gold by reason of its affinity with it than with other metals, but this doth easier dissolve other metals than gold. Whereby it is evident, that it cannot be BENARD his fountain (BERNHARDI FONTINA) but must be held only to be a particular cleanser of metals. But omitting this, and leaving it to the further practise and trial of those that want no time nor conveniency for to search what may be done with it, let us take notice of the use of this liquor in physick, for which uses sake this book is written. That which hath been said, was only done to that end, that we may observe, that we must not always look upon dear and costly things, but that many times even in mean and contemptible things (as sand & pebbles) much good is to be found.

How to extract a blood-red Tincture with spirit of wine out of the liquor of pebble-stones.

If you extract a tincture out of pebble-stones, for use in Physick or in Alchemy, then in stead of the white take a fair yellow, green or

blue pebble or flint, whether it hold fixed or volatile gold, and first with salt of tartar distil the spirit thereof; or if you do not care for the spirit, then melt the mixture in a covered crucible into a transparent, soluble and fusible glass, and in a warm morter make it into fine powder; put this powder in a long necked glass, and pour upon it rectified spirit of wine (it needeth not to be dephlegmed, it matters not if it be but pure) let it remain upon it in a gentle warmth, till it be turned red (the glass with the prepared pebble or flints must be often stirred about, that the pebble be divided, and the spirit of wine may be able to work upon it) then pour off the coloured spirit of wine, and pour on other, and let this likewise turn red: this pouring off and on must be iterated so often, till the spirit of wine get no more colour out of it. All the Tinctured spirit of wine put together, & abstract in a Balneum through a Limbeck from the Tincture which will remain in the bottom of the glass body like a red juice, which you must take out and keep for its use.

The use of the Tincture of pebbles or flints in Physick.

This Tincture if it be made of gold, pebbles or sand, is to be held for none of the least medicines, for it doth powerfully resist all soluble Tartareous coagulations, in the hands, knees, feet, reins, and bladder; and although in want of those that hold gold, it be extracted but only out of common white pebble, it doth act its part however, though not altogether so well as the first. Let no man marvel, that sand or

pebbles made potable, have so great virtue; for not all things are known to all; and this Tincture is more powerful yet, if first gold have been dissolved with the liquor of pebbles before the extraction. And let no man imagine that this Tincture comes from the salt of Tartar (which is taken to the preparing of the oil of sand) because that of it self also doth colour the spirit of wine, for there is a great difference betwixt this Tincture and that, which is extracted out of the salt of Tartar: for if you distil that of the salt of tartar in a little glass body or retort, there will come first a clear spirit of wine, then an unsavory phlegm, and a salt will remain behind, in all like unto common salt of tartar, wherein after its calcining not the least colour appeareth, and because none came over neither, it might be questioned where it remained then?

To which I answer, that it was not a true tincture, but only that sulphur in the spirit of wine was exalted or graduated by the corporeal salt of tartar, and so got a red colour, which it loseth as soon as the salt of tartar is taken from it, and reassumeth its former white colour: even as it happeneth also, when the salt of urine, or of hartshorn or soot, or any other like urineous salt is digested with spirit of wine, that the spirit turneth red of it, but not lastingly, but just so as it falls out with the salt of tartar, for if by rectification it be separated again from the spirit of wine, each (viz. both the salt and also the spirit of wine) doth recover again it former colour, whereby it appeareth, that (as above said) it was not a true tincture. He that will not believe it, let him dissolve but 1 ounce of common white salt

of tartar in 1 lb. of spirit of wine, and the spirit will turn as red of it, as if it had stood a long time upon several pounds of blue or green calcined salt of tartar; and if I had not tried it my self several times, I should have also been of that opinion: but because I found it to be otherwise, therefore I would not omit to set down my opinion: though I know I shall deserve small thanks of some, especially of those which rather will err with the greater number, than to know and confess the truth with the less number. However, I do not say, that the supposed tincture of the salt of Tartar is of no virtue or useless; for I know well enough that it is found very effectual in many diseases: for the purest part of the salt of Tartar hath been dissolved by the spirit of wine, it being thus coloured thereby, and therefore that tinctured spirit of wine may very fitly be used. But as for the Tincture, which is extracted out of the prepared pebbles, it is clean of another condition: for if you abstract the spirit of wine from it, though it also cometh over white, yet there remaineth a deep tinctured salt, whose colour is lasting in the strongest fire, and therefore may be counted a true Tincture.

How by the help of this liquor out of Gold its red colour may be extracted so that it remains white.

This oil or liquor of pebbles is of such a condition, that it doth precipitate all metals which are dissolved by corrosives, but not after that manner as the salt of Tartar doth; for the calx of metals which is

precipitated by this liquor; (because that the pebbles do mingle themselves therewith) is grown much heavier thereby, than if it had been only precipitated with salt of Tartar.

For example, dissolve in AQUA REGIA as much Gold as you please, and pour of this liquor upon it, till all the Gold fall to the bottom like a yellow powder, and the solution turn white and clear, which you must pour off, and edulcorate the precipitated Gold with sweet water, and then dry it (as you was taught to do with the AURUM FULMINANS) and you need not fear that it will kindle and fulminate in the drying, as it used to do, when it is precipitated with salt of Tartar or spirit of urine, but you may boldly dry it by the fire, and it will look like yellow earth, and will weigh as heavy again as the Gold did weigh before the solution; the cause of which weight is, the pebble stones, which did precipitate themselves together with the Gold. For the AQUA REGIA by its acidity hath mortified the salt of Tartar, and robbed it of its virtues so, that it could not choose but let fall the assumed pebbles or sand; on the other side, the salt of Tartar which was in the liquor of pebbles, hath annihilated the sharpness of the AQUA REGIA, so that it could not keep the dissolved gold any longer, whereby both the gold and the pebbles are freed from their dissolver.

This edulcorated and dryed yellow powder put into clean crucible, and set it between live coals, that it begin to be red hot, but not long, and the yellow will be changed into the fairest purple colour, which is pleasant to behold, but if you let it stand longer, then the purple colour vanisheth, and it turns to a brown and brick colour: and

therefore if you desire to have a fair purple coloured gold, you must take it off from the fire, as soon as it is come to that colour, and let it not stand any longer, else it loseth that colour again.

This fair gold-powder may be used by the rich (which are able to pay for it) from 1/24 to 1/8 ounce, in convenient vehicles; and in all diseases, where sweating is needful: for besides the provoking of sweat, it comforteth not only the heart, but also by the virtue of the pebble it expelleth the stone in the reins and bladder (if it be not grown to the height of hardness) like sand together with the urine: so that it may be safely used as well to prevent, as to cure the plague, gout and stone.

How to make further out of this purple coloured gold a soluble Ruby for medicinal use, shall be taught in the fourth part: for in regard that it must be done by a strong fire in a crucible, it doth not belong hither, but to its proper place, where other like Medicaments are taught to be made.

If you will extract the colour out of this precipitated gold, then pour upon it (before it be put into the fire for to calcine) of the strongest spirit of salt, and in a gentle heat the spirit will dissolve part of the gold, which will be much fairer and deeper in colour, than if it had been done with AQUA REGIA: upon this solution pour five or six times as much of dephlegmed spirit of wine, and digest both together its due time, then by the digestion of a long time, part of the Gold will fall out of the solution to the bottom like a fair white powder, which may be reduced with Borax or salt nitre and Tartar; it is white

like silver, and as heavy as other gold, and may easily get its colour again by the help of Antimony. The residue out of which the white gold is faln, viz. the spirit of salt mingled with the spirit of wine, must be abstracted from the Tincture, and there will remain a pleasant sowre liquor coloured by the gold, upon the bottom of the glass body, which is almost of the same virtue, which above hath been ascribed to other tinctures of gold. Especially this liquor of gold strengtheneth the heart, brain, and stomach.

N. B. Sometimes there comes over with the spirit of wine a little red oil, which the strong spirit of salt hath separated from the spirit of wine, and it is impregnated with the Tincture of Gold. It is an excellent cordial, few are found like unto it, whereby weak people decayed by sickness or age, may be kept alive a long time, they taking daily some drops of it, who else for want of the HUMIDUM RADICALE, would be forced to exchange their life for death.

Here some body may ask, whether this Tincture is to be counted or taken for a true Tincture of Gold; or whether there be another better to be found?

To which I answer, that although many may hold it to be such, and I my self do call it so here, yet that after due examination it will not prove to be such: for although some virtue is taken from the gold by this way, yet it doth still keeps its life, though it be grown weak and pale, because it can so easily recover its former sound colour by a contemptible mineral: if its true Tincture or soul were gone from it, surely an inferiour mineral could not restore it to life, but of

necessity there would be required such a thing for to do it, which hath not only so much, as it hath need of for it self, but hath a transcendent power to give life unto dead things. As we may see by a man or any sensible beast, that if they have lost their vigor by adversities, in that no life more is perceived in them, yet by medicines fit for the purpose, they may be refreshed, and brought to their former health, so that their former disease appeareth no more in them; but if their soul be once gone, the dead body can by no medicines be restored unto life again, but must remain dead so long, till he in whose power it is to give and to take life, have mercy upon it. So likewise it is to be understood of gold, when its colour is taken from it, and yet its life is left, which by the help of Antimony, being its medicine, as also by the help of iron or copper can be restored unto it, so that it recoverth its former fair colours, so that you cannot see at all, that it ailed any thing before. But if its life be gone from the body, it is impossible for any ordinary metal or mineral to restore it to life, but it must be done by such a thing, which is more than Gold it self hath been: for even as a living man cannot give life unto a dead man, so but GOD must do it who hath created man; so Gold cannot restore to dead Gold, the life which hath been taken from it, and how could it then be done by an unfixt mineral? But there is required a true Philosopher for to do it, such a one as hath good knowledge of gold and its composition.

Now as we heard that like cannot help its like, but he that shall help, must be more, than he that looks for help from him: Hence it is evident, that the Tincture, whose remaining body (from which it is taken)

is still gold, can be no true tincture; for if it shall be a true tincture, it must consist in its three principles, and how can it consist therein, the body from whence it came being yet alive, and possessing invisibly all its three principles? How can a mans soul be taken from him, and yet the body live still? Some will say, that for all that, this may be counted a true tincture, although the body still remain gold, and have kept its life: even as man may spare some blood out of his body, which though it will make him somewhat pale, yet he still liveth, and the lost blood may be supplyed again by good meat and drink. But what lame and senseless objections are these? Who would be so simple as to think, that a handful of blood may be compared to a mans life? I believe no wise man will do it. Although life goeth forth with the blood, yet the blood is not the life it self; else the dead could be raised thereby, if a cup full of it were poured into a dead body; but where was such a thing ever heard or seen? With such groundless opinions some did presume to censure the truth, set down in my treatise DE AURO POTABILI VERO, saying, GEBER and LULLIUS were also of opinion, that a true tincture can be extracted out of gold, the same nevertheless remaining good gold: but it may be asked, what it hath lost then for to yield a true Tincture, since it remained good gold? Here no body will be at home for to answer I doubt. What are the Writings of GEBER or LULLY to me? What they have written I do not despise, they were highly enlightned and experienced Philosophers, and would defend their writings sufficiently, if they were alive: and what I write, I am also able to maintain.

Do those men think, that the writings of GEBER and LULLY are to be understood according unto the bare letter? Shew me a tincture of gold which was made by the writings of GEBER or LULLY? If it were so, then every idiot or novice, that could but read Latin, would not only by their writings be able to make the Tincture of gold, but also the Philosophers stone it self, whereof they have written at large; which doth not follow, because it is seen by daily experience, that the most worldly learned men spent many years, and have been at vast charges, and taken great pains, and studied in their books day and night, and found not the least thing in them.

Now if such Philosophers were to be understood literally, doubtless there would not be so many poor decayed Alchymists. Therefore the writings of such worthies are not to be understood according to the letter, but according to the mystical sense hid under the letter.

But because the truth is eclipsed in their books by so many seducing and sophistical processes, there will hardly any man be able to pick it out from so many seducements, unless a light from God be given to him first, whereby he may be able to peruse the dark writings of those men, that he know how to separate the parabolical speeches, from those that are true in the letter it self: or if an honest Godly Chymist by the grace of God in his labours do hit upon the right steps, and yet do doubt, whether he be in the right way or no, then by reading of good and true Philosophers books, he may at last learn out of them the firm and constant truth: else hardly any ones desire may be obtained out of their books, but rather after the precious time spent, means and health wasted, a man shall be forced to fall a begging at last.

In like manner, if the true tincture be taken from Copper, the rest is no more a metal, nor by any Art or force of fire can be reduced to a metallical substance.

N. B. But if you leave some tincture in it, then it may be reduced into a brittle gray body, like unto iron, but brittle.

Another way to extract a good Tincture out of gold by the help of the liquor of sand or pebbles.

Take of that gold calx (which was precipitated with the oil of sand) one part, and three, or four parts of the liquor of crystals or of sand, mix the gold calx in a good crucible with the liquor, and set this mixture into a gentle heat, so that the moistness may evapœrate from the oil of sand which is not easily done; for the pebble or sand, by reason of their dryness keep and hold the moistness, and will not let it go easily; it riseth in the pot or crucible, as borax or Allome doth when you calcine them; therefore the crucible, must not be filled above half, that the liquor together with the gold may have room enough, and do not run over the pot: and when it riseth no more, then strengthen the fire, till the pot be red hot. The mixture standing fast, put a lid upon it, which may close well, that no coals, ashes, or other impurity may fall into it, and give it so strong fire in a wind furnace, that the liquor together with the gold calx may melt like water; keep it melting so long, till the liquor and gold together be like unto a transparent fair ruby, which will be done in an hours time or thereabouts; then pour it

forth into a clean copper morter, let it cool, and then make it into powder, and pour spirit of wine upon it for to extract, which will look like unto thin blood: and will prove more effectual in use, than the above described Tincture.

The residue from which the Tincture is extracted, must be boiled with lead, and precipitated and driven off as you do ores, and you will get the remaining gold, which went not into the spirit of wine; but it is very pale and turned like unto silver in colour, which if it be melted by Antimony, it recovereth its former colour without any considerable loss in the weight. How the melting in crucibles, and boiling of the remaining gold is to be done, shall be more punctually set down in the fourth part; I know several other fine processes, for to extract the colour easily out of gold; but because the gold must be first made fit for it by melting in a crucible, and that it is not pertinent to speak of that operation here in this second part, therefore it shall be reserved for the fourth, where you shall be informed at large, not only how to prepare Gold, Antimony and other minerals, and make them fit for extraction, but also how to reduce them into a transparent, soluble and fire-proof Ruby (which are none of the meanest medicines) and as it was done here with the gold, so you may proceed likewise with other metals and minerals for to extract their colours. And therefore being needless to describe each metals tincture by it self, all the processes of them shall be disclosed in one, viz. in that of gold. The book would grow too big, if I should describe them severally, which I count needless to do. Let this suffice for this Second part, that we have taught, how to

extract out of the gold its colour after a common way. Which indeed are good medicines, but for ought I know of no use in Alchemy. But he that seeketh to have a true Tincture out of gold, let him endeavour first to destroy the gold by the universal Mercury, and to turn the inside outward, and the outside inward, and proceed further according unto art, then the soul of gold will easily join it self with the spirit of wine, and come to be a good medicine, whereof more in my treatise DE AURO POTABILI is handled. If one know the CHALYBS of SENDIVOGIUS, which is well to be had, he might with little labour quickly get a good medicine: but because we shew our selves still ungrateful children unto God, therefore it is no marvel, that he withdraweth his hand from us, and leaveth us in errors.

What further may be done with the liquor of pebbles.

Many more profitable things, as well in Alchemy, as in medicine, may be compassed by the oil of sand; as for example, to make fair painting colours out of metals, which abide in all elements: Also to frame all sorts of transparent hard stones out of crystals, which in beauty are like unto the natural, yea fairer sometimes; also how to make many fair Amauses or Enamels and the like profitable arts: but they belong not to this second part, shall be reserved for the fourth, where all such shall be taught very punctually with all the circumstances thereunto relating.

How by the help of this liquor to make trees to grow out of metals, with thier colours.

Although this process in Physick may be of no great use: yet in regard that to a Chymical Physican it gives good information of the condition of natural things, and thier change. I though it not amiss to set it down here.

Take of the above described oil made of sand, pebbles or crystals as much as you please, mix therewith a like quantity of the lixivium of Tartar, shake both well together, so that the thick liquor may not be perceived in the lixivium, but be throughly incorporated therewith; both being turned to a thin solution, and then your water is prepared, wherein the metals grow.

The metals must first be dissolved in their proper corrosive MENSTRUUM, and the MENSTRUUM must be quite abstracted from thence again, but not too near, that the calx of the metal may not grow red-hot, whereby its growing virtue would be taken from it. Then take it out of the little glass-body, and break in pieces about the bigness of a pulse, and put them in the above described liquor in a clear bright glass, that the growing of the metals may be discerned through it; and as soon as the prepared metals are taken out of the glass body, they must be kept from the air, else they lose their growing virtue. Therefore thus dry they must be broken in pieces, and laid in the bottom of the glass (wherein the liquor is) a fingers breadth one from another asunder, and must not

be laid together on a heap. The glass must stand still in a quiet place, and the metal will presently swell in it, and thrust forth some bulks, out of which branches and twigs do grow, so finely, that one shall admire at it; and let none think that this growing serveth only for to please the eye, for some special thing is hid in it; for all sand or pebbles, although they be white, invisibly contain a hidden tincture or golden sulphur, which none without experience will be able to believe; for if for a time you digest the pure filings of lead in it, there will gold come to stick to the outside thereof (which gold may be washed off with water) and the lead will look as if it were gilded. Which gold came from no where else but from the sand or pebbles, although they were white and clear, so that it could not be perceived in them. It showeth also its meliorating virtue, when the metals do grow therein, and for a certain space of time are digested therewith. For it may be seen apparently, that the metals in the growing do increase from this liquor, and attract what is for their turn; which hence also may be perceived, that when but as much as the bigness of a pea groweth therein, it will grow twice or thrice as big, which is worthy to be considered of. Also the pebbles or sand-stones are the natural matrixes of metals, and there appeareth a great Sympathy between them, especially between the unripe metals and them; as if nature should say to such raw or unripe metals, return into your mothers womb, and stay there the due time, till you have attained there to perfect ripeness, for you were taken thence too soon against my will. Further, out of this liquor there may be made a good borras to reduce the metals thereby. There may be made

also with this liquor fair glased and firm colours upon earthen vessels like unto Porcellan or China. Also by boiling it with water, a tender impalpable snow-white earth may be precipated out of it, whereof there may be made vessels like unto Porcellan.

Many other useful things may be brought to pass thereby in mechanical businesses, needless here to relate.

Also unripe and volatile minerals may be fixed and ripened thereby, so that not only they may be the fitter to be used in Physick, but also the volatile gold and silver contained in them may be saved thereby, whereof more in the fourth part.

N. B. Hither belongs also the process of the spirit of lead, Virgins-milk and Dragons blood.

Of the spirit of Urine and of the volatile spirit of Salt Armoniack.

Out of Urine or Salt Armoniack, a powerful and penetrating spirit may be made several ways, which not only is to be used in physick for many diseases, but is also found very useful in mechanical and chymical operations, as followeth.

Take of the urine of sound men living chast, gather a good quantity together in a wooden vessel, let it stand for its time to putrefy, and distil a spirit thereof, which afterward in a great glass retort with a wide neck must be rectified from calcined tartar, and still that which cometh over first, may be saved by it self, and so the second and third also, the strongest may be used for the preparing of metallical medicines,

and the weaker for a medicine alone by it self, or else mingled with fit vehicles: The salt which in the rectification cometh over with the strongest spirit; may be put to the weakest, to make it the stronger, or else it may be saved by it self in a good strong glass.

But because the spirit of urine is tedious to make, therefore I will shew, hot to get it easier out of salt Armoniack. The preparation is thus.

Take of salt armoniack, and LAPIS CALAMINARIS, and make each by it self into powder, and then mix them together, and cast of it into the red hot vessel at once no more than 1 or 1/2 ounce. Unto the vessel there must be applyed a great receiver: for the spirit goeth with such a force and power, that it were impossible to distil it in a retort without danger or loss, for I broke more than one receiver with it, before I did invent this instrument. The spirits being well settled in the receiver, cast in more of your mixture; this continue so long till all your matter is cast in; then take off the receiver, and pour the spirit into a strong glass, which must not be well closed at the top, but not with wax and a bladder, because it softeneth the wax, and doth penetrate through the bladder; but first stop it with paper, then melt Lacca or sulphur, and pour it upon it, so that it come to be very well closed, and then it will not be able to exhale, or thou mayst get such glasses made, as in the fifth part shall be taught, for to keep all the subtle spirits in them, for more security sake. And this spirit, if no water have been mixt with it in the receiver, needeth no rectifying: but he that will have it stronger yet; may rectify it by a glass retort, and so keep it for use.

And this is the best way to make a strong spirit out of salt armoniack: the same may be done also, by taking of filed Zinck, instead of LAPIS CALAMINARIS: also by adding of salt of tartar, salt made of the Lee of wood ashes, unquencht lime, and the like: but the spirit is nothing near so strong (although all those things may be done with it, that are done with the former) as that which is made with LAPIS CALAMINARIS or Zinck.

The process or the manner of making it, is thus:

Take 1 lb. of salt armoniack made into powder, and as much of salt of tartar, mix both together by the help of a lye made of tartar, or only with common water, so that all come to be like a pap, and cast in one spoonful thereof at once, into the distilling vessel, then cast in more till you have spirit enough.

N. B. The salt of tartar may also be mixed dry with the salt armoniack without any lye or water, and so distilled: but it is not so good, as when the mixture is tempered with lye or water: for if it be cast in dry, the spirit will come over in the form of a volatile salt: but if the mixture have been moistened, then most part thereof will come over like a fiery burning spirit: In like manner also the mixture of Lime and salt armoniack may be tempered moist, and it will yield more spirit than if it be distilled dry.

It may be asked: why LAPIS CALAMINARIS, Zinck and unquenched lime, calcined tartar, salt of pot-ashes, fixed salt nitre or the like things

prepared by the fire, must be added unto salt armoniack, and whether it be not good to add some bolus, or other earth (as usually is done to other salts) and so distil a spirit of it? To which I answer, that there are two sorts of salt Armoniack, viz. a common acid salt, and a volatile salt of urine, which without mortifying of one of them, cannot be separated: for as soon as they feel the heat, the volatile salt of urine carrieth the acid salt upwards, and they both together yield a sublimate, of the same nature and essence with common salt armoniack which is not sublimed, only it is purer than the common. And no spirit would come over from it, if it should be mingled with bole, brick, dust, sand, or any other strengthless earth, and so distilled, but the whole salt as it is of it self (leaving its earthly substance behind) would sublime thus dry: but that it falleth out otherwise with the LAPIS CALAMINARIS (which is also like an earth) so that a separation of the salts is wrought thereby, and a volatile spirit cometh over; the reason is, that the LAPIS CALAMINARIS and Zinck are of such a nature, that they have a great affinity with all acid things, and do love them, and are loved by them likewise (whereof some mention hath been made in the first part) so that the acid salt sticks to it in the warmth, and unites it self with it, and the volatile salt is set free, and distilled into a subtile spirit; which could not have been done, if the acid salt had not been kept back, by the LAPIS CALAMINARIS or Zinck. But that a spirit is distilled off by addition of fixed salts; the reason is that fixed salts are contrary unto acid salts, and (if they get the upperhand) do kill the same, and rob them of their strength, whereby those things

which are mixed with them are freed from their bond: and so it falls out here with salt armoniack, that by addition of a vegetable fixed salt, the acidity of the salt armoniack is killed; the salt of urine, which formerly was bound therewith, gets its former freedom and strength, and being sublimed turns into a spirit. Which could not have been done, if common salt had been added to the salt armoniack instead of salt of tartar; for the salt of urine would thereby (as by a far greater enemy be killed and kept back, so that it could yield no spirit. I thought fit to give notice hereof to the ignorant (not for those, who knew it before) and to the unknowing it will do much good, and that they may have a light for other labours: for I have many times seen, and see it still by daily experience, that the most part of vulgar Chymists, whatsoever they do (having got it either by reading, seeing, or hearing) they hurl it over like botchers, and are not able to give any solid reason, why this or that must fall out in such or another manner, not labouring to find out the natures and conditions of salts, minerals, and other materials, but contenting themselves only with the Receipt, saying this or that Author hath written so, and therefore it must be so, whereas many times such books are patcht up out of all sorts of authors. And those that stick to so many books, will hardly ever come to get any good, but are led out of one Labyrinth into another, spending their life miserably in watching and cares: but if they would first seriously consider things, and learn to know nature, and then take their work in hand, then they would sooner attain unto true knowledge; and so much of this matter by the way. I hope that he that hath been in error will

be pleased with it, and the knowing will not grudge us having imparted it to the ignorant.

That which remains after the distillation is done, is also good for use; if the addition have been of salt of tartar, a melting powder may be made of it, to reduce metals. Of LAPIS CALAMINARIS or Zinck, yields PER DELIQUIUM a clear, white, and heavy sharp oil, for the sharper part of salt armoniack, which did not turn to spirit, hath dissolved the LAPIS CALAMINARIS, and is almost of the same virtues for external use in Chyrurgery with that, which above in the first part which was taught to be made out of LAPIS CALAMINARIS, and spirit of salt, save only that this in the distilling doth not yield so strong a spirit as the other, but only yields a sharp sublimate.

Of the virtue and use of the spirit of Salt Armoniack.

This spirit is of a sharp penetrating essence, and of an airy, moist, and warm nature; and therefore may with credit be used in many diseases, 8, 10, 12. (more or less) drops thereof used in a convenient vehicle, do immediately penetrate all the body over, causing sudden sweating, opening the obstructions of the spleen, and dispersing and expelling many malignities by sweat and urine, it cureth the quartane, collick, the suffocation of the Matrix, and many more diseases.

In brief, this spirit is a safe, sure, and ready medicine for to disperse and expel all tough, gross and venemous humours. Also, this spirit acteth his part externally, quenching all inflammations, curing

the Erysipelas and Grangrene; it allayeth the pains of the gout, clothes being dipt in it and applyed: and although it draw blisters, it matters not; laid to the pulse, it is good in ardent fevers, it asswageth swellings and pains; disfuseth congealed blood, helpeth strained limbs, and benummed nerves: only smelled unto, it cureth the megrim, and other Chronical diseases of the head: for it dissolveth the peccant matter, and evacuateth it through the nostrils; it restoreth the lost hearing, being externally laid on with a little instrument fit for the purpose. Also in the obstructions of womens courses applyed by a fit instrument in a spiritual way, openeth presently, and cleanseth the womb, and maketh women fruitful, etc. Mingled with common water, and held in the mouth, asswageth the tooth-ache, proceeding from sharp humors which are fallen in the teeth. A little of it applyed in a glister, killeth the worms in the body, and allayeth the colick.

This spirit may also further be used to many other things, especially by means thereof many precious and effectual medicaments may be made out of metals and minerals, whereof some shall be described as followeth.

N. B. There is yet another matter, which is found every where and at all times, and is to be got by every one without distillation and charges, and is as good for the abovesaid diseases, as the distilled spirit, and if all men knew it, there would not be found every where so many sick people, nor so many Doctors and Apothecaries.

To distil a blood red oil of vitriol by the help of the spirit of urine.

Dissolve Hungarian or other good vitriol in common water, and let it run, through a filtring paper, pour of this spirit upon it so much, till all the green is vanished, and the water be made clear, and a yellow sulphur be settled: then pour off the clear, and the rest which is muddy, pour together in a FILTRUM, that the moisture may run off, and the earth of the vitriol remain in the paper, which you must dry, and distil to a blood-red oil, which will open the obstructions of the whole body, and perfectly cure the epilepsie. The clear water must be evaporated dry, and there will remain a salt, which being distilled, yields a wonderful spirit. Before it be distilled, it is a SPECIFICUM PURGANS, whereof 8, 10, 12, to 24 grains taken, may safely be used in all diseases.

The Tincture of Vegetables.

Spices, seeds or flowers being extracted therewith and digested and distilled, the essence of them will come over with it, in the form of a red oil.

Vitriol of Copper.

If you pour it upon calx of copper, made by often heating the copper red hot and quenching it again, it will within an hours time extract

a fair blue colour, and having dissolved as much thereof as it can pour it off and let it shoot in a cold place, and you will get a fair sky coloured vitriol, a small quantity whereof will cause strong vomits; the rest of the vitriol remaineth a blue oil, good to be used in ulcers.

The Tincture of crude Tartar.

If you take common crude tartar, and pour of this spirit upon it, and set it in digestion, the spirit will extract a blood-red tincture, and if the spirit be abstracted from it, there will remain a pleasant red oil, of no small virtue and power.

To make the oils or liquors of salts.

This spirit also dissolveth crystals and other stones, they being first dissolved, and precipitated and reduced to impalpable powders, turning them into oils and liquors, good to be used in Alchemy and Physick.

To precipitate all metals with it.

Any metal being dissolved in an acid spirit may be precipitated better and purer therewith, than with the liquor of the salt of tartar; for AURUM FULMINANS which is precipitated with it fulminateth far stronger than if it were done with oil of tartar.

R. Some juice of Lemon and mix it with the solution of gold, before it be precipitated, and then not all the gold will precipitate, but some of it will remain in the solution, and in time many small green stones (not unlike unto common vitriol) will appear; which in a small dose will purge all noxious humors.

The oil and vitriol of Silver.

If you dissolve silver in AQUA FORTIS, and pour so much of this spirit into it till it ceaseth to make a noise, some of the silver will precipitate in the form of a black powder, the rest of the silver remains in the liquor: the phlegm abstracted from it in Balneo, till it get a skin at the top, and then set into a cool place, there will grow white crystals in it, which being taken out and dryed are a good purge in madness, dropsie, fevers and other diseases, safely and without danger to be used to young and old. The rest of the liquor which did not crystallise may be extracted with spirit of wine, and the faeces being cast away the extraction will be pleasanter. The spirit of wine abstracted from it, there will remain a medicine of no small value in all diseases of the brain.

To extract a red Tincture out of Antimony or common Sulphur.

Boil sulphur or Antimony made into powder in a Lixivium of salt of tartar, till it turn red, and pour this spirit upon it, and distil

gently in a BALNEUM, and there will come over a fair tincture with the volatile spirit, silver anointed therewith will be guilt, though not lastingly. It serveth for all diseases of the lungs.

How to ripen Antimony and common Sulphur, so that several sorts of such smells, as vegetables have, arise from thence.

Dissolve Antimony or Sulphur in the liquor of pebbles or sand, coagulate the solution to a red mass; upon this mass pour spirit of urine, and let it extract in a gentle warmth. The spirit being coloured red, pour it off, and pour on other spirit, let it extract likewise, and this you must iterate so often, till the spirit will extract no more tincture; then pour all the extracts together and abstract the spirit of urine from it in Balneum through a limbeck, and there will remain a blood red liquor, and if you pour upon this spirit of wine it will extract a fairer tincture then the former was, leaving the faeces behind, and this tincture smelleth like garlick: and if it be digested three or four weeks in a gentle warmth, it will get a very pleasant smell, like unto the yellow prunes or plums: and if it remain longer yet in digestion, it will get a smell not inferior to musk and amber; This tincture having been digested a long time, and got several smells, is not only notably by the fire increased in pleasantness of smell and taste, but also in virtue: for so many and various sweet smells are perceived in it, that it is to be admired, which variety and exaltation proceedeth only from the pure and ripening spirit of urine, for there is hid in it

a fire, which doth not destroy but preserve and graduate all colours, whereof in another place more shall be said.

N. B. Betwixt the spirit of urine and the animal and mineral Copper their appeareth a great sympathy; for it doth not only love copper above all other metals, and mingleth easily with it, and maketh it extraordinary fair, and of good use in Physick, but it prepareth it also to such a medicine, whereby all venerous sores (both inward and outward use) how deep soever they took root in the blood, without the use of any other medicaments, are perfectly cured; it maketh fruitful and barren, according as it is used; it cleanseth the matrix, hindreth the rising thereof, and miraculously furthereth womans courses that have been stayed, above all other medicaments of what name soever.

If this spirit be mingled with the volatile (but not corrosive) spirit of vitriol or common salt there will come a salt out of it, which is inferour to none in subtleness, and useful both in Alchemy and Physick.

N. B. The liquor of the salt of tartar, and the spirit of wine do not mix without water, this being the mean partaking of both of their natures, and if you add unto it spirit of urine it will not mingle but keep its own place: so that these three sorts of liquors, being put in the same glass, and though they be shaked never so much will not incorporate for all that: the liquor of the salt of tartar keepeth to the bottom, next to it will be the spirit of urine, and on the top of that is the spirit of wine: and if you pour a distilled oil upon it, that will keep uppermost of all, so that you may keep four sorts of liquors in one glass, whereof none is mingled with the other.

Although this be of no great profit, yet it serveth for to learn thereby the difference of spirits.

Of the spirit and oil of Harts-horn.

Take Harts-horn, cut it with a saw into pieces, of the bigness of a finger, and cast in one at a time into the aforesaid distilling vessel, and when the spirits are settled, then another, and continue this until you have spirits enough: and the vessel being filled with the pieces that were cast in, take them out with the tongs, and cast in others, and do this as often as is needful. The distilling being finished, take off the receiver, and pour into it dephlegmed spirit of wine, which will cleanse the volatile salt; pour the oil with the spirit and volatile salt through a filtering paper made wet first and lying in a glass funnel, and the spirit of wine together with the spirit of Harts-horn and the volatile salt will run through the paper, and the blackish oil will stay behind, but it must quickly be poured out, else it will pass through after them. The spirit together with the volatile salt rectifie through a retort, and the best part of the spirit will come over together with the spirit of wine and volatile salt; and when the phlegme is coming, take of the spirit, which is come over, that the naughty phlegm may not come amongst it; keep it well, for it is very volatile, the oil may be mingled with salt of tartar, and rectified by a glass retort, and so it will be clear; if you will have it fairer, you must rectify it with spirit of salt.

The first, which is done with salt of Tartar, is of more virtue; it cureth the Quartane, and provoketh sweat extremly, cureth all internal wounds and pains, which were caused by falls, blows, or other ways: 6, or 8, 10 to 20 drops of it taken in wine and sweated upon it in the bed. The spirit is very good for all obstructions of the whole body, from 1/24 to 1/8 ounce therefore taken in a fit vehicle, provoketh urine, and forceth down womens courses, it cleanses the blood and maketh sweat mightily. In the Plague, Pox, Leprosie, Scurvy, MELANCHOLIA HYPOCHONDRIACA, malignant Fevers, and the like where sweating is necessary, it proveth a rare medicine.

To make the spirit of mans hair an excellent medicine.

After the same manner you may make spirits out of all kind of horns and claws of beasts: but since by reason of their ill smell the use of them is not liked (although in several heavy diseases, as in the fits of the mother and Epilepsie, they do admirably well) therefore I will acquiesce. However it is worth observing, that the spirit made of mans hair is not to be rejected in metallical operations, for it dissolveth common sulphur, and reduceth it into a milk, which by further ripening may be turned into blood, the like whereunto no spirit is able to do. The same spirit may also of it self, without addition of sulphur be fixed into a ruby; but that which is ripened with sulphur is the better; and if it be brought so far by the fire, that it have lost its stink, and be made fixed than it will be sufficiently to pay for the pains and coals bestowed upon it.

N. B. Hither belongeth the Process to pour dissolved metals upon filed harts-horn, and so to distil them.

Of the oil of Amber.

Amber yieldeth a very pleasant oil and of great virtue especially the white Amber: the yellow is not so good, and the black is inferior to this; for by reason of its impurity it cannot be well used inwardly; and there cometh over also along with it a volatile salt and an acid water, which must be separated; the water (for ought that I know) is of little virtue; the salt if it be sublimed from the salt of Tartar and purified, is a good diuretick, and in the Stone and the Gout, may successfully be used both inwardly and outwardly. The oil if it be rectified, especially that which comes over first, is an excellent medicine against the Plague, Epilepsy, rising of the Mother and Megrim, 6, 8, 10, to 20 drops being taken thereof at once, and the nostrils also being anointed therewith for to smell to it; and it is to be observed, that when it is rectified with spirit of salt, it proveth much clearer, than done by it self without addition: but if it be rectified with salt of tartar, it is of much more virtue, though it fall not so clear, as that which is done by spirit of salt.

N. B. If it be rectified from a strong AQUA REGIA having before once already been rectified with spirit of salt, it will turn so subtile, that it is able to dissolve iron or copper in some sort, and to reduce them into good medicines; and in this second rectification by AQUA REGIA

all will not come over, but part of it will be coagulated by the corrosive water, so that it turneth thick, like unto mastich, which in the warmth is soft, and may be handled with owns fingers like wax, but in the cold it is so hard, that it may be broken and made into powder, and glittereth like gold.

Of the oil of Soot.

Of the soot, which is taken from Chimneys, where nothing is burnt but wood, there may be distilled a sharp volatile salt and a hot oil. The salt is in virtue not unlike unto that which is made of harts-horn or amber, and it quencheth inflammation, from what cause so ever it do proceed: The oil may without rectification externally be used very successfully for all loathsome scabs, and for a scald head, etc. But if it be rectified, as hath been taught to be done with the oil of Tartar, of Amber, and of Harts-horn; then it may safely be used inwardly, as the above written oil are used; for it doth as well as these, yea better in some special cases.

How to make a good oil out of soot without distilling.

Boil the soot in common water, till the water turn blood red (urine is better than water) and set this solution (being in an earthen pot) in winter time into the greatest frost so long till all in the pot be frozen into one piece and turned white: then break the pot and the ice,

and in the midst thereof you will find the hot oil unfrozen in colour like blood, which is not much inferior in virtue unto that which is distilled, yet afterwards it may be rectified, and so exalted in its virtue, when you please, and it is to be noted, that this separation doeth only succeed in the greatest frost and cold, and not else.

Of the spirit and oil of Honey.

Of honey there may be made a subtle spirit and a sowre vinegar, if it be mingled with twice as much of pure calcined sand and so distilled; and it falleth much better yet if it be made with the flores of Antimony, which were taught to be made in the first part, whereby the spirit is increased in its virtue, and its running over hindered thereby; and so distilling it, there will come over a pleasant spirit, a sharp vinegar and some red oil also, which must be separated: the spirit after the rectification inwardly used is good in all diseases of the lungs. It openeth and inlargeth the Breast, strengtheneth the Heart, takes away all obstructions of the Liver and Spleen; it dissolveth and expelleth the Stone, resisteth all putrefaction of the blood; preserveth from, and cureth the Plague; all Agues, Dropsies, and many other diseases, daily used from 1/24 to 1/8 ounce taken with distilled water proper for the diseases the sowre vinegar coloureth hair and nails as yellow as gold: it cureth the itch and scabs of the skin; it cleanseth and healeth old and new wounds, they being bathed and washed therewith.

The red oil is too strong to be used of it self, it may be mingled

with the subtle spirit which came over first and so used, and the spirit will be exalted thereby in its virtue.

Of the oil and spirit of Sugar.

In the same manner as hath been taught of honey, there is also made a spirit and oil of sugar, viz. adding pure sand to it; or (which is better) of the flores of Antimony, and then according to the rules of Art one spoonful after the other of this mixture cast in, it will yield a yellow spirit, and a little red oil, which after the distillation must be digested in Balneo so long together, till the spirit have assumed the oil and be turned thereby very red in colour; it needeth not to be rectified, but may daily be used either by it self, or with such vehicles as are proper for your purpose; in all it is like in virtue unto that which was made of honey; yet this of sugar is more pleasant than the other; it reneweth and restoreth all the blood in man, in regard that it received great virtue from the diaphoretical flores of Antimony; and this spirit may fitly be used in all diseases, it can do no hurt, neither in cold nor hot diseases; it doth help nature mightily, and doth so much good, that it is almost beyond belief. Especially if for a time it be used daily from 1/24 to 1/8 ounce. The residue of it is black, and may be kept for the same use again, viz. for an addition to other honey or sugar, or else you may sublime it again into flores in the furnace described in the first part, or in the furnace described in the fourth part of this book, with an addition of iron or tartar, reduces it into a REGULAS, & etc.

To distil an excellent spirit and a blood red tincture of corals and sugar.

If you mix sugar with red corals made into powder and distil it, there will besides the spirit come over a blood-red tincture like a heavy oil, which is to be joined with the spirit by digestion in Balneo, and it will be as virtuous as that which was made with Antimony diaphoreticum. It doth perfectly and lastingly cure the epilepsie in young and old; it cleanseth the blood from all filth, so that the Leprosie together with its several species may be cured thereby, etc. Its use is the same as was taught above of the Antimonized spirit of sugar.

The spirit of Muste or new Wine.

Take sweet Must or juice of grapes, as soon as it is squeezed out, boil it to the consistency of honey, and then mix it with sand, corals, or (which is better) with flores of Antimony, and so distil it, and it will yield such another spirit as that which is made of honey or sugar, only that this is somewhat tarter than that of honey. With honey, sugar and the juice of grapes, several metals may be dissolved in boiling and so prepared and made up into divers medicaments, both with and without distillation, after the same manner as was taught above with tartar: for honey, sugar, and the juice of grapes, are nothing else but a sweet salt, which by fermentation and addition of some sower thing, may be changed into a sower Tartar, in all like unto that which is gathered in

the wine vessels. There may be made also a tartar out of cherries, pears, apples, figs, and all other fruit, yielding a sweet juice; as also of rye, wheat, oats, barley, and the like, whereof in the third part more shall be said.

For every sweet liquor of vegetables, if it be turned inside out, by fermentation may be changed to a natural sowre tartar; and it is utterly false, that (as some do suppose) only wine yields tartar, which by daily use made of it by those that have very hungry stomachs (like those of Wolves) indistinctly together with the nourishment went into the limbs, and there turned to a stony matter. If this were true, than in cold Countries, where no wine groweth, men would not be troubled with the Gout or Stone; the Contrary whereof is seen daily; though I must confess, that among all vegetables none yieldeth more than the vine, the concurrent acidity being the cause thereof; for it turneth the sweetness into tartar; for the sowre the wine is, the more tartar it yieldeth; and so much the sweeter, so much the less tartar. By this discourse an industrious Chymist may easily come to know the original nature and properties of tartar, and in default of wine, how to make it out of other vegetables; common salt or the salt of tartar may be distilled with honey, sugar, or sodden wine (SAPA) and it will yield such strong spirits, that metals may be dissolved with them, and they are not to be despised in Physick and Alchemy.

Of oil Olive.

Out of oils made by expression (as oil olive, rape oil, walnut oil, hemp-seed oil, lin-seed oil, and the like) there may be distilled a penetrating oil, useful both outwardly and inwardly, which is done thus: Take common potters clay not mingled with sand, frame little balls of it, as big as a pigeons or hens-egg, burn them (but not too strong) to a hard stone, so that they may attract the oil, and when they are no more quite red-hot, but pretty hot, then throw them into oil olive which is the best: let them lye in it, till they be quite full and drunk of the oil, which will be done in two or three hours (some cast them red hot into the oil, but amiss, because the oil contracts thence an EMPYREUMA) then take them out, and cast in one or two of them at once into your distilling vessel made red-hot, and let it go; and within a while after cast in one or two more, and continue this till you have oil enough. If the vessel be full of the balls, take them out with the tongs or ladle, that you may proceed without let in your distillation, and in this manner you need not fear the breaking of your retort or receiver, or the burning of your oil. The distillation being performed take off your receiver, pour the oil that came over into a glass retort, and rectify it from calcined Allome or Vitriol, and the Allome will keep back the blackness and stink, and so the oil will come over clear, which must be yet rectified once or twice more with fresh calcined Allome, according to the intentness of penetrating which you look for; that which cometh over first, ought still to be caught by it self, and you

will get a very fair, bright and clear oil, which is very subtle; but that which cometh after is somewhat yellow, and not so penetrating as the first; and therefore it is but for external use to extract flores and herbs therewith, and to make precious balsoms for cold and moist sores. Also you may dissolve with it Amber, Mastick, Myrrh, and the like attractive things, and with Wax and Colophony reduce it to a plaster, which will be very good in venemous sores and boils, for to attract the poison, and to heal them out of hand. If you dissolve in it common yellow sulphur made into powder, you will get a blood red balsom, healing all manner of scabs, and other like defects of the skin; especially when you add to it purified verdegrease, and in hot sores SACCHARUM SATURNI, which in a gentle heat and by continual stirring about do easily melt and mingle therewith. It needeth not to be done in glasses, but may be done in an ordinary earthen pot or pipkin.

The use of the blessed oil.

The first and clear is of a very penetrating nature: some drops thereof given in some AQUA VITAE, presently stays the collick, proceeding from winds that could not be vented; as also the rising of the mother, the navil being anointed therewith; and the cold humour being faln upon the nerves, whereby they are lamed; if you do, but anoint them with this oil, and rub it in with warm hands, it will quickly restore them, and therefore in regard of its present help, may well be called OLEUM SANCTUM. If you extract plates of iron or copper with this oil, it will

turn deep red or green, and is a soveraign remedy for to warm and dry up all cold and watery sores. It consumeth also all superfluous moisture in Wounds and ulcerous Sores, as also all other excrescencies of the skin: it healeth tetters and scald-heads, and other like defects proceeding from superfluous cold and moisture. You may also dissolve in it Euphorbium and other hot gums, and use them against great frost, for what limb soever is anointed therewith, no frost how great soever can do it any hurt. The balsomes made with gum or sulphur may be also distilled by a retort, and in some cases they are more useful than the undistilled balsome.

Of the oil of Wax.

In the same manner may be distilled also the oil of wax, the use thereof is in all like unto the former; and for all cold infirmities of the nerves, this is found more effectual yet than the former.

A Spirit good for the Stone.

Out of stones which are found in grapes, there may be distilled a sowre spirit, which is a certain and specifical remedy for the stone in the kidneys and bladder, and also for all pains of the gout. It is not only to be used internally, but also externally, wetting clothes in it, and applying them to the places affected, and it will asswage and drive away the pains.

Of the spirit or acid oil of Sulphur.

To reduce sulphur into a sowre spirit or oil hath been sought hitherto by many, but found by few. Most of them made it in glass-bells, but got very little that way; for the glasses being quickly hot, could not hold the oil, so that it went away in smoke. Some thought to get it by distilling, others by dissolving, but none of all these would do the feat. Which is the reason why now-adays it is found almost no where right, and in the Drugsters and Apothecaries shops they usually sell oil of Vitriol instead of it, which by far is not to be compared in virtue to the oil of sulphur. For this is not only of a far pleasanter sowre taste, but in efficacy also much exceeds the other. And therefore being of so great use both in Physick and Alchemy, as in all hot diseases, mingling the patients drink therewith, till it get a pleasant sowre taste, for to quench the intolerable drought, to strengthen the stomach, to refresh the lungs and the liver: Also externally for to cure the gangreen: Also for to Chrystallise some metals thereby, and to reduce them into pleasant vitriols, useful as well in Alchemy as Physick: I thought good to set down the preparation, though it be not done in this our distilling furnace, but in another way by dindling and burning it as followeth.

Make a little furnace with a grate, upon which a strong crucible must be fastened resting on two iron bars, and it is to be ordered so that the smoke be conveighed (not above by the crucible, but) through a pipe at the side of the furnace: the crucible must be filled with

sulphur even to the top; and by a coal fire without flame be brought to burn and kept burning. Over the burning sulphur, a vessel is to be applyed of good stony earth like unto a flat dish with an high brim, wherein is always cold water to be kept, and whereunto the burning sulphur doth flame: which thus burning, its fatness consumeth, and the acid salt is freed and sublimed to the cold vessel, where it is dissolved by the air, and in the form of a sharp oil runs from the hollow vessel into the receiver, which must be taken off sometime, and more sulphur supplyed instead of that which hath been consumed, to the end that the sulphur may still burn in the crucible: and beat with the flame to the cold heat: and within few days you will get a great quantity of oil, which else by the (campana) glass-bell in many weeks could not have been done.

N. B. Such a sowre spirit or oil may also be got by distillation together with the flores, viz. thus: If you take pieces of sulphur as big as hens eggs, and cast them one after another into the hot distilling vessel, a sowre oil together with flores, will come over into the receiver, which must with water be separated out of the flores, and the water abstracted from it again in a cucurbit, and in the bottom of your glass body you will find the oil, which in virtue and taste is equil to the former, but you get nothing near so much in quantity by this way, and if you do not look for the oil, you may leave it with the flores, which by reason of their pleasant taste of acid are much toothsomer to take than the ordinary ones.

To the Courteous Reader.

Thus I conclude this second part; I could have set down more medicinal processes in this Treatise: but having as many as will be a sufficient guide for the distilling of other things also, I thought it good here to acquiesce; and whatsoever hath been here omitted, shall be supplyed in the following parts.

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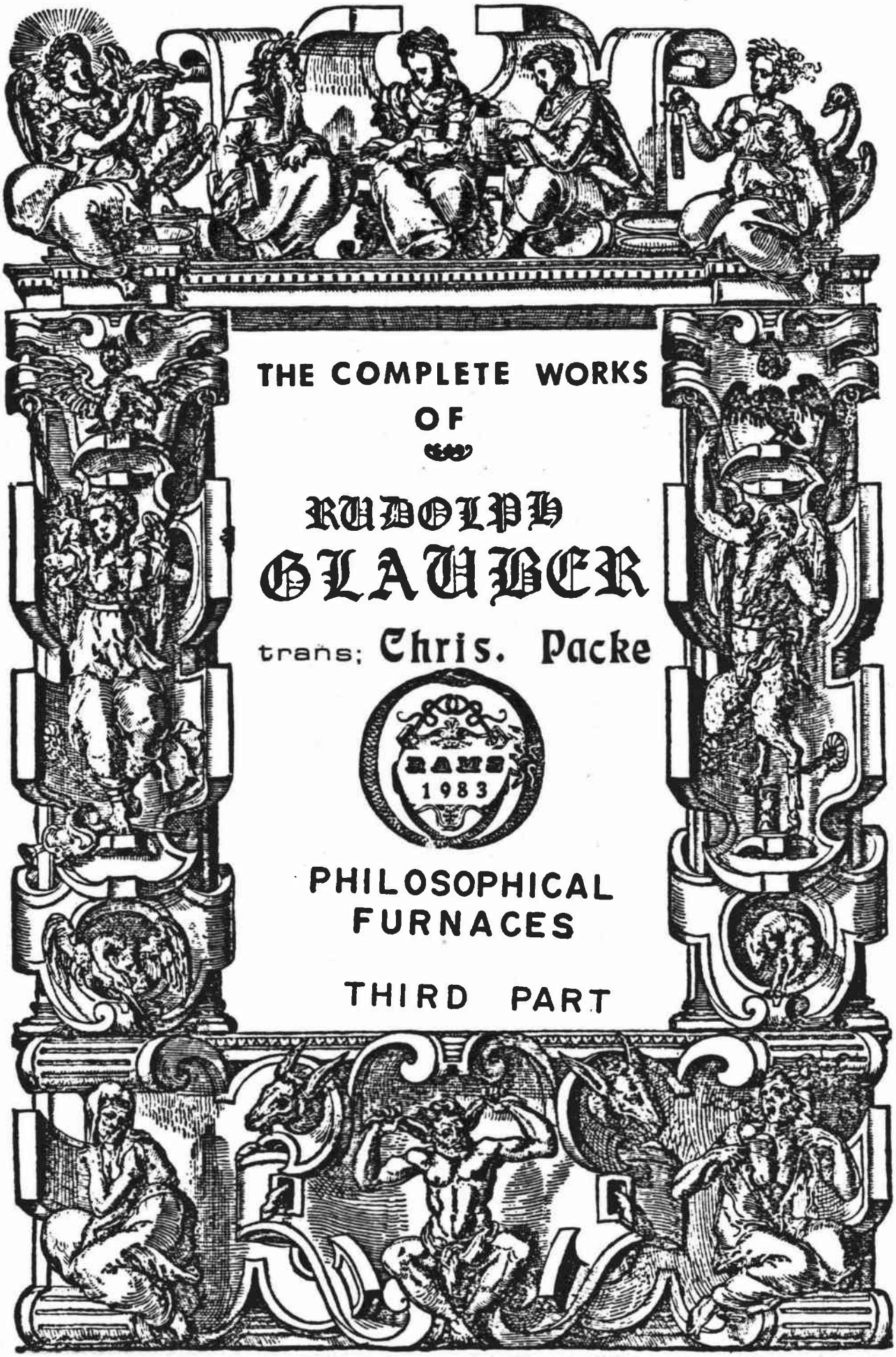


THE COMPLETE WORKS OF

RUDOLPH GLAUBER

trans; Chris. Packe

RAMS 1983

PHILOSOPHICAL FURNACES

THIRD PART

THE
THIRD PART
OF
PHILOSOPHICAL FURNACES:

I n which is described the Nature of the Third Furnace; by the help whereof, and that without Stills, and Caldrons, and other Copper, Iron, Tin, and leaden Instruments, various Vegetable burning Spirits, Extracts, Oils, Saks, & etc. by the help of certain little Copper Instruments, and wooden Vessels are made for Chymical and Medicinal Uses.

A Preface of the Copper Instrument and Furnace.

Now this Instrument is made of strong Copper plates after the following manner. You must make two strong hemispheres of Copper or Latten of the bigness of a mans head (or thereabout) and join them together with a most strong solder, and that without tin, whereof the one must have a pipe: Now the pipe must be of a most exact roundness, that it may most accurately fit the hole that is made with an auger or wimble to keep the water from flowing out like to a tap, of the length of one span at least, wider on the hinder part towards the globe, than on the forepart, which also must be according to the bigness of the globe, greater or lesser, and be exactly joined with the best solder to its hemisphere, and the diameter of the forepart being very round like a tap, and most exactly filling the round hole must be of two fingers

breath. Now there is required to the foresaid instrument or globe, a certain peculiar little furnace made of iron or copper, viz. most strong copper plates, covered within with stones or the best lute, into which is put this globe like a retort, so that it may lye upon two iron bars of the distance of a span, or span and a half from the grate; the neck whereof (that pipe) goeth forth of the furnace one span at least. The furnace also must have below a place for the ashes, and above a cover with its hole for the letting forth of the smoke, and for regulating the fire, as you may see by the annexed figure. It must also below have a treefoot, on which the furnace must be set, and on the sides two handles by the help whereof it may be removed from place to place; the which is very neccessary; for it is not only used for the distilling of burning spirits by wooden Vessels instead of copper, but also for such distillation, and digestion that is performed in gourds, bolt-heads, and other instruments of glass, stone, copper, tin, & etc. which are to be set in Balneo: also in the boiling of beer, metheglin, wine , and other drinks, which are to be performed by the help of wooden Vessels.

Of Wooden Instruments that are to be used instead of Stills, Baths, and Cauldrons.

In the first Figure, A represents the Furnace with a Copper Globe. B. The Copper Globe. C. The distilling Vessel. D. The Refrigeratory with a Worm. E. The Receiver. F. Stools on which the Vessels stand. The Second, A. Balneum with a Cover having Holes in it for the Glasses,

set upon a Tree-foot. The Third, A Wooden Vessel for the making of Beer. The Fourth, A Tub for a making a moist bath, which is to be warmed by the Copper Globe. The Fifth, A wooden Box for a dry Bath to provoke sweat with Volatile Spirits.

In the first place I shall speak of wooden Vessels that are to be used instead of Copper stills, in the distilling of burning spirits out of wine, beer, lees, malt, wheat, meal, roots, herbs, flowers, seeds, and other vegetables, as also oils of vegetables.

See that thou hast an oaken barrel, like to those wherein wine and beer are kept, of a just bigness, viz. answerable to the bigness of the globe, as is sufficient for the coction: for a barrel that is too big will make the coction slow, and tedious. A greater globe may be fitted to a lesser barrel, but not on the contrary, a great barrel to a little globe: For by how much the bigger the globe is, and the less the barrel, so much the sooner is the work hastened. Now seeing that this Art was invented for the saving of costs, which otherwise would have been expended in providing of stills, cauldrons, furnaces, & etc. it is best not to have too great a globe, which requires a greater furnace, and is more hardly to be carried, because it is to be covered within with lute, or a wall; for it is sufficient if it be big enough for the coction. Wherefore I will give you a just and due proportion of both, viz. of the globe, and vessel, which in distillations and other operations, the curteous reader may imitate.

A globe of the bigness of a mans head, containing three or four

cannes, whereof each containeth four pints, is sufficient for the heating of a barrel of 30, 40, 50, 60, and 100 gallons, which by how much the more remote from 100 and nearer to 30, so much the sooner is it heated, and the coction furthered; and on the contrary, by how much the nearer it is to 100 and more remote from 30, so much the slower is the coction. I do not therefore advise that a huge barrel be chosen for a small globe, by reason of a long and tedious operation: And if all and every thing be not so accurately observed to a hair, yet it matters not much, because it sufficeth to do the same thing by the help of one small copper instrument of divers forms. For in this way of distilling, wooden vessels that are requisite to the distilling of spirits, and boiling of Beer, and so for baths are more easily provided, then so many copper vessels in the common way. For by this means not only costs are spared, but also it is in stead of building of furnaces, because when any barrel hath been used, you may remove it, and set another in the place of it for another operation, the which cannot be done with stills and cauldrons fastened into a furnace. And this invention is for those that want Artificers, as Coppersmiths, & etc. because wooden instruments are more easily provided: also by the help of this globe may most secret operations be performed.

For the furnace with the copper globe may be built in one place, and in another place the BALNEUM, viz. the places divided with a wall, so that he that looks to the fire may not know what is done in the Elaboratory; for oftentimes the care of the fire is committed to heedless servants, that break glass instruments by their carelessness, by which

means oftentimes a most precious medicine is lost; which danger this invention is without.

Wherefore this copper globe with its wooden vessels is more convenient then those copper stills and cauldrons. But this I would have thee know that this new invented distillation is slower, then the common way which is performed by stills, and consequently requires a long fire. I desire therefore the rich that dwell in large and spacious houses, that they would use the old way of distilling; but the poor, who have but little household conveniences, and the covetous, that they would use this little copper globe with its wooden vessels: for although there be a longer fire required, yet these are not to be compared to those costs which are otherwise expended upon so many copper vessels of so many divers forms. Let him therefore keep to his copper vessels, who cannot understand me, for it concerns not me. Without doubt there are some whom this my new invented way of distilling will please, before other, being communicated for the sake of the poor labouring house-keepers, that cannot boil Beer, and distill burning spirits for lack of vessels: for a globe of five or four pound is more easily provided, then other copper vessels, of 60, 80, 100 pounds: also those wooden vessels are more easily provided then furnaces, which some for want of place only cannot build. Choose therefore which way thou wilt, for these things which I have wrote, I have wrote for the poors sake rather than for the rich. Certainly rich men that have spacious Elaboratories need not to be ashamed to follow this way, for it is free for every man to go a shorter way, unless they had rather prefer the old way before a

new and compendious, whom I cannot help, being contented with a publication which is made for the sake of my neighbour, whether it be taken well or ill, with a good mind, certainly knowing that more profit then disprofit may be obtained by the help thereof. It shall not therefore repent him of his labour, who knows rightly to prepare and use this copper, and wooden vessels.

There follows now the preparation of the vessel.

The vessel being made is to be placed with one bottom, upon a stool that is fitted for it, which being done, make a hole with a wimble neer the bottom, for the receiving of the neck of the copper globe, which is to be covered over with a linnen cloth: make also about the lower bottom another hole for a tap, by the help whereof the remainder of the distillation is drawn forth: also you must make a large hole in the upper bottom, the diameter whereof must be one span for to pour in the water to be distilled, with a funnel. Also there must be made a hole near the upper bottom of two or three fingers breadth, into which is to be put a copper pipe of a span long, which is to be fastened closely therein; and to this pipe another oaken vessel with a copper worm and cold water like to other refrigeratories, must be applyed. Also the joints of the aforesaid short pipe, viz. of the first barrel, and of the second barrel, viz. the refrigeratory must be straightly, and closely united together, which afterward may be the better joined together with a fit lute for the distilling. And this is the form and fashion of the

wooden vessel, that is to be used in the place of copper vessels, in the distilling of burning spirits and oils. But thou wilt object that these kind of wooden vessels are porous, and drink up great part of the spirit and oils.

I answer; none of the spirits seeketh a violent passage out, in case the ways be open. There is no danger therefore, when there is passage enough given them by a pipe that is wide enough. Neither doth oil stick to them in distillation, for whatsoever is by force of the boiling water to be separated from the spices, and seeds that also is sublimable by the force of the seething water, so as to distil in, so that in the refrigeratory no more is lost than in the stills. Distillation being made, the aforesaid spirits may be rectified in these wooden vessels, (being first washed) as well as in copper stills.

The making of a wooden vessel for a Balneum, which is to be used in stead of copper and leaden Cauldruns for digestion, and distillation by glass vessels.

Make an oaken vessel as big as or as little as you please, according to the greatness, or littleness, multitude, or fewness of the vessels, of two or three spans high, a little narrower above then below, and so fashioned above, that a cover of wood, copper, or lead, may most closely be joined to it: the cover must have holes greater or lesser, according to the glasses, as is wont to be in the making of a BALNEUM, as you may see by the annexed figure. This vessel also must be placed

upon a stool of the height of an ell, or such height as is required for the joining of the copper globe with the BALNEUM, which must have a hole near the lower bottom, for the receiving of the neck of the foresaid globe. In defect of such a vessel, which yet you may provide easily enough, take a wine or beer vessel divided in the middle, and make a hole near the bottom for the neck of the globe, make also a wooden cover with holes, & etc. He that will be curious may provide all things according to the best Art.

A wooden vessel serving for boiling of beer, metheglin, vinegar, & etc. as well as copper, iron, and tin vessels.

Make a wooden vessel, which shall be more high than broad, a little wider above than below, as you please: or take a wine or beer barrel divided in the middle, and near the bottom make a hole for the neck of the globe, which is to be covered with boards, which serves as well for the boiling of beer, & etc. as those of copper.

A wooden vessel for a bath for sweet, or mineral water, which may be according as you please, kept warm, for the preserving of health.

Make a long wooden tub convenient to sit in, which is to be set upon a stool of a just height, viz. that the bottom of the vessel may answer the neck of the globe which is put into the furnace: you may also have a cover, that may cover the whole tub, which may be divided

and united in that place where the head goes forth, as appears by the annexed figure, or you may cover it with a cloth, laying it upon small crooked sticks fastened to the tub, yet so that the head may have its liberty, especially in a vaporous bath of common sweet, or medicinal water; or make a high wooden cover shutting very close, for a dry sweat, where it is no matter whether the head be shut in or no.

Of the use of wooden vessels in distilling, boiling, bathing, & etc. And first of the distilling vessel.

He that will distil any burning spirit by help of the distilling vessel, out of wine, metheglin, beer, barley, wheat, meal, apples, pears, cherries, figs, & etc. also out of flowers, seeds, and other vegetables, hath need so to prepare his materials, that they may yield their spirit. Where I thought it convenient, and indeed necessary to say something of the preparation of each vegetable, for better information sake, or else a profitable distillation is not to be expected, but albour in vain to be feared.

And first of the preparation of the lees of wine, beer, hydromel, and other drinks.

The lees of wine, beer, hydromel, & etc. have no need to be prepared, because they do easily enough of themselves yield their spirits, unless haply having lost all their humidity they be dryed, which you may make

moist again by the admixtion of common water, lest they be burnt in distilling & stick to the vessel; of which thing more in the distillation it self. Now flowers, roots, herbs, seeds, fruits, apples, pears, cannot be distilled without a foregoing preparation. You must therefore first prepare them as followeth.

Of the preparation of all kind of corn, as Wheat, Oats, Barley, & etc. which must go before the distilling of the spirit.

And first of all a malt must be made of the corn; as it is wont to be in the making of beer. Now the manner of making of malt is known almost to all, wherefore I need not speak much of that, because in all places that have no wine, there is scarce any house found in which Malt and Beer is not made, as well in the country as cities. But however, there is a great deal of difference of making of it, for a long knife doth not make a good Cook, nor all drinkers of wine are good planters. For many have perswaded themselves, that, if they follow the footsteps of their fathers, they have done well (although they have been in an error) and being scornful, refuse instruction. Wherefore something is to be said of the difference of malting. Although I never exercised the Art of making Beer, yet I am certain I do in that excel all other Distillers, and Brewers. For I often saw, and indeed with admiration, the simplicity of many in their operations, although common, and daily, to whom though an age should be granted, yet they would never be more thrifty, being content with their ancient customs. Good God! How

perverse is the world, where no body labours to find out any good; neither is there any one that thinks of perfecting and amending things already found out: Where all things run to ruin, and all manner of vice increase: for now almost every one seeks only after riches BY RIGHT OR WRONG; for it is all one with them, if they have them, not thinking that things ill gotten shall perish, and that the third heir shall not enjoy them, and that unjust riches shall devour those that have been honestly gotten, with danger also of eternal damnation. I pray you, if our Ancestors had been so negligent, and had left nothing to us: I pray you, I say, what Arts and Sciences should we have had now? It is come to this pass now, that virtues decrease, and vices increase.

Of the difference of malting.

The difference of malt, by reason whereof it yields better or worse beer, and spirit, consists for the most part in the preparation thereof; for being made after the vulgar way it retains its taste, wherefore it cannot yield good spirit, nor good beer, which is observed of very few, wherefore they could not draw forth good spirit out of corn, but such as favours of the taste and smell of the malt. Which is not the fault of the corn, but of the artificer not operating aright in the preparation of his malt, in distilling and rectifying. For if it were prepared a right in all things, corn yields a very good spirit, not unlike to that which is made out of the lees of wine, in taste, odour, and other virtues. Which Art, although it be not known to all, yet it doth not

follow that it is impossible: Now I did not say that it is that common way, whereby that spirit, which is like to the spirit of wine, is distilled, but another which is more subtil, and witty. Out of all vegetables is drawn a burning spirit, yet such is perceived by some difference of the taste, and odour, but that is not the spirits faults, but of the vegetable, as of herbs, seeds, corn, & etc. communicating their virtues, taste, and odour to the spirit: whence that spirit deserves to be called not simple, but compounded, for else all the burning spirit (being rightly rectified from its flegm) is made out of any thing, having the same virtues with the spirit of wine, although it seem improbable to some. I do not deny that one simple may yield more or less sweet spirit than another. For sweeter wines yields sweeter spirits: Also clear wine yields a sweeter spirit than the lees of wine, although they come forth out of one and the same vessel: For clarified wine, and that which is separated from the faeces yields a sweeter spirit than the Lees, and impure and hetrogeneal sediment, which corrupts the simple, and sweet spirit, with a strong taste and smell: so that that may deservedly, being as it were simple, be preferred before this which is accidentally corrupted. And this is to be understood of all other spirits. What hath hitherto been said, hath been spoken for the sakes of them, who have perswaded themselves that they could not perform chymical operations so well by the spirit of corn, as with the spirit of wine, for I never found any difference of them in the extraction of minerals and vegetables. Let him therefore that can, receive my opinion, and experience, seeing I will have nothing to do with contradicting Carpers:

Without hurt to others I dare not reveal the Art of distilling a sweet spirit with great profit out of corn, in all things like to that which made of the faeces of wine, viz. without the preparation or grinding of the malt, which shall haply be (*see Explicat. Mirac. Mundi) communicated elsewhere at some time or other. For this Book is not written for the publishing of secrets, but of a new invented distillation. But thou that wilt make a sweet burning spirit out of malt or honey; know this, that the corn must be brought after a certain peculiar manner into malt, and lose its ungrateful flavour before its distilling, and fermenting, or else after the wonted manner a certain ungrateful spirit will be drawn from thence, that cannot be compared to the spirit of wine. The whole Art thereof consists in a true preparation; for ungrateful things are by Art brought into gratefulness, and on the contrary grateful things are made ungrateful by negligence. And thus much for information sake.

Of the fermentation of Malt.

Take of Malt ground in a Mill as much as you please, upon which in a wooden vessel set up right, pour cold water, as much as will moisten it, and serve for mixtion and comminution; then also pour as much warm water as will suffice for the making the mixture moist and thin, and also warm; for it must be neither hot nor cold: which being done mix with it some new barm, and cover it with a cloth, and in a short times space, being exposed to heat, it will begin to ferment (wherefore the

vessel is not to be filled to the top) and leave it so long in fermentation, until the mixture descends, which for the most part is wont to be done the third day, and the malt will be ready for distillation.

Of the fermentation of Honey.

Neither hath honey any need of a singular Art in its fermentation, because being mixed with 6, 7, 8, or 10 parts of warm water, it is dissolved, and unto the solution is added ferment, as has been spoken concerning malt, which afterward is left covered in some heat for to be fermented, being fit for distillation when it becomes to wax hot. Now know that too great a quantity of honey makes a very slow fermentation, viz. of some weeks and months; wherefore for acceleration sake, I advise that a greater quantity of water be added; although otherwise it yields plenty of spirits, but ungrateful, which therefore I advise no body to distil as being unprofitable, unless any one know how to take away the * ungratefulness thereof. (See the Consolat. of Navigators.)

Of the preparation of Fruits, Seeds, Flowers, Herbs, Roots, & etc.

The fruits of trees, as Cherries, Plumbs, Apples, Pears, Figs, Juniper-berries, Elder-berries, Dwarf-elder, and Mulberries, & etc. are bruised in wooden vessels, with wooden pestils; and upon them being bruised, is poured warm water, and ferment added to quicken it, as hath been above said of malt. Seeds are broken in a mill, flowers, herbs

and roots, are cut small, and are stirred up to fermentation by mixing of warm water, and barm or yeast.

An Annotation.

Before you distil the aforesaid vegetables prepared by the help of fermentation, diligently weigh, and accurately observe whether the mixture be sufficiently fermented, for sometimes there is too much cold, or hot water put to it; sometimes the vessel is not well covered, by which means the cold air is let in, whence the fermentation is hindered, and consequently the distillation of the spirit; For by the help of fermentation the burning spirit of the vegetables is set at liberty, without which it cannot be done; also the distillation is hindered by too much hast, as well as by too much delay; for if you begin to distil before the time, viz. fermentation not being yet perfected, thou shalt have but few spirits; wherefore also the better part is, by many that are unskillful, cast to the swine, but without any great loss, if the matter were malt, because that swine are fed therewith; but not so if other vegetables were the matter of the distillation. Also too much slowness where the matter begins to be sowre before it is distilled, yields very few spirits, that which often happens, whilst herbs, and flowers, & etc. are out of ignorance left in fermentation 3, 4, 5 and more weeks, before they be distilled, for the greatest part of the spirit is then turned to vinegar, which would not be so very ill done, if so be these men knew how to clarifie the remainders, and turn it into

vinegar, that nothing thereof might be lost; for the vinegars of herbs, flowers, seeds, and roots are not to be contemned. And so often times (athing to be lamented) the better part, if they be spices, and precious things, is lost.

The matter of the distillation, and other choice things, as seeds and herbs are cast away with loss; wherefore for admonition sake I was willing to add such things that the operators may have an opportunity to consider the matter a little more profoundly with themselves, or at least of learning the art of distilling from countrymen, who do not suffer their malt to putrefy, grow sower or mouldy, before they fall upon their distillations, but presently fermentation being made (the third or the fourth day) begin their distillation.

But some one will object, that my vegetable spirits are not pure by reason of the ferment that is mixed, having in it self a spirit. I answer, there is not so great a portion of the ferment mixed which can corrupt the vegetable spirit. For although some spoonfuls of ferment yielding but a few drops of spirits be added to a great quantity of the vegetables; yet there can come no hurt or detriment to so many quarts of the vegetable spirit. I have seen some supercilious men that would not add ferment to the matter of their spirit, but sugar or honey, by which they would promote fermentation, and so have thought to get a pure spirit, not considering that honey and sugar, after fermentation are made to yield their spirit also, whereof one spoonful yields more than ten or twenty of Barm: But honey and sugar fermenting not without difficulty themselves, how can they promote the fermentation of other

things? Who also have had experience, that the addition of their ferment hath been superfluous, whilst their flowers and herbs have stood some weeks in maceration, before they begun to ferment, and that often times they have contracted an acidity, mustiness and stink, the reason of which was an unsutable ferment. There are indeed the fruits of some trees that have a sweet and full juice, as grapes, cherries, apples, pears, figs, & etc. which need not the addition of any ferment, having a natural ferment of their own, but other vegetables not so, being lean, as hearbs, flowers, and roots. It is necessary there to promote the fermentation of them by the addition of a suitable ferment, lest in length of time these herbs and seeds lose their spirit exhaling in maceration. And thus much I was willing to say for information sake, and indeed for the sake of them who seek after the best and choisest medicines, wanting a good burning spirit as a companion applicaple to them. For this spirit came not only by it self, as AQUA VITA, into a medicinal use as well internal as external, especially that which is prepared of cordial, and cephalick herbs; but also being united with the proper oils of those herbs in many desperate diseases, where it could put forth its virtues eminently.

And thus much sufficieth concerning the preparation of vegetables that goes before the distillation of burning spirits.

The manner of distilling in general followeth.

He that is going to distil, hath need to stir his fermented matter

very well with a stick, that the thicker parts may be well mixed with the thinner, and then he must fill therewith his distilling vessel set upon a treefoot, and joined to the copper globe in the furnace on one side, and to the refrigeratory on the other, the joints in all places being well closed either with Oxe-bladders, or with starch and paper. Also the interior part of the globe in the distilling vessel must be fenced with a copper or wooden basket, that the herbs, seeds, and other things enter not into the globe, into which only water must come. Also the upper half must be close stopped with a fitting stopple wrapt about with linnen cloths, (viz. that hole by which the matter to be distilled is put in) like to vessels of wine that are stopped. Which being well done, you must kindle the fire in the furnace under the globe, until all the matter in the whole vessel boil well, and that burning spirit rise, and go out, through the refrigeratory (where it is condensed) into the glass receiver that is set under it, no less than that distilled out of a still, and you must continue the fire till all the spirit be come forth, which you may know by the taste. Which being done, and all things being cold, let the remainders be taken out by the lower large tap-hole, for meat for swine, or other uses. The spirit that is drawn off may be exalted, and rectified at your pleasure in the same vessel, being first made clean together with the refrigeratory. Note well, that sometimes there is left a fat oil with the flegm in rectifying of the spirit, proceeding from that herb of which that was the spirit, which did distil off with the spirit from the matter with a strong fire in the first distillation, but in the rectifying could not ascend with

the spirit in a gentle fire, but is constrained to remain with the insipid flegm. And this oil also hath its virtues, especially that which is rectified by a glass gourd in Balneo, with the spirit of salt, and clarified. Now the like oil is got almost from all herbs, roots, seeds, flowers, and fruits, but out of one subject more than another, according to the hot and cold temper thereof. Especially the sediment of wines yields a good quantity of such oil, which being rectified is a medicinal true oil of wine, but not before endued with a sweet savour, and it is an excellent cordial, although I know no body that knew this before.

And thus I have shewed the general way of distilling, burning spirits, by help of the aforesaid wooden distillatory. Now also follows.

The manner of distilling Spices, Seeds, Flowers, Herbs, Roots, Woods, & etc.

First, the seeds must be broken in a mill, flowers, herbs, and roots cut small, the woods broken or rasped, upon which afterwards a good quantity of water (in which they may swim) must be poured for the maceration of them, so that when the distillation is ended there may remain some water, lest for want of water they be burnt in the distilling, and yield an oil favouring of an EMPYREUMA, and not sweet. Neither is too great a quantity to be poured upon them, but as much as shall serve to prevent the burning of the aforesaid vegetables in the distilling of the oil thereof. And indeed fresh vegetables may presently without any

foregoing maceration, being put with their proper waters into the distilling vessel be distilled. But they be dry may for the space of some days be macerated before they be distilled. Also the water appointed for maceration must be salted, for the better molifing, and opening the aforesaid materials, that they may sooner yield their oil. Now green and fresh need not any salt water, yet it will not be hurtful to mix some therewith, because salt helps the boiling water, so as to make the oil more easily to ascend. It also helps and furthers distillation as doth Tartar and Allome, if they be rightly mixed and ordered. Which being all rightly done, the materials that are macerated must be put by a funnel into the distilling vessel, and fire must be given as hath been spoken concerning the burning spirit, and the oil of the seed, or wood macerated in the water will come forth in the distillation together with the water. And although by this way more oil comes forth, viz. Maceration being made by the addition of salt, than without salt, by the help of the sweet water alone, as is the fashion in all places almost to distil oils of spices; yet much remains inseparable by the water, and consequently not to be sublimed with the water. Therefore the better way is that which shewed in the first part to be performed with the spirit of salt, which if you please you may follow. All the oil being come forth (which is perceived by the changing of the receivers) the fire is to be extinguished, and the remainder is to be taken out, which if it be of seeds, herbs, or fruits, may, being yet warm, be fermented by the addition of ferment for the distilling of the spirit, of which there cannot be so great a quantity by reason of taking away of

the oil, as otherwise is drawn out of things that have not lost their oil: For all burning spirits partakes of much oil, of the essence, and nature whereof more a little after. Now spirits must be made without the addition of any salt, for salt hinders the fermentation, without which the burning spirit cannot be had. But the water that is distilled together with the oil, is to be set in a certain temperate place, until the oil ascend, and swim upon the water, from whence it is to be separated with a Tunnel (of which in the fifth part,) also there are some oils which do not ascend, but fall to the bottom, which are also to be separated with a Tunnel, and kept for their uses. Now how these oils may be kept clear long, and not contract any clamminess, shall be taught in the fifth part: but how they may after they have lost their clearness by long standing, and are become tenacious, be restored and clarified again, is taught in the first part, wherefore I need not here repeat it.

How Oils are to be coagulated into Balsomes.

It hath been the custom a long time to turn aromatical oils into Balsoms, where always one hath been willing to excell another in this Art, which nevertheless was nothing hitherto, but for a washing and cleansing; for they could not be used inwardly, but only outwardly for their odour to comfort the heart and brain. Now the aforesaid oils are coagulated many ways, and are made portable in Tin, Silver, and ivory boxes.

Some have mixed the fat of a lamb with them by help of heat, and have turned them into a liniment, which they have coloured with divers colours; as for example, they have corrupted the oils of green herbs; as rosemary, marjoram, lavender, rue, sage, with a green colour, by the admixtion of virdigrease (which is noxious to the head and heart) where one corroborates and refresheth, another destroys. They have tinged the Balsom of Cinnamon, and LIGNUM RHODIUM with a red colour by the help of a poisionous Cinnabar. Others that are more industrious, have tinged their Oils with extracted colours of vegetables, which balsoms are more safely taken inward: But are not durable, acquiring a sliminess and stink; wherefore they have mixed white wax to coagulate them: By which means they are become more durable without stinking; but yet at length of time so tenacious, that being smeared or rubbed upon the skin, they stick fast by reason of the wax that is mixed with them: at last others have found out a better way of coagulating aromatical oils, and other things, viz. by the addition of the oil of Nutmeg made by expression, having lost its odour and colour by spirit of wine; which they called the MOTHER OF BALSOMS. And this way hath been a long time concealed by Apothecaries as a great secret, until at length it is become common, so that balsomes prepared after this manner are sold almost in all shops: But although that be the best way, yet they are not durable balsomes that are made that way, because they lack salt. I do not contemn and disapprove of Balsomes made after this way, for if a better way had been known, better had been made, for no man is obliged beyond his power. Wherefore they are not only to be excused, that have used Lambs fat,

Wax, and the oil of Nutmegs in the making of their Balsomes, but also to be honoured for their communication. Now seeing the aforesaid Balsomes cannot be taken inwardly, nor be so well outwardly administered by reason of their unctuosity, others have consulted to congeal the Oils by the admixtion of their own proper fix-salts: And Balsomes prepared after this manner are made free from clamminess, or tenaciousness, and may be dissolved in wine, beer, or any liquor.

Wherefore they may be not only conveniently taken inward, but also more fitly than those old, be rubed outwardly for the odours sake, because they are easily washed off again with water. They do not only give a most sweet odour being rubbed, but also by reason of the admixtion of the fixed salt, having the nature of salt of Tartar, do beautify the skin. Wherefore they are to be commended, being dissolved in fair warm water for a lotion for the head, and face; not only because they beautify, but corroborate with their excellent odour; which those fat Balsomes cannot do. Wherefore this way is to be preferred far before the other.

Let him therefore that will, receive what I have said, for RARE AND NEW THINGS ARE NOT ALWAYS ACCEPTED, especially BEING OBSCURE: but I hope for the approbation of the age to come.

The manner of preparing follows.

Take the remains of the burning spirit, and being put into a sack, press it hard: reduce the water pressed out into vinegar, and of roses

thou shalt have a rose vinegar, and of other things another, being the best in a Family for to season meats: then take the remains out of the sack, and reduce it to white ashes in a potters furnace, upon which pour the flegm of its own burning spirit (being separated) to extract the salt, from which evaporate again all the humidity in a glazed earthen pot: calcine the coagulated salt gently in a clean crucible, and it will be white and be like to salt of tartar in taste; from which abstract, sometimes its own proper burning spirit, clacining the salt first every time; and the spirit will be so exalted by its proper salt, that it will presently assume its proper oil, and will, being poured upon it, associate it to it self so as to be perceived no more in the spirit, which will remain very clear: Which being done, calcine the salt yet once more very well in a crucible, and dissolve so much of it in its proper flegm, as sufficeth for the coagulation of the oil, then mix this solution with the burning spirit, mixed with its oil, and set it in a vial of a long neck well stopt, in Balneo, that the spirit may not exhale, in the coction of it, and in the space of a few hours there will be an union of the mixture which will be as white as milk. Which being done, let the glass cool, for there is a conjunction of the spirit, oil, and salt, so that neither can be discerned from another, which is to be poured into a vessel of a wide mouth, and it will be congealed in the cold like a white ointment, not only to be anointed withal, but also to be dissolved in any liquor, being of an excellent odour, which may also be given inwardly very conveniently, and being used outwardly it makes the skin beautiful and sweet, wherefore this is that most

desired balsome of Princes and Ladies. And by this way the three principles of vegetables, being separated, and purified, are again reunited, in which union there is found the whole virtue, taste, and odour of the vegetable.

Note well, That he that will colour balsomes, must draw the colour out of vegetables with spirit of wine, which he must make to be coagulated together with it. After this aforesaid manner, therefore you may draw out of any vegetable that hath in it salt, spirit and oil, soluble and well smelling balsomes without the addition of any other strange thing, which are not to be contemned.

And because here also is taught that most odoriferous balsome of roses, for roses yield but a little oil, without which that cannot be done, know that only roses or rose leaves also are to be taken for the making the aforesaid balsome, but also together with the leaves those whole knots; for that yellow that is in them yields that oil, not the rose leaves, & etc. And let what hath been said suffice concerning our preparation of balsomes, which if they be rightly made, are not I suppose, to be contemned, neither do I reject those that are made without salt: Let him that hath better communicate them, and not carp at ours. And so I would that all and each process should be comprehended under some one general, viz. of distilling burning spirits, and oils, by the help of a wooden distilling vessel, and their conjunction by the help of their proper fixed salt, I could here add more things concerning the use, and virtues of spirits of wine, and of those most sweet vegetable oils; but because they are clearly enough spoken of by others, I account

it a superfluous thing to repeat the sayings of others, being contented with the description of one only general process, which you may imitate in other particulars.

There follows now the use of the second wooden vessel, which is to be used instead of those of copper or lead, serving for distillations, digestions, extractions, and fixations.

The vessel being made ready according to the precription set down before, there is nothing else to do, than to fit the furnace with the globe, and at your pleasure to heat water in it, with a government of the fire in the furnace. Now all things may here be done, which otherwise are done in a common BALNEO; where there is no other difference but of vessels; here is used a wooden vessel, there a copper, leaden, or iron, & etc. In this operation also is used the same furnace with the same globe, which was used above in the distillation, wherefore you need add nothing else beside, for nothing is more common than a BALNEUM in distillation; let the demonstration therefore of the use of the copper globe suffice. Now I thought it worth while to set down some Chymical medicinal extracts, not common, which may be made by the help of this BALNEUM, which being rightly prepared do many things in many diseases.

And first a vomitive Extract.

Take an ounce of the flowers of Antimony, of purified Tartar 2 ounces, of sugar-candy 6 ounces, of rain water two pints, being mixed together, set them in a strong vial in BALNEO for to be cocted, and make them boil strongly the space of ten or twelve hours. Then the BALNEUM being cold, take out the glass, and pour forth the decoction, and filter it through a brown paper put into a tunnel; the filtered water will be reddish betwixt sweet and sowre, which take (the faeces in the filtre being cast away) and in a small gourd glass draw off all the moisture with a gentle fire in BALNEO unto the consistency of honey of a brownish colour, upon which again pour a pint of spirit of wine, poured forth into a vial with a long neck; and set it in BALNEO with a moderate heat the space of eight or sixteen hours, and then the spirit of wine will separate, and extract the essence, which will be more pure and noble, the faeces being left in the bottom; which after all things are cold are to be separated by the help of Filtration through a double brown paper. Then take the red tincture that is filtred, and in a gourd glass in a gentle BALNEO draw off almost all the spirit of wine until there remain a matter like a very sweet syrup, which being taken out keep as a most excellent vomitive, most profitable in many diseases, where other Catharticks can do nothing. For this medicine works most gently, wherefore it may be given to children of a year and half old without danger, and also to old men. This medicine purgeth and attracts all humors from the nerves, and veins, opens all obstructions of the liver, spleen,

lungs, and kidneys, by which means many most grievious diseases are cured.

I never found a vomitive comparable to this, which works quickly and safely. The dose of it is from grain 1, 2, 3, 4, to 10, and 30. according to the age and sickness. It may be taken by it self, or in wine, beer, & etc. and it will within a quarter of an hour begin to work, and ceaseth within two hours. Sometimes it doth not provoke vomit at all, but only stools, where a glyster is very helpful if it be given a little before the administering of the aforesaid medicine, being made of two or three spoonful of oil Olive, and salt water; for the glyster prepares the way below, so that it seldome then works by way of vomit: when also the patient may presently after the taking of the medicine hold hot tosted bread to his mouth and nose, which hinders vomiting and promotes the operation by stool, but in my judgement it is better not to hinder the medicine seeking a spontaneous way of operation, and not forced: For vomiting is more convenient for some, than purging by stool. Now these things I have spoken for the sake of those, who although they abhor vomiting, yet desire to be purged by the essence of Antimony, which is of all that I know the most safe, and sweet Cathartick. For it searcheth the whole body far better than all others, and frees it from many occult diseases, the which all other vegetable Catharticks could not do. It hath also this commodity in it, that although by littleness of the dose, or the strong nature of the patient it doth not work by vomit or stool, yet it doth not like other medicines hurt the body, but works either by sweat or urine, so that Antimony being rightly

prepared is seldome administered without profit. When as on the contrary, vegetable Catharticks being given in less dose or by reason of some other causes do not work, although they do not make the body swell, and produce manifest diseases, yet they threaten to the body occult sicknesses.

Now the ARCANUM of Antimony doth not only not do hurt, if it do not sensibly operate, but by insensible working doth much good to the body of man. Wherefore there is a great difference betwixt purging minerals, and vegetables. For minerals are given in a less dose without nauseousness, but vegetables with a great deal of nauseousness, and sometimes with danger to the sick in a greater dose. Now that nauseousness also proceeding oftentimes from the great dose of the ungrateful bitter potions does more hurt than the potion it self. I wish that such kind of gross medicines were abolished, and the sweet Extracts of Vegetables and Essences of Minerals were substituted in their place.

A purging Extract.

Take of the roots of black Hellebore gathered in fit time, and dryed in the air, one pound, the roots of Mechoacan, Jallap, of each four ounces; Cinnamon, Anniseed, and Fennel-seed, of each one ounce; of English Saffron a dram, powder all these Ingredients, then pour upon them the best rectified spirit of wine, in a high glass gourd, and upon this put a blind Alembick, and set it in digestion; in Balneo until the spirit of wine be tinged red, which then decant off: and pour on fresh, and

set again in digestion; until the spirit be red, then pour on fresh again, and do this so often until the spirit will no more be tinged red, which commonly is done at three Times. Mix these tinged spirits, filter them, and in Balneo by a glass Alembick, with a gentle heat draw them off from the Tincture, and a thick juice will remain at the bottom of a brownish colour, which you must take out whilst it is yet hot, and keep it in a clean glass for its uses. The Spirit of Wine drawn off from the extract may be reserved for the same use. Now this extract is given from grains 3, 6, 9, 12, to 31; according to the age and strength, being mixed with Sugar, it hath not an ungrateful taste, and it works gently, and safely, if it be not given in too great a dose. And if thou wilt have it in the form of a Pill, mix with it being yet hot, an ounce of clear Aloes, and half an ounce of Diagridium powdered, being mixed bring it into a mass for Pills, and keep it for your use. The dose is from grain 1, to a scruple. It evacuates all superfluous humors, but it is not to be compared with the medicine of Antimony. And this extract I put down for the sakes of those that fear Minerals, and abhor Vomits, which in my judgement is the best of all vegetable Catharticks.

A Diaphoretical Extract.

Take the wood of Sassafras, Sarssaparilla, of each six ounces; Ginger, Galengal, Zedorary, of each three ounces; long Pepper, Cardamoms, Cubebs, of each an ounce; Cinnamon, Mace, of each half an ounce; English Saffron, Nutmeg, Cloves, of each a dram: Let the woods be rasped, the

roots and spices poudered, pour upon them, being mixed, the spirit of wine, and let the tincture be drawn forth in Balneo, as hath been above-said of the purging Extract, evaporate away the spirit to the consistency of honey, which keep for your use. It is good in the Plague, Fevers, Scorbute, Leprosie, French-pox, and other diseases proceeding, from the impurity of the blood, curing them by sweat. The dose of this Extract is from a scruple to a dram with proper vehicles: it provoketh sweat presently, driveth away all venenosities from the heart, and mundifies the blood.

And although it be a most effectual vegetable Diaphoretick yet it may not be compared to those subtile spirits of minerals, of which in the second part. Also animal diaphoreticks have their commendations, as the flesh of vipers, the fixed salt of spiders and toads, in their peculiar operations, where each alone without the mixture of any other thing puts forth and sheweth its operations; neither are animal and vegetable diaphoreticks to be compared to the mineral, as BEZOARTICUM MINERALE, ANTIMONIUM DIAPHORETICUM, and AURUM DIAPHORETICUM.

A Diuretical Extract.

Take the seeds of Saxifrage, Carroway, Fennel, Parsly, Nettles, of each 3 ounces, the root of liquorish, the greater burr, of each an ounce, the powder of woodlice half an ounce. Let these being mixed and powdered be extracted with spirit of Juniper according to art: then mix these following things with the extracted matter: Take the salt of Amber,

Soot, Nettles, of each half a dram, purified Nitre a dram: Let these be powdered, and mixed with the extract and this mixture be kept for use. The dose is from a scruple to a dram, in the water of parsly, fennel, & etc. This extract forceth urine, opens the ureters, purgeth the reins, and bladder from all viscous flegme (the mother of all tartareous coagulation) viz. if it be used timely: In this case is commended also the solution of flints, and crystals, made with spirit of salt. A greater commendation have salts of nephritick herbs made by expression, and crystallisation, without calcination, the preparation whereof shall not here, but elsewhere be taught.

A Somniferous Extract.

Take of THEBAIC OPIUM four ounces, of Spirit of Salt two ounces, purified Tartar one ounce, set them being mixed in maceration in Balneo in a glass vessel for a day and night, and the spirit of salt with Tartar will open the body of the OPIUM, and prepare it for extraction, upon which pour half a pint of the best spirit of wine, set it in a gentle Balneo to be extracted. Decant off the spirit that is tinged, and pour on fresh, set it in digestion till the spirit be coloured. Then mix the extractions together, and put to them in a fresh glass gourd two drams of the best Saffron, of oil of Cloves a dram, and draw off the spirit of wine in Balneo, and there will remain a thick black juice, which is to be taken out, and kept in a clean glass vessel. The dose thereof is from one grain, to five or six, for those of a mans

age, but to children the sixth or eight part of a grain. It may be used in all hot distempers without danger. It provoketh quiet sleep, mitigates pains as well outward as inward, it causeth sweat; but especially it is a sure remedy for the epilepsie in children that are new-born; for as soon as it is given to them to the quantity of the eighth part of a grain in wine, or womans milk, there presently follows rest, and sweat with sleep, by which means the malignity is expelled, the children are refreshed, and desire victuals, and the fit returns no more afterwards. Although haply the like symptoms may be perceived again, yet if the aforesaid dose be administered again, the children are refreshed, and cured wholly, whereas otherwise they would have died, & etc. whereof I have not restored few with this medicine. Moreover also there are very effectual anodine medicines, as those volatile spirits of vitriol, allome, Antimony, and other minerals, with which, as also with that narcotick sulphur precipitated from the volatile spirit of vitriol, nothing may be compared.

A Cordial Extract.

Take red roses four ounces, of the lilly of the valley two ounces, the flowers of borage, rosemary, sage, of each an ounce; cinnamon, lignum aloes, of each two drams; cloves, mace, nutmeg, galangal, cardamoms the lesser, of each half an ounce; the shavings of ivory, harts-horn, of each an ounce; of ENGLISH saffron a dram, of NUX-VOMICA a dram: Mix them and reduce, them to a fine powder, and let the tincture be extracted

with spirit of wine in Balneo, which is to be drawn off again, unto a just consistance. Let the extract be kept for use. It may be used in almost all faintings, and other affects that are not joined with a preternatural heat. The dose thereof is from grains 3, 6, 9. to a scruple with proper vehicles; being often administered it refresheth the spirit, corroborates the brain, and other parts of the body. It is made more efficacious by the adding of the essences of minerals, especially of gold, of which thing see the first part concerning the sweet oil of gold.

Of an odoriferous Extract.

I need not teach the making of any odoriferous vegetable extract, because the manner of drawing forth, or distilling oils of vegetables that have sweet odores, hath been shewed a little before, as of herbs, flowers, and seeds, which are the most noble, and sweet essences of vegetables, by the odour whereof the heart and brain are corroborated, which being reduced into balsomes are made transportable. Better extracts therefore, and more excellent cannot in my judgement be made out of vegetables, than those aforesaid oils, unless any one would mix aromatical extracts made with spirit of wine with metallick solutions, and being mixed digest them, then there will certain most odoriferous oil go from the extract not only more efficacious, but more excellent than that common distilled oil by reason of the admixtion of the spiritual metallick virtue, especially of gold and silver, dissolved in the acid

MENSTRUUM communicating its virtues to the Aromatical oil. Moreover any vegetable oil may be exalted in virtues and odour by the help of spirit of urine, or salt Armoniack, by the help whereof not only odoriferous oils are exalted, but also the inodorous oils of vegetables are made odoriferous, if they be a while digested in spirit of urine: and not this only but every mineral, and metallick sulphur, although the odour thereof be bound up with most strong bonds, is opened by the benefit thereof, and is reduced by digestion in a very little time into a most sweet and odouriferous essence. Lixivial spirits exalt the odours, and colours of sulphurs; acid purge sulphurs, but change their colours and odours. Musk and Civit get the sweetness; and excellency of their odour from subtile urinous spirit of a certain Cat, digesting some certain fat and converting it into such a kind of most odoriferous matter.

And let this that hath been said suffice concerning Extracts, which might have been omitted, because many of these kind of Extracts are found in the writings of other authors in many languages: But I was willing to set down these, lest this book might seem to contain in it nothing else besides the new way of distilling, being furnished also with good medicines.

Of Baths.

A little before hath been given a description of a Tub for a Bath in which any one may sit with his whole body except his head, not only to be washed in sweet warm water, whether medicinal and mineral, but

also to sweat in without water, where the vessel is heated by warm vapours, either of sweet waters, or minerals. And every one may provide such Baths for himself according to his necessity at home, whereby the same diseases are cured as those that are cured by the help of natural Baths, so that he need not for the baths sake go a great journey, but may stay at home with his family and follow his Calling without trouble, when he hath occasion and need to use them.

And whereas it cannot be denyed, that by the use of the Baths most grievious diseases which cannot be cured by Physicans, are happily cured; I was willing for the sake of my neighbour to publish this instrument together with the preparation of mineral waters; which publishing will not without doubt be without profit, and advantage. Wherefore I will in brief shew you the preparation of mineral, and sweet waters, and their use, and first,

Of a Bath of Sweet or common water.

There is no art to make a Bath of sweet water, for you have nothing else to do, then to fill your vessel with river or rain water, and to make a fire, which by the help of the copper globe will heat the water, which being sufficiently heated, you may sit in it, and cover the Tub, that the hot vapours evaporate not, nor the cold air enter in, and cool the exteriour parts of the body: Wherefore also you must apply a clean linnen cloth about your neck, lest the warm vapours evaporate there: which being rightly observed, you may sit the space of 1, 2, 3, hours,

or as long as you please or your sickness require. You must keep a continual heat as much as is necessary, which may be done by the help of that globe. If you be thirsty in the mean time you may drink some proper distilled drink according to the nature of your disease, of which thing nothing now, because I am resolved to write a peculiar BOOK DE BALNEIS, and here only shew the use of that copper globe in heating of Baths. And although there be not a perfect instruction of all, yet of some Baths, and their uses there shall a short instruction be given in this place.

Of the nature, and property of natural Baths.

Know that the greatest part of medicinal waters in GERMANY, and other countries, as well hot as cold carry with them from the earth a certain sulphureous acidity, more or less: in which acidity consists that medicinal faculty and virtue of this or that water. And if those waters lose their odour and taste by the exhaling of their subtle spirits, then also they loose their virtues; although also there be found some waters, which have not only a spiritual sulphur, but also are impregnated with a certain mineral, or metallick body mixed with Allome, or Vitriol, which comes not elsewhere then from the common water running through the mines. There are found also other baths, the power and virtue whereof consists not in any spiritual sulphur, nor in any metallick body mixed with salt, but only in a certain spiritual salt mixed with a certain subtil fixed earth, which waters do not run through metallick mines

as others do, but rather stones of the mountains calcined with a subterraneal fire, whence also they borrow their subtil acidity with their insipid earth. And this no man will deny that hath a knowledge of volatile and fixed salts of minerals, and metals: the which I am able to demonstrate with very many, and most evident reasons, if time and occasion would permit; but it shall be done sometime or other as hath been said in a particular treatise. Now therefore I will only teach how by salts, minerals, and metals, artifical Baths may be made, which are not only inferiour to the natural in virtue, but also oftentimes far better, and that without much cost or labour, which any one may use at home in stead of the natural for the expelling of diseases, and recovering of health. And although I am resolved to set forth a book that shall treat largely of the nature, and original of Baths, and of their use; yet I am willing now also to say something in brief concerning it, and that from the foundation, seeing that there are so many different opinions of learned men, and those for the most part uncertain.

As concerning therefore the original of the acidity as well volatile, as corporeal, as also the heat of baths, know that is not one, and the same; for else each would have the same properties, but daily experience testifies the contrary: For it is manifest that some Baths help some diseases, and others are hurtful for them, which comes from nothing else but from the difference of the properties of the mineral waters proceeding from a diversity of mines impregnating those waters. In a word, sweet waters attract their powers, and virtues in the caverns of mountains from some metal and minerals of divers kinds, that have naturally

a most acid spirit of salt, as are divers kind of marcasites containing copper and iron, and sometimes gold and silver; also kinds of vitriol and Allome called by the ancients MISII, RARII, CHALCITIS, MELANTERIA, and PYRITIS, whereof some are found white like metals, but others dispersed in a fat earth, of a round figure in greater or lesser pieces: which sulphureous salt mines whilest the water run through, and humectates, that spirit of salt is stirred up, having got a VEHICULUM, and falls upon the mines by dissolving them, in which solution the water waxeth warm, as if it had been poured on quick lime, or like spirit of vitriol, or salt mixed with water, and poured on iron, and other metals; where continually and daily that water running through the mines whose nature and properties it imitates, carrys something with it: wherefore there are so many, and such various kinds of Baths as are the mines by which the water is heated. Let him that will not believe take any mineral of the aforesaid quality, and wrap it up in a wet linnen cloth for a little while, and he will see it experimentally that the mineral stone will be heated by the water, and so heated, as if it were in the fire, so as thou canst scarce hold it in thy hand, which at length also by longer action will cleave in sunder and be consumed like quick lime.

I will publish some time or other (God willing) more fully, and clearly in a peculiar treatise this my opinion, which I have now delivered in very few words. Although to the sick it be all one, and it matters not to them, from what cause the baths come, and whence they borrow their virtues, if so be they may use them; this controversie being left to natural Philosophers that will controvert it, which none

of them can better decide than a skillful Chymist, that hath the knowledge of minerals, metals, and salts.

And first of sulphureous Baths that have a subtil acidity.

In the second Treatise I have demonstrated the manner of distilling subtil, volatile, sulphureous spirits, viz. of common salt, vitriol, allome, nitre, sulphur, antimony, and other salts of minerals, and metals, and their virtues, and intrinsecal properties, now also I will shew their extrinsecal use, as they are to be mixed with waters for Baths. The vertues therefore of Baths proceed not from insipid water, but from those most subtile, volatile, sulphureous, and salt spirits; but these being of themselves not mixed with water unfit for Baths, to be used for recovering of health, by reason of their too great heat, and subtility; the most high God hath revealed to us unworthy and ungrateful men his fatherly providence shewing to us by nature the use of them, and the manner of using of them for the taking away of diseases; which (nature) being never idle, works uncessantly, and like a handmaid executes the will of God, by shewing to us the various kinds of distillations, transmutations, and generations. From which teacher we must learn all arts and sciences, seeking a certain, and infallible information, as it were out of a book writ with a divine hand, and filled with innumerable wonders, and secrets. And this is a far certainer knowledge then that empty, and imaginary Philosophy of those vulgar disputing Philosophers. Dost thou think that that true Philosophy can be sold for a hundred Royals? How can any one judge of things hid in the earth,

who is willfully blind in things exposed to the light of the Sun, hating knowledge? I wish knowledge were sutable to the name: how can any one that is ignorant of the nature of fire, know how to work by fire? Fire discovers many things, in which you may as in a glass see things that are hid: The fire shews to us how every thing, waters, salt, minerals, and metals, together with other innumerable things are generated in the bowels of the earth by the reflexion of that central, and astral fire: for without the knowledge of fire all nature remains vieled, and occult. Fire (always held in great esteem by Philosophers) is the key for the unlocking of the greatest secrets, and to speak in a word, he that is ignorant of fire is ignorant of nature with her fruits, and he hath nothing, but what he hath read, or heard, which oftentimes is false, according to that: HE EASILY SPEAKS UNTRUTHS THAT SPEAKS WHAT HE HATH HEARD.

He that is ignorant knows not how to discern betwixt the truth and falsehood, but takes the one for the other. I pray thee, thou that are so credulous, dost thou think that thy teacher writ his books from experience, or from reading other Authors? May they not be corrupted and sophisticated by antiquity, and frequent description? Also dost thou understand the true, and genuine sense of them? It is better to know, than to think: for many are seduced by opinions, and many are decieved by faith that is without knowledge.

And thus much for youths sake I was willing to say, that they would not spend their tender years in vanities, but rather would make trial in the fire, without which no man obtains a true knowledge of natural things; which although it seem hard in the beginning, yet it is pleasant in old age.

Now follows the mixture of those Subtile mineral, sulphureous, and salt spirits with water.

As concerning the weight of the aforesaid spirits that are to be mixed with sweet water, giving it the nature, and property of natural baths, I would have thee know, that of those, which in the second part I shewed to be various, and divers, being, viz. not equil in virtue, the same weight cannot always be so accuretly observed: seeing also there is a consideration to be had of their strength, and of the strength of the patient.

Now you may at the beginning mix one or two pound of the spirits with a sufficient quantity of the water, and then by sitting in it make trial of the strength of the artifical Bath, which if it be too weak is to be increased by adding a greater quantity of the spirits, but if too strong, then it is to be diminished by abstraction; of which more at large in ARTE NOSTRA BALNEATORLA. Now this observe, that it is best to make Baths in the beginning weak, then stronger by little and little by degrees, as the nature of the sick is accustomed to them, that it be not overcome by the unaccustomed use of them being too strong. Wherefore Baths are to be used with discretion, and cautiously, for which matter I refer the reader to my ARTEM BALNEATORIAM, in which he shall find plain, and perfect instruction; let it suffice therefore that I have shewed the use of the Copper Globe, in heating Baths, which let the sick take in good part, until more come. Now follows the use.

Of Sulphur Baths.

Apply the furnace with the Copper Globe to the Tub after the manner aforesaid, and pour in a sufficient quantity of sweet water, which make hot with the fire kindled in the furnace by the help of a globe: which being sufficiently warmed make the patient sit in it, and pour into it so much of the sulphureous spirit as is sufficient; which being done cause that the tub be covered all over, that the volatile spirit vanish not, and as necessary requires, continue the heat till the patient come forth. Know also that the water is to be changed every time, and fresh spirits to be mixed. And this is the use of the Copper globe, in heating baths of sweet or medicinal water, and that either of vegetables, or mineral, and this made sulphureous by art or nature; whereby most grievous, and otherwise incurable diseases are happily cured: Of which enough now in this Treatise.

The use of the Copper Globe in dry Baths, which are more excellent than the moist in many cases.

I might have put off this matter into its proper, Treatise, where all things shall be handled more largely, and clearly: yet by reason of some unthought of impediments for a while procrastinating the edition of the promised Treatise, I am resolved to say something of their use, after I have made mention of the humid, and indeed not only of the use of those subtile, sulphureous, and dry spirits, but also of the

use of subtile, vegetable and animal spirits which are medicinal, because in some diseases dry baths are more commodiously used, than moist. He therefore that will provoke sweat by a dry bath without water, let him provide a wooden box, or wooden instrument convenient to sit in, standing upon a stool boared through that you may raise it up more or less according as you please, and having boards appointed for the arms and feet to rest upon. This box also besides the great dore must have also a little dore serving for the putting in of a burning lamp with spirit of wine, or of any earthen vessel with coals for to heat it. (See the sixth figure.) The box being well warmed, let the patient go in, and sit upon the stool, let the box be very close shut all about, and the furnace with the Copper Globe be fitted thereunto, under which let there be a small fire kindled, by help whereof the volatile spirit growing warm, goeth forth into the box like a most subtile vapour, penetrating all about the patient. But when this spirit is not sufficient to heat the box, set in it a burning lamp with spirit of wine, or some earthen pot with coals (the best whereof are made of Juniper or the vine, especially of the roots as being such that will endure long, and cannot easily be extinguished by the vapours of those spirits) that the patient take not cold, and the vapours of the spirits may the better penetrate the body of the patient. Let the wick for the spirit of wine in the burning lamp be incombustible made of the subtile threads of gold, of which thing more in ARTE BALNEATORIA. In the mean time that volatile spirit penetrates, and heats the whole body, and performs its office, being this way used better than by being mixed with water. When the

patient hath sat there long enough let him come forth, and go into a warm bed to sweat. Now before he go into the box let him take a dose of that volatile spirit, inwardly which is used outwardly to provoke sweat, and accelerate the action. And by this means not only those volatile sulphureous spirits of salts, minerals and metals, are used outwardly without water to procure sweat, but also the spirits of many vegetables, as of mustard seed, garden cresses, crude tartar, also of animals, as harts-horn, urine, salt Armoniack, & etc. for the expelling of most grievious, and desperate diseases. Now the aforesaid spirits have divers properties, the volatile spirits of salt, minerals, and metals have some, those of vegetables and animals have others; those have a sulphureous and fiery essence; these a mercurial, and aerial; wherefore they serve for different uses. In some diseases those sulphureous are preferred, but in others vegetable and animal, where also a consideration is to be had of the sickness, and bath it self, that one be not used for the other, to the great dammage of the sick. For almost all natural baths, and volatile spirits of salts, minerals, and metals, partake of some most subtile, penetrating, heating, and drying sulphureous salt spirit; but the spirits of vegetables, and animals partake of a certain volatility that is most subtile, penetrating, heating, opening, cutting and attenuating, both urinous and nitrous, viz. contrary to the former; as appears by the pouring on of any volatile sulphureous spirit, as of common salt, vitriol, allome, minerals, and metals, upon the rectified spirit of Urine, or salt Armoniack: where presently the one mortifies the other, and takes away its volatility,

and subtility: so that of both subtile spirits of divers natures there cometh a certain salt of no ódour and efficacy. Whence it is manifest that all spirits partaking of divers natures, and essences have not the same faculties. Therefore be thou cautious in giving most potent spirits, lest thou give an enemy instead of a friend, and learn their natures, virtues, and essences, before thou usest them in medicine. But thou dost ask, whether is that great force of those spirits gone as it were in a moment? Did it evaporate in that duel? No I say, but transmuted into a corporeal substance, for of a most pure, mineral, subtile, and most volatile sulphur, and a most penetrating animal MERCURY is made a certain corporeal salt, which is wonderful, and deserves to be called AQUILA PHILOSOPHORUM, because it is easily sublimed with a gentle heat, in which many things lye: for it doth not only conduce to the solution of metals, especially of gold, but also of it self by the power of maturation doth become a most efficacious medicine: Of which no more at this time, because I will not only advise the reader, that he be diligent in searching out the nature of spirits, which although they change their bodies, yet are not therefore to be called dead, but rather reduced to a better perfection. And let this suffice concerning the dry use of baths in provoking sweat for the expelling of diseases: now for what diseases this or that spirit serves, thou shalt find in its proper Treatise, of which there hath been mention above, but in a word, know that those volatile sulphureous spirits of salts, minerals, and metals, are good in all obstructions of the inward parts, viz. of the spleen, lungs, and liver, but especially are most excellent in heating the cold nerves,

because they do most efficaciously heat, attennuate, cut, expel, and mundify, wherefore they are good in Contractures, Palsies, Epilepsy, Scurvy, Hypochondrical Melancholy, Morbus Gallicus, Itch, and other corrosive ulcers, and Fistulaes, & etc.

But the spirits of another kind, as of Tartar, Harts-horn, salt Armoniack, Urine, & etc. are hot also, but not so dry, and besides the heating virtue, have also a penetrating, cutting, mollifying, attenuating, absterging, and expelling power; wherefore also they work wonderfully in all obstructions of the inward and outward parts: for they do better than all others, open the pores of the skin, and provoke sweat, mollify, and open the hemorrhoides; provoke the MENSES of young and elder women, purge and heat the womb, and therefore cause fruitfulness; they heat and purge a cold and moist brain, acuate the intellect, and memory, let they that be great with child take heed of them, and also they that have a Porous open skin. Such and other more properties, and that deservedly are ascribed to these spirits. Now those two aforesaid baths (in one whereof those spirits are used in a humid way, being mixed with warm water, for the whole body to be bathed, and sweat in, but in the other in a dry way where the vapours are by force of the fire made under the Globe, forced up into the sweating box towards the patient, which being used after this manner do oftentimes penetrate, and operate more efficaciously than the humid way) are not to be slighted for the recovery of health, as doing things incredible. Now those spirits not being found in shops, nor being made by any according to the manner that I have shewed in the second Part, I would have thee know that there

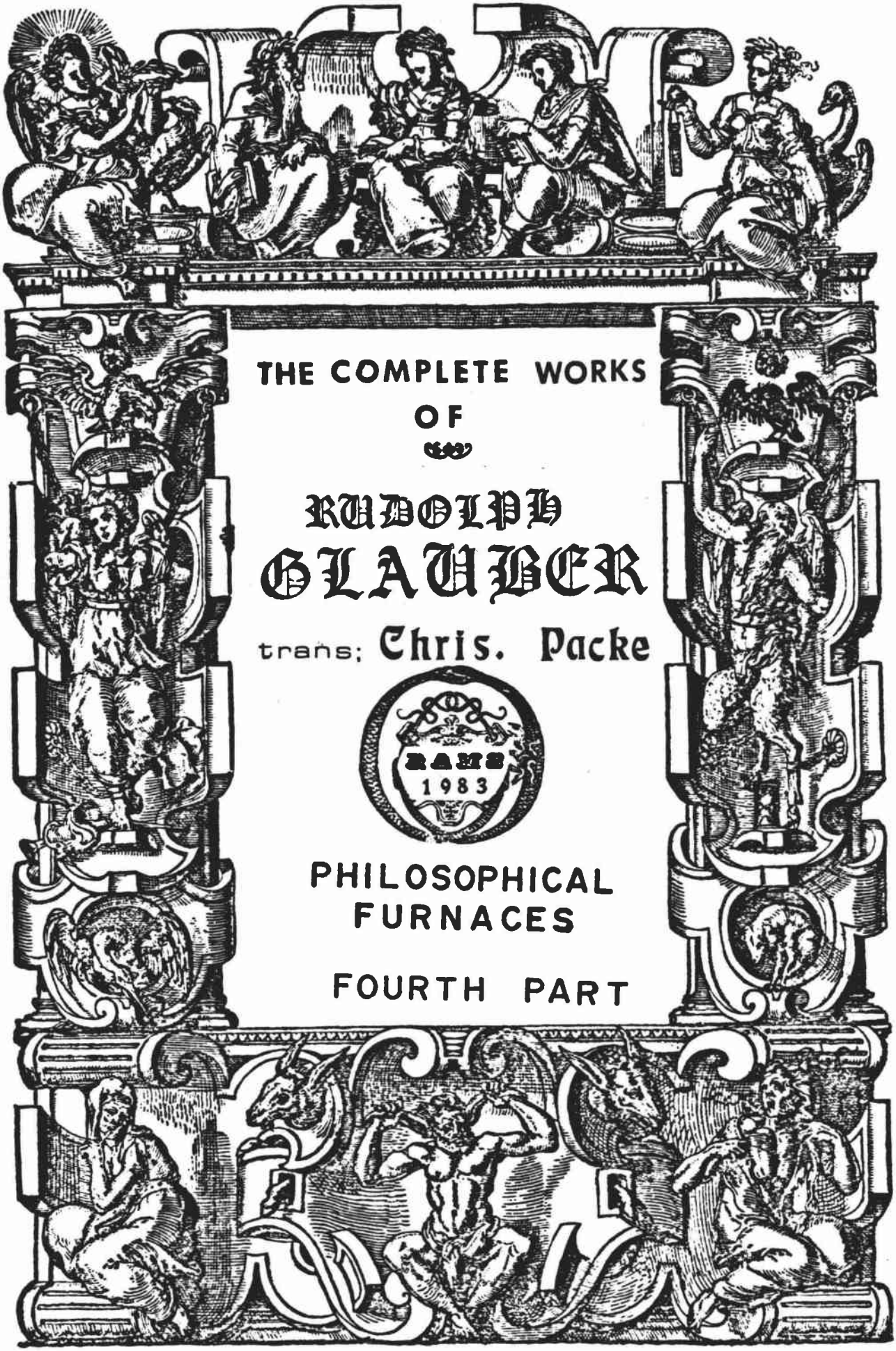
is yet another matter, which needs not to be distilled, and it is mineral; which being put into the Copper Instrument, doth of its own accord without fire yield such a sulphureous spirit, which penetrates very much, and goeth into the sweating box, like in all things to that which is made out of salts, minerals, and metals. Nature also hath provided us another matter that is to be found every where, which being in like manner put into the Instrument doth by it self, and of its own accord without fire yield a spirit, in virtue not unlike to that which is made out of crude Tartar, or salt Armoniack, Soot, Urine, & etc. Of which in the second Part, doing, viz. the same things with that which is made with costs and labours. Those foresaid two matters therefore can do the same things, which are required for a bath and sweating, which those two foresaid kinds of spirits, viz. mineral and sulphureous, vegetable and animal can do, & etc. Now what those two matters which are easily every where to be found are, thou desirest to know; but I dare not if I would, for the sake of the pious to reveal them because of the ungrateful, and unworthy. For it is an offence to cast pearl before swine, which yet the pious may, by the blessing of God find out by the reading of the rest of my Writings.

Now follows a wooden vessel which is to be used instead of a Cauldron in boiling of Beer, Metheglin, Vinegar, & etc.

Many things might be said concerning this matter, for although men may be found in any part of the world, who know how to make malt of corn,

and of this beer and vinegar; yet many things may be said of this matter for the correcting of it; but because it is not my purpose to shew such things now, yet I shall say something of the use of the copper globe which any one may provide instead of Caldrons, and which is to be used with a certain wooden vessel in the boiling of beer, which by this way he may, as hath been spoken above concerning the operations, make as well as by the help of Caldrons. Moreover I could here also teach some other most profitable secrets, viz. (See Consola. of Seamen) how honey may be freed from its ungrateful odour, and taste by the help of precipitating; and how afterwards a most sweet spirit is to be drawn out of it very like in all things to the spirit of wine: also how the best and sweetest wine clear, and durable like to Mallago, may be made thence: also how after purging it is to be crystallised, so as to resemble Sugar-candy in goodness and taste: also how the sweetness thereof may be converted into Tartar, very like to the natural: (See Explicat. Mirac. Mundi.) Also how out of fruits of trees, as cherries, apples, pears, & etc. a very good, and durable wine in goodness, colour, taste, and virtue, like to the natural, may be made; also how out of unripe grapes, that are not matured either by the inclemency of the country, or air, their acidity being changed into sweetness, a very good Wines like to the Rhenish may be made: also how out of sorrel, and other vegetables, a very good Tartar may be made, and that in a great quantity without much costs, resembling the Rhenish in colour, taste, and other virtues: Also how out of Corn, (whether malted, or ground in a Mill) a very good spirit is to be made, and also a very good vinegar like to the Rhenish;

also how out of Corn, (ground in a mill) or Meal, a very good spirit is to be distilled without any loss of the Meal, continuing yet fit to make bread. Such and more of this sort might be taught in this place, but because it is not good to divulge all things together, and at once, and this book would by this means grow bigger than I am willing it should, if such things should be here taught, I shall make an end of this Book (omitting other excellent possible secrets of nature) which although it be but little, yet will without doubt be profitable to many. And so Reader farewell.



THE COMPLETE WORKS
OF

RUDOLPH GLAUBER

trans: Chris. Packe

RARE 1983

PHILOSOPHICAL FURNACES

FOURTH PART

THE
FOURTH PART
of
PHILOSOPHICAL FURNACES:

In which is described the Nature of the Fourth Furnace; by the help whereof, Minerals and Metals are tried, and examined after a more compendious way, than hitherto after the common manner; also the separation of Metals by the force of Fusion, and other necessary things that are done by the power of Fusion or Melting. Most profitable for Chymists, Triers, and Diggers of Minerals.

Of making the Furnace.

This Furnace may be made greater, or smaller, as you please, according to the matter to be tried: and if the DIAMETER thereof within, be but of one foot, you may set it in a crucible containing two or three pound; but greater crucibles require a greater furnace. Now this furnace must be quadrangular, and be built of stones, and lute, such which abide the fire, of the height of of one or two feet from the bottom to the grate, which must be such as may be cleared from the dross mixed with coals, or such as was the grate of the first furnace, consisting of two strong cross iron bars fastened in the furnace with certain distances for the receiving of 5, 6, or 7 other lesser iron bars which

are to be moveable, so that when they are obstructed they may be removed, and cleared from the dross; the lower part of the furnace must have near the bottom a hole (in the forepart) of the heighth, and breadth of a little span, with an iron or copper door, shuting close: the lower part also must have another hole near the grate on the other side with its register for the government of the fire, and for the attracting of wind. Above the grate, and a hand breadth from the grate must be another hole for putting in of coals, and crucibles, suitable to the proportion of the furnace, and the height thereof must be of one foot, and the latitude of half a foot, if the inward Diameter of the furnace be of one foot, whereby the crucibles may be the more conveniently handled, and the coals be cast in with a fire-pan: Let this hole also have a very strong door of stone covered over with lute, either of which may endure the fire, and shut very close, that the fire may thereby (when the crucible is placed in the fire) attract air, but only from the collateral hole under the grate. Let the height of the furnace (being coated above) from the hole appointed for the putting in of coals and crucibles, be of one great span: Let there also be a round hole in the furnace, having the third part of the intrinsecal diameter of the furnace, appointed for the flame and smoke, to which if you will use a very violent fire, put to it a strong iron pipe of the height of 5, 6, 8, or 12 feet, for by how much the higher you set your pipe, the stronger fire may you give, and if you will you may erect above the furnace 1, 2, or 3 partitions with their doors serving to divers uses according to the flame that is gathered into them, by reason of divers degrees of fire,

which is in them, for the lowest is so hot, that it can easily contain in flux fusible metals, minerals, and salts; and serve for cementation, calcinations, and reverberations; also for burning of crucibles, and other earthen vessels, made of the best earth (of which in the Fifth part) and for vitrifications, and sometimes for trials and burnings, & etc. The second division of heat, which is more remiss, serves for the burnings of minerals and metals as of lead, tin, iron, and copper, that are necessary for calcinations; also for the necessary calcination of Tartar, and the fixed salt of other vegetables, that is required in chymical operation, as also the calcining of bones, and horns for cuples, and the ashes of wood. The third division or chamber is yet more remiss, and serves for the drying of crucibles, and other vessels that are made of the best earth, and afterwards to be burnt in the first partition. There may also other things be done by the help of these partitions, so that thou needest not for their sakes kindle a peculiar fire. But if thou wilt give a melting fire the strongest of all, put a long pipe to the lower hole appointed for drawing wind, and having a register; for by how much the fire attracts the air more remotely and another flame is forced to beat upon the metals, so much the greater power of the heat is there in the fusion of them. For which business sake thou hast need to have as that inferiour pipe, so also that superiour pipe in the top of the furnace. And if thou hast a fit chamber, in which another may go up from below by the proper chimney, thou mayest build another furnace in the superiour chimney, and perforate the wall with the applying of a register, that the fire may be forced to attract the

air from below through the collateral chimney, where you need not that long pipe but only may open a door, or window of the lower chamber, that the air may come into the chimney; and the fire attract the wind out of the collateral chimney, which it doth very vehemently, yea and stronger, than if it were helped with bellows, so that even the furnace, unless it were built of very good and fixed earth, would by too great a heat be destroyed; for oftentimes the strongest crucibles melt with too much heat, wherefore a register is made for the governing of the fire.

And by the help of this furnace, with Gods blessing, I found out my choisest secrets. For before, and indeed from my youth I underwent the trougle of those vulgar labours performed by bellows, and common vents, not without loss of my health, by reason of the unavoidable malignant and poisonous fumes, which danger this furnace was without, not only of poisonous and malignant fumes, but also of all excessive heat: For our furnace sends forth no fume (but above, so drawing, that the door being opened for the putting in of coals, it attracts by the vehemency of the fire, another fume, that is remote by the distance of half an ell. And because the fire doth so vehemently attract, it keeps its heat within it self, so that there is no fear of burning; yet you must cover your hand that holds the tongs with a linnen glove twice double, and wet in water, and with the other hand a wooden fence that is perspectible to preserve your eyes; otherwise it wants all danger of vapours, or fumes, as hath been said, and all excessive heat; the which is a great benefit in Art. I do ingenuously confess, if I had not found

this a few years since, I had not without loss left off all Alchemy together with its tedious labours. For I had spent many years of my life in great misery of labours, in superfluous cares, and watchings, as also in stinks, so that going into my Elaboratory with loathing, I should behold so many materials in so many, and such various pots, boxes, and other vessels, and also as many broken as whole instruments of earth, glass, iron, and copper, and did judge my self so unhappy that I had made my self a slave to this Art, and especially because scarce one of 100, whereof I was one, did get his victuals and cloaths thereby. For these reasons I was determined to bid farewell to Chymistery, and to apply my self to Physick, and Chirurgery, in which I was always happy. But what? Whilest I thought to do as I resolved, and to cast forth of the doors all and each vessel of divers kinds, I found some crucibles broken, and in them many grains of gold and silver, formerly melted in them, which together with others gathered together, I thought to melt; but seeing I could not melt such things being very hard to be melted, without the help of bellows (which I had sold) I began to consider the matter with my self more seriously, and so I found out this furnace, and being invented, I presently built and proved it, which in tryings I found so good, that I did again take hope of my labours, and would no more despair.

Seeing therefore an easy, and compendious way of melting metals, I began to work, and to begin a new search, and every day I found more and more in nature, viz. the greatest and most pleasant secrets of nature; wherefore I did without ceasing seek, until God had opened mine eyes

to see that which I sought a long time for in vain. Where also I observed, that although I had before had more knowledge of nature, yet without this furnace I could scarce have done any thing that had been singular. And so God willing, by the help of this furnace, I found out more daily, for which blessing I give immortal God immortal thanks, resolving to communicate this new invention candidly, and faithfully for the sake of my neighbour. Judge therefore O Chymist! Whether this, or that which is made by the help of bellows and common vents, be the best? For how long doth he that will melt a hard metal in a wind furnace give fire to it before it will flow, and with what loss of time, and coals? He that doth melt by the help of bellows hath need of a companion to blow, with great danger of breaking the crucible with the wind, and of making it fall when the coals are abated, or of impurities falling into the crucible in case the cover thereof should fall off, although there can be no detriment by impurities falling in. If the matter be metallick, but not so if it be a salt or mineral, (without which that cannot be perfected in the fire) not induring the impurities of the coals, but boiling over by reason of them. Now our furnace is free from this danger, because the wind comes from beneath and crucibles come always into sight, not being so over-whelmed with coals as in the common way, & etc. For by this means the matter to be melted is flowed, although the crucibles be not covered over with coals, nor with a cover, and although thou hast not a companion to blow, for you may at pleasure give any degree of fire by the direction of the register. When therefore thou makest any trial in the fire have this furnace which is

recommended to thee, which build rightly with its register for the governing of the fire, and for the drawing of wind, and without doubt this labour shall not be in vain.

How minerals are to be tryed.

The manner of trying minerals hath been already made known, wherefore it is not needful here to write many things, because divers Authors, as GEORGIUS AGRICOLA, LAZARUS ERCKER, and others have sufficiently wrote thereof, to whose writings I refer thee, especially to that most famous LAZARUS ERCKER which is so much commended, DE PROBATIONE MINERALIUM, as well maglignant (obstinate) as mild. But thus much know, being that which experience hath also taught us, that neither he nor his predecessours had a perfect knowledge of all things, nor would reveal all things they knew. For many excellent things do yet lye hid, and perhaps shall yet for a while lye hid by reason of the ingratitude of the world; although the most famous Philosophers do with one consent affirm that imperfect metals, as lead, tin, iron, copper, and Mercury, are intrinsecally gold, and silver, although it may seem very improbable to many that are not curious, but contented with the opinions of their parents; supposing those minerals to be barren that leave nothing in the cuple, when they are tryed with lead: when as yet that proof by cuples although famous, is not yet that true Philosophical trial of metals, but only vulgar, according to the testimony of Philosophers, as of ISAAC HOLLANDUS, and others, especially of PARACELSUS in many places treating

of metals, but especially in his book VEXATIONUM ALCHYMISTARUM, containing a true description of the properties, and perfection of metals. Which although not being to be understood by all, matters not; for a very easy art is not to be communicated to all, according to PARACELSUS saying. Imperfect metals being freed from their impurities have in them abundance of gold and silver. But how metals are to be purged, and separated he doth not teach, but only commends LEAD to be the Author; which made the Alchymist beleive that it was common lead, not knowing that the water thereof (lead) did not only purge other metals, but also lead it self; supposing also that the trial of tin, copper, and iron, made in a cuple with lead to be that true genuine bath thereof; not observing that lead hath no affinity with iron, and tin in a stronger fire, but to reject what is black, and unclean, without any perfection. Now this lead can do, if viz. it be mixed with a mineral that hath gold or silver in it, and be melted in the fire incorporated with it, it may together with their impurities enter into the Cuple, the good gold and silver being left in the Cuple, which is the proof of minerals that are digged, and used; and it is done upon this account, viz. gold and silver may be naturally purged of their superfluous sulphur so as never to be any more radically united, and mixed with those that be imperfect, as being polluted with abundance of crude, impure sulphur, although they may be melted together in the fire; yet that mixture being retained in the fire, the combustible sulphur of common metals, acts upon its own proper argent vive, and turns it into dross, which being separated from the metals enters into the porous matter of the cuples, that which

doth not happen in tests, fixed in the fire, which that dross being separated from the metals cannot enter into, being made of an earth that is durable in the fire, the dross remaining in them, which otherwise was wont to enter into those cuples that are made of the ashes of bones, or wood.

Wherefore by little and little it goes away into the cuple, viz. as much as the fire reduced into a Litharge, or dross, until all the Lead mixed with the Gold and Silver together with other imperfect metals mixed with it go into dross, and hide themselves in the cuple, the pure gold and silver being left in the cuple. For Lead in a plain vessel, feeling the heat from above, but beneath cold, is turned into Litharge, which if it be in an earthen fixed vessel, the Litharge remains, and goes into a yellow transparent glass at last, if it be not mixed with other metals, as iron, copper, tin; which being mixed therewith, give to the glass a green, red, black, or white colour, according to the quantity of the metallick matter: but in a porous cuple made of ashes, the Litharge, or dross finding pores, enters into the cuple by little and little, and successively, until all the Lead be entered in, which could not be if it were not turned into Litharge. This vulgar trying is therefore nothing else but a transmutation of Lead, with the imperfect metals mixed with it, into dross, which entring into the cuple leaves in the cuple pure gold, and silver, that cannot be turned into dross by reason of their purity.

But perhaps this discourse may seem to thee unprofitable, and superfluous, because this trial of metals is known all the world over: but

for answer, I say that it is not superfluous, because many refiners err, supposing that corporeal Lead together with the imperfect metals that are mixed with it, goes into the cuple, not being yet turned into Litharge, because corporeal Lead is again melted from thence; for whose sake this discourse is not properly ordained, as being those that operate out of use, and custom only without discretion; but rather for their sakes, who do incessantly seek after, and search into the secrets of nature, viz. seeking after that Philosophical tryal, which is known to few, by the help whereof more gold and silver is obtained than by the common way, but it is not to be discovered in this place; for all must not have the knowledge thereof; It is sufficient that I have demonstrated the possibility thereof. Yet know this, if thou knowest how to prepare Lead, Tin, Copper, and Iron, and to fit them for a radical union, viz. that aforesaid water of Saturn, so as they may endure the force of the fire together, thou mayest separate and attract gold, and silver from the aforesaid imperfect metals, and with gain leaving them in the cuple, or else you shall draw little or nothing from thence (See Explicat. Mirac. Mundi.) And if you do intend to try them with Lead after the vulgar way, and bring them into dross, yet you do nothing, because tin and iron abounding with gold and silver, do not remain with the lead in a strong fire, but are lifted up like a skin or dross, by reason of their superfluous sulphur, swimming like fat upon water, without any separation, unless it be tin or iron, which got gold or silver from the mine in their first fusion.

And by this means it falls out sometimes, that some may make a good

proof, but out of ignorance, not knowing a reason of their operation, wherefore they cannot do the same again. For if Chymists, and Refiners did consider the matter more profoundly, enquiring the cause, wherefore lead being tryed, deprived of its silver, and melted in a cuple, should yet contain in it self silver, without doubt they would hit upon a good foundation; without which knowledge all their labour in imperfect metals would be in vain. And let this suffice concerning that Philosophical tryal, which is known to few; There is no need of speaking any thing of that vulgar, being every where known, of which LAZARUS ERCKER wrote plainly and fully.

There is also another proof of minerals, which is without Lead, with Venice, or any other good fusible glass, where one or two ounces of the powdered mineral are mixed with half an ounce of the powdered glass, and being mixed and covered in a crucible, are melted, and poured out; by which means the glass attracts, and dissolves that mineral, and is thereby coloured, which shews what metal is contained in the mine, after which may be made another tryal by Lead, tryal being first made by the first proof. And this is the fittest proof for the hardest minerals, which are even invincible, as are the LAPIS HEMITITIS, SMIRIS, granats, talck black and red, and those which abound oftentimes with gold, and silver, which becuse they cannot be mixed with Lead are not esteemed, but are oftentimes cast away, although they abound with gold and silver, and this because they cannot be tryed, Which being tryed after the aforesaid manner, and consequently the treasures lying therein being discovered, thou mayst afterward with more confidence handle them,

and reduce them to better profit. Now those colours which follow, indicate the tenure of them. Glass resembling the greenness of the Sea signifies meer copper, but the greenness of grass, signifies copper, and iron mixed together: glass of a rusty colour signifies iron: yellowish glass signifies tin, glass of a yellow golden colour, of like a red ruby signifies silver: Blue glass like a saphir signifies pure gold; a smaragdine signifies gold mixed with silver: An Amethyst colour signifies gold, silver, copper, and iron mixed together. Besides these, glass sometimes gets other colours, according to the diversity of the weight of divers metals mixed together; which use will teach with a further practise that is to be made with Saturn.

There is also another precursory tryal of minerals, and metals, which is made with Salt-peter, where especially tin, iron, and copper do largely draw forth their treasures hid in them, which they will not yield being tryed by Lead, the which is not a sign of their poverty; but rather of not a true tryal made by Lead, which is not the true, and genuine judge, and tryer of metals. For otherwise (if it were) it would draw forth their treasure as well out of a greater quantity of metallick matter, as out of the lesser. Now follows the tryal by Nitre: Make a mixture of one part of sulphur, of two parts of pure Tartar, and four parts of purified Nitre, then take an ounce of this mixture, and one dram of the mineral or metal ground small, mix those together, and being put into a crucible, put a red hot iron or burning coal to them, and that mixture will be inflamed, and yield a most vehement fire, reducing that mineral or metal into dross: And what is not brought into

dross must again be mixed with the aforesaid mixture, and be burnt as before, until the whole be consumed by the fire. Then make that dross or salt containing in it the metal that is destroyed, to flow so long in a strong crucible, until it be made glass; which being poured out there are found grains of gold or silver, which came from the mineral or metal that was tryed. And this operation (if it be well done) will be a pleasant sight, but without profit, because it cannot be done in a great quantity, and by reason of the price of the Nitre. Wherefore I set this way of tryal only for demonstration sake, that it might appear how almost all tin, iron, and copper, contain in them gold and silver, although they do not draw it forth in the Cuple.

Now do not suppose that this is transmutation, which is only separation; wherefore thou must consider with thy self how that may be performed otherwise. But take heed that thou do not kindle this mixture from beneath, being put upon the coals, but from above, by reason of the danger of flashing: Also metals are easily fusible by the following mixture. Take one part of the saw-dust of the wood of the teil-tree being well dryed, two parts of sulphur, eight or nine parts of pure Nitre. Make STRATUM SUPER STRATUM in a crucible, and take to 11, or 12 parts of this mixture; one part of the metal subtility ground, and kindle them, and the mine being melted will yield grains of pure Gold and Silver, if the mine were not too impure, the impurity thereof be consumed by that most vehement fire. And if this tryal be not for thy profit, yet it is rational, and may be for thine instruction.

Of the melting of mines and metals.

The melting of these in a great quantity is not for this place, because they cannot be done by this furnace, but it is treated of plainly enough by others in their writings of minerals.

Of the separation of metals.

This is a most ancient and profitable Art, whereby one metal may be separated from another: And it is the most part done 4 ways, viz. by AQUA FORTIS, by cement, by flux with sulphur, and lead, and lastly by Antimony; which ways that most witty LAZARUS ERCKER, hath clearly, and distinctly described, whose description is not to be found fault with, although some necessary things may be added thereunto, which being but few, I thought it superfluous to add them in this place.

And that separation consists in three chief metals, Gold, Silver, and Copper; he made no mention of other metals, and two of the aforesaid four ways are in use, as very easy, for they are done with AQUA FORTIS and Cement, the two others most commonly neglected, which are done by benefit of melting with Sulphur and Lead; and also by Antimony: that which is admirable, because metals are easier separated by benefit of these two ways, than, by AQUA FORTIS and Cements, suspected of waste, whereas not Sulphur and Antimony, but the ignorant worker, not knowing the nature of Sulphur and Antimony, is rather to be blamed, because he knows not how to order them, and withal leaves the nearer

way of separation: and I must needs confess it that without this furnace I would not separate with them, because with that common way of furnaces and bellows, the stink of Sulphur and Antimony hurtful to the Liver, Lungs, Brain, and Heart, is received by the Nostrils to the hazard of health: for which cause I do not wonder that those two ways requiring greater diligence than those two former by AQUA FORTIS and Cements are rejected. But this furnace being known, with which without danger one may melt, I doubt not of excelling the two former ways hereafter as more profitable than them. For he who knows Antimony, may not only easily with small cost separate Gold from the addition without any loss of it, and speedily refine it, but also easier separate gilt silver, then by Sulphur, Lead, & etc. in great store without any loss of Gold or Silver.

And this is the easiest way of the separation of Gold and Silver which is done by the benefit of melting, requiring no more charge than the coals; for there is Antimony which hath Gold in it as much as it is worth, which will be the separators gain: I would have you know this, how Antimony may again be separated from Gold and Silver, not by the common way, which is done by bellows, but by the special way of separation wherewith the Antimony is preserved, so that it may be used again for the same purpose; which I will treat of in another place. Besides the four ways spoken of, there is also another way, best of all, by the nitrous spirit of salt, namely after this manner: Rx. the spirit of salt (prepared by our first and second Furnace) acuated with Nitre dissolved in it, to which add grain Gold mixed with Silver and Copper, put

it in a glass vial in hot sand to dissolve, and the Gold together with the Copper will be dissolved in it, and the Silver left in the bottom of the vial: decant off the solution, to which add something, precipitating Gold, and make them boil together, and the pure fine gold will be separated and precipitated like the finest meal, serving Writers and Painters; the Copper being left in the water; which thou mayst if thou wilt precipitate from the water, but it is better to take away the water, which will serve again for the same use. If the precipitated Gold be washed and dryed it gives in the melting (by which nothing is lost) the best and purest Gold. For finer gold can neither be made by AQUA FORTIS nor by Antimony.

Therefore this is the best way of all, not only for the small cost, but also for the easiness yielding the best Gold of all others.

Then take the calcined Silver left in the gourd, sweeten and dry it, which done make a little salt of Tartar to melt in a crucible, to which by course put a little of the refined silver with a spoon, and it will presently be made a body without any loss. You may also boil that Calx as yet moist newly taken out of the gourd with a Lixivium of Salt of Tartar, even to the evaporation of all moisture: and melt the dry remnant, where also nothing is lost. Without this medium the calx of Silver (drawn from AQUA REGIA) is not fusible of it self, turning into a brittle matter, like horn that is white, or of a middle colour between white and yellow, called therefore of Chymists, the HORN OF THE MOON; in reducing which many have tried much, which reduction we have already taught. For want of spirit of salt take AQUA REGIA made of

AQUA FORTIS and salt Armoniack, which doth the same, but with greater charges. This also is to be preferred before other ways, which makes to the separation of any Gold of any degree, if so be it exceed Silver in weight; which is necessarily required in the solution made with AQUA FORTIS.

But that you may see the prerogative of this separtaion, mark a little, when you separate by the QUARTO and by AQUA FORTIS you must put just two or three parts of refined Silver to one of course Gold, where first the cost and labour of refining the Silver to be melted and grained with Gold are required: then a good quantity of AQUA FORTIS to dissolve, precipitate, edulcorate, dry and melt a great deal of silver. Consider then I pray, the labours and charges of my separation and the vulgar. When thou separatest with Cements there is need of boxes, and continual fire of one degree, which labour is tedious for times sake, and costly for coals, which labour you must twice or thrice take in regard of the mixt dross. Now again consider the labour and charges of both separations. When thou separatest by Sulphur and Antimony, which is the best way, without great charges, if thou knowest to separate Gold from Antimony without blowing, but this is tedious because thrice greater labour, then our way, tedious indeed by reason of the difficulty of a perfect separation of Gold and Silver from the Antimonial dross. Think therefore what way of separation you will use to refine Gold speedily, surely you will chuse mine.

This way of separation hath also this prerogative, that it hath no need of refined silver which is done by the benefit of burning, but

only its granulation, solution or separation by the use of AQUA FORTIS, where though copper mixt with silver makes waste, yet by the help of this salt it is soon precipitated. By this means gilt silver is soon separated, the gold being dissolved by the nitrous spirit, and precipitated with the aforesaid matter precipitating. As for the separation of gilt silver which is to be done by the help of fusion, and none is easier done than with Sulphur and Antimony, where when the necessary manual (ingredients) are known; a great deal is separated in a short time, but if thou knowest not how to handle Antimony and Sulphur (for which our Furnace very well befits) leave there, and use the common way, therefore lay not thy fault afterward on me, writing for thy good.

Of Separating the courser metals.

The manner of separating Tin from Lead, and Copper from Iron, without loss of both metals, by preserving both, hath hitherto been unknown, which seems impossible to me by reason of the cumbustibility of both metals; and superfluous for the small profit, and saving charges. But how Gold and Silver may be separated from Tin with which commonly this abounds, without any waste, hath been long since sought to no purpose: but a possibility will appear to a serious considerer; and though I never tryed in great quantity, being content with a precipitation made with a little; I am yet perswaded this business will succeed in a great quantity and with much profit; namely by the help of a Furnace made on purpose where gold and silver precipitated with lead and HALB KOPF by

extream heat of fire; that tin is extracted to the remanence of the tenth part, which remainder you must peculiarly take and keep. Which done you must precipitate new tin in the foresaid Furnace, and so extract to the remainder of the REGULUS, which being extracted from, is to be added to the first and reserved; which labour is to be reiterated, till thou hast a sufficient quantity of REGULUS filling the Furnace; which again thou must precipitate; for by this means gold and silver are brought together, so that they may easily afterward be separated from the superfluous tin. By this means I count the separation profitable, where but little substance is lost, which is turned into ashes and smoke. Nor doth adding lead and HALB KOPF hinder, because sometimes lead is mixt with tin, and the HALB KOPF is separated again. It is good therefore to separate pots and old dishes, by reason of the mixture of lead, and to precipitate the gold and silver from them, by the adjection of HALB KOPF only, where the residue is no way altered by the HALB KOPF, therefore thou mayst sell it, or refine it again: which in my judgement will be to great advantage.

What is to be held concerning the perfection of Metals.

This knot is scarce soluble, for so many and divers opinions of so many ages, so that most men slighting the testimonies of true Philosophers, will not believe the truth, especially, because scarce one of a hundred can be found who is not impoverisht with this art: the incredulous therefore is not to be blamed for his doubting, no signs of truth appearing,

yet experience testifies a possibility by art and nature, though examples are rare. I pray with how great absurdity should one deny Heaven and Hell never seen? But thou saist we must believe this as revealed by God, his Prophets and Apostles; but so is not this, but the Philosophick tradition of Heathens. I answer, though most Philosophers were heathen (yet some have been Christians) yet their works are not to be despised, because not handling our salvation: to whom if CHRIST had Preached, surely they had believed him. For it appears by their books that they were pious and honest men; who though not Professors of CHRIST, yet they did His Will indeed which we, though not in words, in action deny; who if they had been wicked, why took they so much pains in making books for the good and profit of their Neighbour about Virtue and Piety? Why spent they not rather their life time in leisure and pleasure, as is the custom now adays with them who are appointed to instruct us? Why should they gull posterity with trifles and lyes, expecting from thence no profit? For most of them were not poor, but very rich Kings and Princes. Besides these, there have been many Christians seriously confirming the truth of the Art: Men indeed of special note, namely, Bishops, Doctors, & etc. Such were THOMAS AQUANAS, ALBERTUS MAGNUS, LULLIUS, ARNOLDUS, ROGER BACON, BASIL, & etc. Why should very pious men deceive posterity with their Works, and lead them into Errors? Although there should not remain the Works of Famous Worthies, yet there would be a plain confirming the truth of this Art. For I am perswaded there are some to be found having this knowledge, and privetely possessing it. For who is so mad to reveal himself to the world, to receive

nought but envy for his reward? Let no man therefore doubt of this secret Art's truth. But say you: Why stand you so much for the Art? Did you ever see or perform any thing in it? I reply, though I never made projections to perfect metals, nor saw transmutations; yet I am sure of this, I have often from metals with metals, leaving no gold and silver in the cupel, extracted gold and silver by the help of fire: But I will not have you think that one imperfect metal will perfect another, or turn it into gold or silver, impure and drossy without, in comparison of gold and silver; for how can such metals perfect another imperfect? Which thus understand. For as in the vegetable Kingdom, water cleanseth water, or juice with seething as is wont to be done in purifying honey and sugar, or any other vegetable juice, with common water, and white of eggs: so also you must understand of mineral juices or metal, of which if we know the water and white, surely we might refine the impurity, in which gold and silver lie hid, as in black shales, and powerfully extract gold and silver, which is not a transmutation of metals, but an eduction of gold and silver from the dunghill; Dost thou ask how Gold and Silver can be educed from copper, iron, tin, and lead, to wit, by the help of lotion, out of which none is drawn with that best proof (as 'tis thought) of Cupels? To which we answered before of the proof of Cupels not to be sufficient for all the several metals. I need therefore say no more, but I refer the studious Reader to PARACELSUS his Book, the VEXATION OF CHYMISTS, where thou shalt find another lotion and purification of metals, which heretofore was unknown to Miners and Dealers in Minerals. As for example: A Miner finding

the ore of copper, useth his skill delivered by the ancients to his utmost endeavour, whereby he may cleanse it and reduce it to metal: where first he breaks it into pieces, and boils it, for to take away the superfluous sulphur, then by virtue of melting, he brings it into a stone (so called) which afterward again he commits to fire, and freeth it by the addition of lead, of its gold and silver: which done, he blacks and reddens it, turning it into copper, which is his last labour, whereby the copper is made malleable and vendible: which done, the Chymist coming, tries another separation, by whose help gold and silver is extracted, as yet tryed of very few, of which mention is here made. PARACELSUS also saith in the same place, that God hath given some an easier way of separating gold and silver from courser metals, and indeed without refining the ore, which is a special and curious Art, which he teacheth not in plain terms, but only saith it is sufficiently taught in seven rules of that book, where he treats of the nature and propriety of metals; in which you may seek it. And this purification of courser metals I count most easy, which I have often tryed in small quantities: and I doubt not but God hath shewn other Artists also other purifications by which imperfect metals are perfected; for example, if one would purge the fruit of the earth by distillation, so that the dregs and impurities being taken away, it would grow up with a new clear clarified Body: as if one distil black and impure Amber by a retort, the separation would be made by Fire, of the water savouring of an EMPYREUM, of the oil and volatile salt, and the CAPUT MORTUUM be left in the bottom of the retort; by which means, in a very short time without great labour,

is made a great alteration and emendation of Amber, though the oil be black, impure, and stinking: but if it be again distilled by a retort with some mundifying water, as with the spirit of salt (namely through a fresh clean retort) there will be made a new separation by that spirit of salt, and a far clearer oil will be extracted; the dregs with the stink left in the bottom of the retort, which afterward may be twice or thrice rectifyed again with fresh spirit of salt, until it get the clearness of water, and sweetness of scent resembling Amber and musk.

And this transmutation makes of a hard thing, a soft, unlike the former in shape, which though never so soft and liquid, oily, may again be coagulated, so that it becomes as it was at first, after this manner following. Take the said oil very well clarifyed, add to it fresh spirit of salt, set it in digestion, and the oil will attract from the spirit of salt, salt enough for its own recoagulation, and again it acquires the hardness of Amber, of an excellent clear and admirable colour; of which half an ounce is worth more than some pounds of black Amber; of which scarce the eight or tenth part remains in purifying, all the foul superfluities cast away.

By this means I think one may cleanse and mend black metals, if so be the manner of their cleansing were known by distillation, sublimation and recoagulation. But thou say'st that metals cannot like vegetables be purified by force of distillation, to which I present our first furnace not given to peasants, but Chymists, purifying metals; so also the possibility of their perfection is shown by help of fermentation. For as fresh leaven can ferment the vegatables juices, which

are perfected by fermentation, the dregs being cast away as one may see in wine, ale, and other liquors, whose lasting and perfection proceeds from no other thing but fermentation purifying the vegetable juices, without which they could not otherwise withstand the Elements, subject to corruption in a very short time, which fermented last some years: so also if we knew the proper ferment of metals, surely we might refine and perfect them, so that they not being any more subject to rust, would be able to prevail against fire and water, and be nourished and fed by them. For so the world heretofore perished with water, and shall at last perish with fire, and our bodies must rot and be purified by fire before we come to the sight of God. And thus far of the fermentation of metals, wherewith they are amended and perfected. Metals also are purifyed and amended like milk set on the fire; whose cream the better part (the substance of butter) in the top is separated from the whey and cheese, and the hotter the place is, the sooner the separation is made even, so it is with the separation of metals; where metals put into a Fitted hot place by themselves without any addition of another thing (the metals being before reduced to a milky substance of curd) are separated in time, by parting the nobler parts from the ignobler, opening a great treasure: and as in winter time milk is hardly separated with a weak heat; just so metals if not helped with Fire, as one may see in iron, which in a long time under the earth is turned into gold without Art, For often iron ore is found with golden veins very goodly to behold, severed from the course, earthy and crude sulphur, by force of the central heat, And commonly in such ore no vitriol is found, being

separated and bettered by its contrary. But a long time is required for that subterraneous separation, which Art very speedily performs; as is wont to be done with milk in winter when we presently make butter of it, when we put it to the fire to part the cream speedily; which separation is helped by the precipitation made with acid things, mortifying the urinous salt of the milk, by which means all principles are separated by themselves, as butter, cheese, whey: so in a quarter of an hour separation is made by boiling, which else without acid things could not be done in some weeks. If then it be possible in vegetables and animals, why not in minerals? For what but gold and silver is found in lead, iron, tin, and copper, though it doth not appear? Why is all goodness denyed to the courser metals granted to vegetables and animals not equil to them for lasting? Whence is the natural perfection of lead, tin, iron, and copper to be proved? Nature ever seeks the perfection of her fruits: but course metals are imperfect: Why then is not nature helped with Art in perfecting them? But the bond of metallick parts is worth observation, which being broken, the parts are separated. Urinous salt (as I may say) is the bond of the parts making milk, as of butter, whey, and cheese, which is to be mortifyed by its contrary acid for separation. But in iron the parts are bound with a vitriolate salt, as with a bond, which is to be mortifyed with its contrary, urinous or nitrous salt for separation. He therefore who knoweth to take away the superfluous salt of iron, either by moist or dry means, doubtless shall have iron not soon subject to rust.

Fire also hath incredible force of it self in changing metals. Is

not steel made of iron by force of Fire, and iron steel by different proceeding? Experience daily teacheth us also divers kinds of changes and refinings by Fire; why is it not possible in metals by an expert Chymist having skill in them? Who would believe that a live bird lurks in an egg, and an herb having leaves, flowers, and odour, in the seed? Why may not then abortive metals, getting not yet perfection, be perfected by Art, with help of Fire? Is not an unripe apple or pear ripened by the heat of the Sun? Which some curious and industrious men observing, have imitated nature in their works; and have found some metals not destroyed with the heat of Fire, but enriched with a secret gainful heat: so that melted (digestion being made) they have yielded double weight of gold and silver. Yea I my self have seen the common ore of lead digested after the aforesaid manner, which was not only enriched with silver thereby, but also partaked of gold which it wanted before in ordinary tryal. Besides one might work this in great quantity, as with an hundred pounds; which work of minerals will without doubt bring great profit to the skillful triers of lead: But know this, that not every tryal of lead will be furnished with gold, but the ore to be ever enriched with silver, experience being witness.

Many such things are found in Nature incredible to the ignorant, and those that are unexercised. But if we mortals were more diligent in reading the book written with the hand of God in the pages of the four Elements, surely we should Find more secrets and wonders in them, but skill and wealth is got with sweat of face and not by sloth; therefore LABOUR and PRAY. Metals are also meliorated by the help of gradation

like unto germination.

For it is well known, that the shoot or grass of some fruitful garden tree implanted in a wood, makes that tree afterwards to bear not wild fruits, but very good and sweet like them of the implanted shoot, as one may see in iron dissolved in an acid spirit, fermented with Venus and turned into Copper: by which means doubtless copper is turned into silver, and silver into gold, if the true manner of fermentation were known.

Now this transmutation is like digestion, making beef or horse flesh of grass in the stomach of oxe and horse, and mans flesh or beef, in the stomach of man.

The better parts also are separated from the worser by the attractive strength of the like, as is to be seen in a metal abounding with sulphur, to which if iron be added in fusion, the sulphur deserts its native metal, (by which means it is more purifyed) and joins its self to the iron, with which it hath more affinity and familiarity, than with its own metal; for example, if iron be added to lead ore full of sulphur in the melting, this melted metal is made malleable, which else would be black and brittle. And if something else to be put to the melted malleable metal were known to us, to take away in the melting, the redundant, crude, combustible sulphur, questionless it would yet be made purer; which thing being unknown, metals remain in their impurity. And indeed God hath done well in this as in all other his works, that he hath concealed his knowledge from us: for if it were known to the covetous, they would buy up all lead, tin, copper, and iron, to turn into gold, so that rerall and poor Labourers could hardly buy metallick

instruments for their use, for the scarcity; but God will not have all metals turned into Gold.

A Similitude of taking away the superfluous sulphur of some metals in fusion, being given to keep the purer parts; so likewise is there another manner of separating, the purer parts from the impure, namely, by the attractive power of the like, where the purer parts are drawn together by their like, the impurer and hetrogeneous part is rejected: and that may be shown as well by the moist as dry way: an example of the moist way followeth.

If quick Mercury be added to impure gold or silver dissolved in its proper MENSTRUUM, the mercury draws to it self the invisible gold and silver from the MENSTRUUM and mixt impurity and associates what is purest to it self, which separation swiftly succeeds. Mercury performs the same likewise in the dry way: namely, when some earth having some gold and silver, is moistened with acid water, and they are so long bruised together, till the Mercury draws the better part; which done you must wash the dead earth left, with common water, and separate the mercury being dryed from the attracted gold and silver, by trajecting them through a skin, but the Mercury draws but one metal from the earth, and indeed the best at one time; which being separated, it draws another metal; for example, if in some one earth, gold, silver, copper and iron lye hid, the first time the mercury draws the gold, the second the silver, but copper and iron hardly by reason of their dross, but tin and lead easily, but easiest of all gold by reason of its purity like to mercury.

Another Demonstration by the dry way.

Put under a tile a cuple with lead, to which add a grain of very pure gold, most exactly weighed (for memories sake) make the gold in the cuple to fulminate, and the lead will enter the cuple, the gold being left pale in the cuple: of which pale colour there is no other cause than the mixture of silver, drawn from the lead by the gold. But thou wilt say, that thou knowest this, that gold fulminated with lead, is made paler and weightier, by reason of the silver in the lead, left with the gold in the trial, augmenting the weight, and thence making it pale: to which I reply, though lead leave some silver in trying in the cuple, mixt with the gold added to it, augmenting its weight, and changing the colour; yet it is proved by the weight, that lead leaves more being mixt with gold in the cuple, than when tryed without gold. Hence it is proved, that gold in the fire draws its like from other metals, augmenting its weight: and this also gold doth in the moist way: for if it be dissolved in its own MENSTRUUM, together with copper, and put in digestion, and then separated, it attracts gold from the copper; which labour, though not done with profit, yet witnesseth a possibility. But if the MENSTRUUM of gold augmenting the attracting power of gold or multiplying the same were known, but diminishing the retentive power of copper, doubtless some gain were to be expected; and indeed more, if gold and copper, together be melted in fire with the dry mineral MENSTRUUM, by which means the weight of gold would be increased according to PARACELSUS saying Metals mixt together in a strong fire, continued

a pretty while, the imperfection vanisheth and leaves perfection in its place.

Which surely well done, is a work not wanting gain. For I freely confess, that I would sometime incorporate silver with iron, when as gold from iron gave me a good increase of pure gold, instead of fixt silver sought after. And by this means often some not thought on thing happens to Artists, as to my self with fixt silver, not rightly considering the business. Therefore medling with metals, be sure when you find some encrease, to weigh well what it was at first. For many think long trying silver with iron, by the Blood-stone, Load-stone, Emerald, LAPIS CALAMINARIS, Red-talck, Granats, Antimony, Arsenick, Sulphur, Flints, & etc. having mature and immature, volatile and fixt gold in them, finding in the trying good gold; that this gold is made of the silver by the help and use of the foresaid minerals, which is false. For the silver drew that gold out of those minerals, in which before it lurked volatile. Yet I deny not the possibility of changing silver, as being inwardly very like gold, but not by help of cementation with the said minerals, because that gold proceeds not from the silver, but those minerals, attracted by the silver. This labour is compared to seed cast into good ground, where dying, by its own power it draws its like to it self, whence it is multiplyed an hundred fold.

And it behoveth in this work now and then to wet the metallick earth, with proper metallick waters, being dryed up with heat (which operation is called of the Philosophers inceration) else the earth will be barren, and it behoveth that this water be neer in kind to the earth, so that

when they are united they yield a certain fatness. For as it appears from sandy dry earth, moistened with rain water, not bringing forth fruit agreeable to its seed, for the small heat also of the Sun consuming the moisture, and burning the seed in the earth, which mixt with cows dung or other, keeps the water so as that it cannot be so soon consumed. By the same reason it is necessary that thy earth and water be mixt, lest thy seed be burnt up. Which work if well handled, it will not be in vain, requiring the exceeding diligence of nourishing the earth with warmth and moisture, when the earth is drowned with too much moisture, or hath too little, it cannot increase, and this is one of the best labours, with which I draw forth good gold and silver of baser metals, requiring the best vessels, retaining the seed together with its earth, and water in its proper heat. I doubt not but this work also in greater quantity may be performed, firmly believing that the courser metals, especially lead, the fittest of all not only to be perfected into gold and silver, but also into good medicine: which without question is a Philosophick labour granted from God, as a great comfort to the Chymist, but warily to be used. For that all and singular Gods gifts he will not have common: as indeed I have found, when I had invented a very excellent work, that I shewing it to a friend, neither could I afterwards teach it to him, nor do it again for my self. Therefore indeed justly men are doubtful in writing such matters: for many seek with idleness to get the inventions of others, performed with great costs and labour. Therefore it is safer to be silent and give leave to seek, than to publish secrets, that they may undergo the pains and

charges to be born in inventing high matters; nor any more hereafter may the ingrateful so impudently gape after others Labours. Therefore I would entreat all men both of high and low degree, that they would not molest and tire me hereafter with their Petitions and Epistles, and that they would not turn my good will of benefiting others to the ruin of my self, but be contented with my writings published for the profit of my neighbour. Nor do you think that I possess and promise golden mountains. For what I have written, I have writ to discover nature, in these discourses of the perfection of course metals in small quantity: For I have never made trial in a great quantity, trying truth and possibility in a lesser only, in small crucibles: therefore those things which I have writ are written to that end that the possibility of the Art, may appear, of perfect metals to be wrought out of imperfect, therefore he who hath occasion may make trial in a greater quantity: but as for my part wanting opportunity, I expect Gods blessing, whereby upon occasion I may make tryal in a greater quantity, and so receive the fruit of my labour and great charges.

Also metallick bodies are transmuted by another means, namely by the benefit of a tinging metallick spirit, as one may see in AURUM FULMINANS, sometimes kindled upon a smooth clean metallick plate, fixing a very deep golden tincture upon the plate, so that it may bear the Touch-stone. The same also happens in the moist way, where plated metals put into a gradatory spirit made of Nitre, and certain minerals, being pierced by the spirit, obtain another kind agreeing to the spirit. But if one doubt of the metallick gradation, made with AURUM FULMINANS; he

may try the certainty from the often firing of fresh AURUM FULMINANS, upon the same plate; for he shall see that it is not the colour of the metal, and outwardly gilded, but deeply tinged. Likewise one may try the certainty by a humid spirit, if the transformed metals are tryed, whence the mutual action and passion of subtilized spirits plainly appears, for the power of spirits is very great, and incredible to one not exercised; and this gradation of inferiour metals, Philosophers both ancient and modern, do not only confirm, but also diggers of minerals taught by experience, that mineral vapours by penetration change courser into purer metals, LAZERUS ERCKER being witness, that iron is changed into good natural copper in green salt waters, & that he saw a pit, in which iron nails and other things cast in, by the penetration of a cupreous spirit were turned into good copper. I do not deny that metallick dissolutions of some metals do stick precipitated to the plates, and to make them of a golden, silver, or cupreous colour; for it is well known, that iron cast into a vitriol water not to be turned into copper, but to draw copper out of the water, of which thing we treat not here, confirming the possibility of metallick transmutations by a tinging and piercing spirit; therefore I again maintain that great power is in metallick spirits; look only upon course and opake earth, and besides that clear and limpid water with which the clearer and more powerful air proceeding from the water cometh from the earth. Are not whole Countries drowned with water, sometimes Towns and Cities taken away? Cannot the air destroy the strongest Houses; especially shut up in the earth, shake the Land for some miles, and afterward demolish

whole Cities and Mountains with the death of Men? All which things are done naturally. Wind artifically raised by Nitre threatens a far greater danger, which no man can deny. Although that corporeal Elements exercise so great power, yet they cannot pierce metals without hurt, nor stones and glass, and things soon penetrated by fire. Therefore not by an occult but a manifest power of Sun and Fire, which it hath over metals, stones and glass, which are easily pierced by them without any impediment: and why should not metals compact of a certain metallick subtile and piercing spirit be penetrated by help of fire, and changed into another species? As is already spoken of AURUM FULMINANS and AQUA GRADATORIA. Therefore there is no doubt of the possibility of the metallick tingent spirit chamging courser metals into finer, both by the dry and moist way: For Metals may be purified the same way as Tartar and Vitriol, and other salts, namely by the benefit of much water. For it is manifest that vitriol is purged with iron and copper mixt with it, namely dissolved and coagulated in much water, so that it waxes as white as allom; which purification is but a separation of the metal from the salt, made by the benefit of much water debilitating the salt, so that it cannot longer retain the mixt metal, which is precipitated like some slime, not unprofitable, because the chiefest part of the vitriol, from which is the greenness, viz. Copper, Iron, and Sulphur. And as by help of separation metals are drawn from vitriol, more perfect than salts; so also it is with metals when the perfecter and better part is separated by help of precipitation: as for Tartar, it is nourished by the addition of water, but its better part is not

precipitated as in vitriol, but the courser part which is its blackness and feculency. As for example: Common Tartar by the often solution (made with a sufficient quantity of water) and coagulation is made very pure and white, because in every solution made with fresh clear water, it always becomes purer; and not only by this means white Tartar, but also red and feculent, is reduced into transparent crystals, and indeed very speedily by virtue of a certain precipitation; whose limosity is the cause of the obscurity of the crystalline salt of tartar, and is nothing else but an unsavory thing, dead and useless, mixt with the tartar in its coagulation in Hogs-heads of Wine, and separated again by power of solution.

And these examples of the two salts of Vitriol and Tartar, are not in vain set down, because they shew the difference in precipitation: For in some Metals, by force of precipitation, the courser part is separated; but in other, the better and choicer, according to the prevalency of this or that part.

In Vitriol, the better part (Copper and Iron) is the least, which is precipitated and separated from the courser and greater part, viz. Salt; But, in Tartar, the courser and less part is precipitated and separated from the greater and better part clarifyed: The like is in Metals. Therefore, let every one be wary in separating: and consider before, whether the better or courser part of the Metal is to be precipitated; without which Knowledge, no Man can meddle with this business. Let also the Workman be ware, who expects any profit from his labour, of Corrosive Waters; as AQUA FORTIS, AQUA REGIA, Spirit of Salt, Vitriol,

Allom, Vinegar, & etc. in the solution from which no Good proceeds, as utterly destroying and corrupting all and each of them: proving the same in these words, FROM METALS, BY METALS, AND WITH METALS, METALS ARE MADE PERFECT. Metals are also purified; maturated and separated from their Vices, by Nitre burning up the superfluous Sulphur.

And all the aforesaid perfections of metals are but particular. For every particular medicine, as well humane, as metallick, purgeth, separateth and perfecteth or amendeth by the taking away the superfluity. For a universal medicine worketh its perfections and emendations, by strengthening and multiplying the radical moisture as well of animals as metals, expelling its enemy by its own natural virtue. But thou sayest excellent examples indeed are delivered by me, but not the manner of doing them. R. I have delivered more than you think, although you dont perceive it: for I am sure after my death that my books will be in a greater esteem, from which it will appear that I have not sought vain glory, but the profit of my neighbour to the utmost of my power. But do not, seeing my freeness of writing, think that you may wrest many things from me. For assure your self, that although I have written many things for the publick good, yet I intend not by this means to trouble my self. For I cannot satisfy the desires of all men, nor answer their Epistles, nor inrich all men, who neither am rich my self, nor have sought riches. For although I have gotten the knowledge of these things by Gods blessing, and have tryed the truth of it in small quantity, yet have I never made experience in great store for wealths sake, being contented with Gods blessing.

And let this suffice concerning the several purifications of metals according to my experience; as for that universal medicine so famous, I cannot judge of it, being a thing unknown to me; but the possibility thereof I am forced to affirm, being moved with the several transmutations of metals; which being unknown, it behoves us to be contented with that favour which God hath bestowed on us. For oftentimes questionless it is better to know little, for Eternal Salvations sake; for most commonly wealth and learning puff up. And pride brings to the Devil the Author of it, from whence God of his mercy preserve us.

Of the Philosophers Stone.

I have undergone much charge and labour for many years, to extract the tincture or anima of gold, for a medicine to be made therewith, which at length I have obtained, where I have observed the remainder of the gold, the soul or better part being extracted to be no more gold, nor longer to endure fire. Whence I conjectured, that such an extraction being fixt again, can perfect courser metals and turn them into gold: But I could not hitherto try the truth of my conceived opinion living at this time in a foreign place; therefore against my will, although greedy of novelty, I have been forced to abstain from the work. In the mean time considering the opinions of the Philosophers concerning their gold, not the vulgar, asserting the universal medicine to be prepared therewith. I have again affused a certain Philosophical Vinegar to Copper for to extract the tincture, where almost all the Copper like

whitish earth is separated from the tincture in digestion, which earth by no Art I could again reduce into a metallick body.

Which experiment again confirmed me of a possibility of this Medicine. Which labour though I never followed, yet I doubt not but an humane medicine, though not also a metallick is attainable thence by a diligent workman. The soul therefore with all the metallick attributes, consisting in so small a quantity, which is scarce the hundredeth part of the weight, which being extracted and separated, the remaining body is no more a metal, but a useless and dead earth; but it is not to be doubted but being fixt again, it may reassume and perfect another metallick body. Therefore I am confidently perswaded by the aforesaid Reasons, That such a medicine is to be made of mineral and metallick things, viz. in the flowing, changing baser metals into better. But do not think that I writing these things make gold or copper the matter of this medicine, which I do not hold, well knowing that there are other subjects easily to be handled, abounding with tinctures.

So thou hast heard now my opinion of the Universal Medicine, which my experience in Gold, Copper, and other Minerals and Metals hath caused: which I will not preach for GOSPEL, because it is human to err.

Therefore no certainty is to be had, before its final and compleat perfection, and indeed once or twice tryed for certainties sake. For an excellent way once found out, cannot always be often repeated, which happens doubtless as well to others as to me. Therefore we must not triumph before the Victory; for unthought on impediments may frustrate Hope: but God is rather to be implored in our labours, that he would

be pleased to bless our endeavours, that we may use well his gifts in this life as good stewards, and afterward bestow the free reward of our labours, watchings, and cares on us sinners, namely, everlasting Rest and Salvation out of his meer Mercy.

Whether Minerals, as Antimony, Arsenick, Orpiment, Cobalt, Zinck, Sulphur, & etc. may be transmuted into metals, and into what?

It is long since debated among Chymists, whether the aforesaid Minerals proceed from the same principles with Metals, and whether to be counted Metals; in which Controversity they have not agreed to this day, when as one approves that which another denies, so that a student of Chymistry knows not to what side he had best assent.

But this knowledge not a little helping, concerning the purifying of metals, I would put my opinion also grounded upon experience, for the satisfying the doubtful, the simplicity of them is strange who hold not one and the same beginning to be of minerals and metals, saying, if metals might be made by nature, of minerals surely it had long since been done; but it was never, experience witnessing; for remaining minerals, they are never transplanted into metals. I Answer, metals grow one way, also vegetables another, soon budding, and again soon dying; but it is not so with metals; for all lasting things have long time of digestion, according to the saying, THAT WHICH IS SOON MADE, DOTH SOON FADE; this is to be understood not only of vegetables and minerals, but also of animals, as appears from the budding of some vegetables,

coming in six months space to their perfection, and then again perishing: when as things requiring longer time of digestion and perfection are much more lasting. A Mushroom in the space of one or two nights grows out of a rotton wood, again soon vanishing: not so the Oak. Oxen, and Horses in the space of two or three years comes to perfection, scarce living the twentyeth, or twenty-fourth year: but a Man requiring twenty four years to his perfection, lives sixty, eighty, or an hundred years. So also we must conceive of lasting metals requiring many ages, and also very long time of digestion and perfection; metals therefore requiring a very long time of digestion to their perfection, it is granted to no man ever to see the beginning, and the end of them; the transplantation of minerals into metals by nature cannot be denyed; especially, because that in the ores of metals, especially of course ones, minerals are also found; wherefore diggers of minerals, when they find them, conceive good hopes of finding metals, of which they are termed the COVERLIDS, for seldom metals are found without minerals, or minerals without metals; nor also are ever minerals found wanting gold or silver; therefore minerals are properly termed the EMBRYO of Metals; because by art and fire a good part of gold and silver is drawn out of them by fusion; which if they do not proceed from the metallick roots, whence proceeds that gold and silver? For an Ox is not born of an infant, nor a man of a Calf, for always like is produced of its like.

Therefore minerals are counted but unripe fruits in respect of metals, not yet obtaining their ripeness and perfection, nor separated from the superfluous earth; for how should a bird be hatched of an egg by

an heat, not predestined for the generation of a bird? For so we must understand of minerals, which if they be deprived of their metallick nature, how should by fire metals be produced from thence? But thou saist that thou never sawest the production of perfect metals out of courser; therefore that it is neither likely, nor credible to thee, to whom many things as yet lye hid, as from most men, perversly and foolishly denying things unknown; for daily experience witnesseth, that the viler minerals and metals by taking away the superfluous sulphur (however it be, done) obtain a greater degree of perfection, therefore should not thy heart believe, and thy tongue speak what thou seest with thine eyes? For experience shews that good gold and silver might be drawn out by art almost out of all course minerals and metals, yet more out of some then of others, and speedier; for there is not that dark night, that is altogether deprived of light, which may not be manifested by a hollow glass; nor is there an element (though never so pure) not mixt with other elements, nor any malignity deprived of all good, or on the contrary. And as it is possible to gather the hidden beams of the Sun in the aire, so also hidden perfect metals dispersed in the imperfect metals, and minerals by fire, and an expert Artist: if once they are placed in fire with their proper solvents, where the homogeneous parts are gathered, and the hetrogeneous separated; so that there is no need to go into the INDIES to seek gold and silver in those new Islands, which is possible to find plentifully here in GERMANY, if so be the merciful God would please to turn away those present cruel Plagues, and bring them out of old metals, viz. Lead, Tin, Iron, and Copper, there

left by the Dealers in minerals; indeed without the culture of minerals. Let no man therefore judge himself to be poor, because he is only poor and in want (although otherwise very rich and abounding in wealth, which yet in a moment he is forced to forsake) that being ungrateful, neither knoweth nor acknowledgeth God in his works.

What I pray is in less esteem in the world, than old Iron and Lead, which are acceptable to the wise to use in the Lotion of Copper and Tin with the mineral White? But how they are to be washed, is a difficulty to the unexercised in the fire, and shall be delivered by similitudes: You see Antimony fresh digged out of the earth, very black and impure; which by fusion separated from its superfluity (which, though nature gave to it not in vain, but as an help to its purification, according to that: GOD AND NATURE DO NOTHING IN VAIN) is made more pure, and endowed with a body nearer to metals than its mineral, which if afterwards melted with the salt of Tartar, the crude and combustible sulphur is mortified thereby, and is turned into dross, and separated from the pure mercurial part, so that hereby is made a new and fresh separation of the parts, of which one portion being white and brittle, sinks to the bottom, the other lighter, to wit, the combustible sulphur is on the top with the salt of Tartar; which poured out into a Cone, when they are cold, may be separated with the hammer; the inferiour part of which is called by the Chymists REGULUS, which is purer than Antimony cast the first time out of its mineral; and this is the usual purging of Antimony used by Chymists; to which (REGULUS) if afterward any thing should be added, for a third purification, without doubt it would not

only be made purer but more fixt and malleable. For if white REGULUS be preparable out of black Antimony, why not as well malleable metal out of the REGULUS.

Another way of separating the superfluous Antimonial Sulphur.

Rx. Antimony powdered one part, Salt-peter half as much, mingle them, and kindle the mixture with a live coal, and let that Antimonial sulphur, with the nitre be burnt up, the darkish mass being left, to wit, of a brown colour; which melted for the space of an hour in a strong fire yields an Antimony like to that which is made with salt of Tartar, but somewhat less in quantity: in like manner the parts of Antimony are separated, viz. if Antimony, Nitre, and crude Tartar be mingled in an equil weight, and being mixt are kindled and melted. There is also another separation of the Antimonial parts; when of small bits of iron one part is put into a strong crucible, in a wind Furnace, to which being red hot, cast two parts of ground Antimony, for fusion, and the superfluous combustible sulphur will forsake the Antimony, and join to the iron, a metal more amicable to it; mixt with which, it forsaketh its own proper pure Mercury, and sulphur or REGULUS, which is almost the half part of the Antimony.

And these four ways, by which the superfluous combustible sulphur of Antimony is separated are most common, not set down as secrets, but for demonstration sake, that it may appear how sulphureous minerals are, to be perfected and purified, which are little amended; yet shewing

a better way not only for Antimony, but also for Arsenick and Orpin, although these two cannot be so done with Iron, Nitre and Tartar by reason of their volatility; but with Oil, or other fat things in close crucibles, giving a REGULUS like to the Antimonial; and these REGULI make Tin hard, to sound and be compact; if to one pound one ounce be added in fusion, for making good household stuff. And in tryal they give good Gold.

And as it is said of purging Antimony, so also it is to be understood of the rest, as WISMUTH, ZINCK, LAPIS CALAMINARIS, Lead, Tin, Iron and Copper, to be purged from their superfluous sulphur, if thou wilt draw more perfect metals, viz. Gold and Silver out of them with gain. And so I make an end of metallick lotions; recommending to Chymists, NITRE, TARTAR, FLINTS, AND LEAD; for who knoweth to use them, shall not lose his labour in Chymistry: but tis to be lamented, that every where good earth and fixt in the fire, is not to be gotten, retaining Lead and Salts; for without our old Saturn little or nothing can be done in refining metals; therefore who goes to try any thing in this Art, let him seek the best earth retaining Lead twenty four hours space afterward let him consult with Tin, what VULCAN has to be done with Iron; who will tell him what he must suffer, before he obtain the Crown.

Of the tincture of Sol and Antimony.

Sometimes an alteration happens to mans body, from the attraction of mineral vapours (which cannot be done by my Furnace) in the tryal; therefore here I will set down a certain medicine for the Workmans sake,

as well for preserving as curing, namely, a clear rubin fixt, and soluble of Gold and Antimony. Take of pure Gold half an ounce, dissolve it in AQUA REGIA; precipitate the solution with liquor of Flints, as before is said in the Second part; edulcorate and dry the calx, and it will be prepared; take REGULUS MARTIS (of which is spoken in a little before) beaten fine, to which mix three parts of the purest Nitre; place the mixture in the crucible between burning coals, putting to fire by degrees: which done make a stronger, viz. for fusion; for then the mass will be made purple, which taken forth and cooled grind very small, of which take three or four parts and mix with one part of the aforesaid golden calx; place it mixed in a strong crucible covered over in the aforesaid wind Furnace, and make the mass to flow together like a metal, and it will assume the Antimonial Nitre in the fusion, and will dissolve the Gold or the calx of Gold, and a mass of an Amethyst colour will be made therewith, which so long leave in the fire, till it get the clearness of a Ruby, which one may try with a clean wire or iron bowed and put therein, although in the mean time the mass deprived of fusibility, is thickened; it is meat to add some nitre or Tartar, for speeding fusion, and that as often as shall be needful. Lastly, pour the mass, when it shall come to the utmost redness of a Ruby, hot into a clean copper morter, which there leave until it cool, and it will be in colour very like to an Oriential Ruby; then bruise it hot into powder, for taking air it would melt, and extract the tincture by the affusion of the spirit of Wine in a Vial, and the Gold together with the Antimony will remain very white like the finest Talc, to be washed with clear water,

in a glass, edulcorated and dryed; which melted with a stronger fire, gives a Yellow glass, in which no Gold appears, yet separable by way of precipitation with the filings of iron and copper, from which it recovers its ancient colour, but without profit, by reason of the waste, the tinged spirit is to be taken away from the tincture, which is a very soveraign medicine in many grievous diseases.

Although thou mayest suspect this not to be the simple tincture of SOL, but of Nitre and Tartar mixt, be sure that the quantity of Nitre added not to exceed; and suppose that tincture of Tartar and Nitre, I pray what waste is there? Since that is so good a medicine by it self, & I am perswaded, this tincture of SOL to be better than those set down in the Second part. That Ruby may be so used by it self with proper vehicles, seeing it is a soveraign medicine of it self; or else exposed to the air and resolved to a liquor; for the medicine is no less than a tincture, because the Gold in it, and the purer part of Antimony are made potable without corrosives. Wonderful is the power of salts in metals to be destroyed, perfected and changed by fusion; for it happened to me one time making this Ruby, placing two other crucibles also with metals, by this containing gold with the prepared REGULUS of Antimony (for easily two or three, or more crucibles may be placed in this furnace, to be ruled with one fire, which cannot be done in a common furnace by that means) about to put in a certain salt into the crucible next to the crucible of gold, that by a mistake I cast it into the crucible with gold only, whence so great a conflict arose, that there was danger of boiling over; therefore forced to remove it

out of the furnace presently with tongs, and to effuse it, supposing that the Ruby was lost by my rash putting in of salt; therefore I would only save the gold. And I found the effused mass red like blood, purer than a Ruby, but no Gold; but white grains like Lead dispersed here and there in the salts, by reason of their smallness, not separateable but by the solution of the salts, which being separated by the solution of water from the red tincture like blood, remained in the bottom of the glass, which afterward for fusions sake I placed in a new crucible in that furnace, but willing to try the fusion. I found the crucible empty, and all the Gold vanished, a little excepted sticking on the top to the crucible and the cover, which I took away and melted for experience sake in a new close crucible, but all of it presently feeling heat flew away like Arsenick, no sign being left in the crucible; and so I was deprived of my Gold.

At length I took the red solution, and abstracted the water from the salts, and I found the salt red like blood, which I put in a clean crucible in the furnace for to try whether any metallick body might thence be extracted; but I found the effesed salt deprived of all tincture and redness, which seems strange to me even to this day, that by help of this salt the whole substance of gold, viz. the tincture together with the remainder flew away, having so great volatility.

Which labour afterward I would reiterate, but it happened not so at all as at the first time; there was indeed some alteration of the gold made, but its volatilization was not so great, the cause of which things, I think was the ignorance of the weight of the foresaid salt, cast in at the first time against my will.

And two reasons chiefly moved me to insert this history, First, that it may appear how soon one may mistake in a small thing frustrating the whole process. Secondly, That the truth of the Philosophers may appear writing that gold by art is reducible into a lower degree, equil to lead (which happened to me in this work) and that it is harder to destroy gold and make it like to an Imperfect metal, than to transmute an imperfect metal into gold; therefore I am glad in my heart that I saw such an experiment; of which thing our phantastick Philosophers will hear nothing, writing whole volumnes against the truth, stiftly affirming, gold to be incorruptible, which is an arrant lye; for I can shew the contrary (if need be) many ways. I wonder indeed what moves such men to slight a thing unknown, I do not use to judge things unknown to me.

How dare they deny the transmutation of metals, knowing not how to use coals and tongs? Truly I confess those rude and circumforanteous Montebanks, not a little to defile and disgrace true Chymistry, every where cheating men by their fraud, being needy and opprest with penury; unless per-adventure they find some credulous rich man giving them food and raiment for the conceived hope of Gain and Skill, of which also some being furnished with gold, go clad like painted Parrots, whom I judge to be hated worse than a Dog or a Snake, but innocient Chymistry is not therefore to be despised. Some covetous men besotted with folly and madness, laying out their moneys with an uncertain hope of gain, who afterward the thing ill succeeding, are forced to live in poverty, whose case is not to be pityed, destroying their money out of covetousness.

Some seek wealth not out of covetousness, but rather that they may have wherewith to live, and may search nature, which are to be excused if they are deceived by knaves, yet not to be praised if they spend above their ability.

Another tincture and medicine of Gold.

Dissolve gold in AQUA REGIA, being dissolved, precipitate it with liquor of the salt of flints, pour some more of the aforesaid liquor to the precipitated gold, then place them in sand to boil for some hours space, and the liquor of flints will extract the tincture of the gold, and be dyed with a purple colour; to which, pour rain water, and make it to boil together with that purple liquor, and the flint will be precipitated, the tincture of an excellent colour with the salt of Tartar left; from which it is necessary to extract the water even to driness, and a very fine salt of a purple colour will remain in the bottom of the glass, out of which with the spirit of wine, may be drawn a tincture as red as blood, little inferiour in virtue to potable gold; for many things lie hid in the purple salt, of which more things might be spoken if occasion permitted; therefore let it suffice to shew the way of destroying gold, for that golden salt may in a very short time, viz. an hour, be perfected with small labour and transmuted into a wonder of nature; confuting the slanders of the noble Art of Alchemy; for which gift we ought to give immortal thanks to the immortal God.

Of Looking-glasses.

I Have made mention in the treatise of AURUM POTABILE, not only of the material heat of fire, but also of turning the finest beams of the Sun into a material bodily substance, by help of certain instruments by which they are collected. I have also mentioned there a concave Glass, whose preparation I will here give, it being not known to all men, the best that I know is as followeth. First, patterns are to be made of the best matter, namely, hair and Potters clay, of which thing in the Fifth part, conformable to the glasses, in form and figure circularly round; for else they cannot gather the Sun-beams together, and again put them forth; the fault of which thing is to be ascribed only to the pattern or mold: for the fusion and polishing of glasses is no singular Art, being known even to Bell-founders, but to melt them when very well shapted of the best matter and rightly to polish them, this is Art: and first to cut the patterns round, being very well shaped by the use of a sharp Iron Instrument cannot briefly be demonstrated; therefore I will send the Reader to Authors prolixity handling this thing, viz. ARCHIMEDES and JOHAN BAPTIST. PORTA, and others; but if thou wantest those Authors, or dost not understand them, see thou have a Globe exactly turned for making the Molds as followeth: first make a mixture of meal and sifted ashes, which spread equally between two boards, as the manner is to spread past made of Flower and Butter for Pies and Tarts, answering in thickness to the glass to be shaped, then with a Compass make a circle as big as you please, which cut with a knife, and put it on

the Globe, and sprinkle quick lime on it out of a searce or five, and put clay well prepared with hair over it of the thickness of two fingers breadth, and if it be a great piece you must impose cross wires strengthning the Mold, least it be bent or broken. Afterward one part being hardened with the heat of the Sun or fire, take away all that from the Globe, and put it on some hollow thing, on which it may on all sides stand well, and also sprinkle quick lime or the powder of coals on the other side, and put upon this the other-part of the pattern, and again expose it by degrees, to be dryed by the heat of Sun or fire, lest it crack; which done, take away the ends making those parts of the Mold or pattern from the inward or middle, which ends set one against another to the inward parts, the distance at least of a hands breadth, and put between in the top a few live coals to harden the Mold all over; to which put on other coals, and then more, and so by degrees even to the top, that they may be well kindled in their lighter parts; but if the Molds are very thick, one fire will not suffice, but it will be necessary to add more coals, until they be throughly kindled in the inner parts; afterwards, let the fire go out by degrees, that the types may grow cold, but not altogether, but so that you may touch them; and presently besmear finely the sifted ashes mixt with water, with a pencil, to stop up the chincks arisen from the burning the hair, and for smoothing the types; then again make both parts (after thou hast framed a hole in them for a Tunnel) clean, being wary lest any foul thing fall upon them; and carefully bind them together with iron or copper wire; and very well lute over the joining with clay prepared with hair; and put

on an earthen Tunnel, and place the Mold in dry sand up to the top: And thou oughtest in the mean while thou burnest and preparest the Mold, to melt the metallick mixture, that it may be poured into the hot Mold, the Metal being well melted, cast in a bit of searcloth, which burning, pour out the melted Metal into the hot Mold, being wary lest coals or some other thing fall into the crucible, and be poured with the Metal into the Mold, spoiling the glass; then the glass cool of it self in the Mold, if the matter do not moulder in the cooling: And if it should moulder in the cooling, which indeed would lessen it, it behoves that the cast glass be presently taken out of the Mold, and covered over with a hot earthen or iron vessel, that it may cool under it, which otherwise, cooling shut up in the Mold not being able to moulder, is broke in pieces, but a little below you shall perceive, what be those mouldering metals.

And this is the common way (and the best) of melting, if so be thou art exercised: there are also other ways; first, when molds are made of wood or lead, agreeing to the glass, to be impressed with sand, or the finest powder of tyles or other earth, as is the custom of coppersmiths; and this way only serveth for lesser glasses.

The third way which is the best of all, but hardest to one not exercised, is as follows; make a waxen mold with a Cylinder to be placed between two boards, as is aforesaid of the first way, which put upon the globe for to shape it, and let it be hardned in the cold; then take it away, and spread over it the following mixture with a pencil; which see that it be dryed in the shadow, then apply potters clay, prepared

with hair, the thickness of one or two fingers breadth; then take away the wax in manner following from the earth: make a round hole in the earthen mold with a knife, coming even to the wax; which done, place it near a coal fire, the mold being bending down, and the melted wax will run through the hole, into which pour the hot (not burnt) metal, & etc. that liniment which is anoynted on the wax must be very well prepared least while the wax melt, it fall and melt away with the wax, nor let the wax pierce the earthen mold and spoil it. Now the liniment follows: Burn potters clay well washed in a furnace even to redness; afterward grind it and take away its finest part with washing of water, so that you may have an impalpable powder, which dry, and again burn with a strong fire: after grind it with rain water and salt Armoniack sublimed, upon a stone, as Painters use to prepare their colours, bring it to the just consistence of a paint, and mixture will be made; the salt Armoniack keeps that fine powder, lest it melt away with the wax: and the prepared earth makes a tender and fine fusion.

The metallick mixture for the matter of the Looking-Glass.

There are divers of these mixtures, of which one is alwaies better than the other, which by how much 'tis the harder, by so much the glass is the better; and by how much the harder the metal is, by so much the better it is polished; nor doth the hardness of the mixture suffice, but its whiteness is also required: for red proceeds from too much copper; black from too much iron, or duskie from too much tin, and doth not

make the true representations of things, but changeth the shape and colour of them: for example sake, too much copper rendereth the Species redder than they are to be, and so of the rest; let therefore the matalick mixture be very white; but if burning glasses are to be made, it is no matter what colour it be of, if so be that the mixture be hard. I will set down one of the best, Rx. of Copper plates the thinest beaten to pieces one part, of white Arsenick a quarter part; first moisten the plates with the liquor of the salt of Tartar, and make a Stratum super Stratum, with plates and Arsenick powdered, by sprinkling this on them, until the crucible be filled; to which pour the oil of Linseed, as much as sufficeth to cover the copper and Arsenick; which done put on the cover with the best lute, then place the crucible (the lute being dryed) in sand, so that only the upper part of the cover may stick out and administer fire by degrees, at first little; secondly somewhat stronger, till at length it be hot, that all the oil may evaporate; in the mean time, the oil will prepare the copper, and retain the Arsenick, and will make it enter into the plates, like oil piercing dry Leather; Or place the crucible upon a grate and put Fire to it, which administer by degrees, until the oil evaporate in the boiling. Lastly, when it shall cool, break the crucible, and thou shalt find the copper of diverse colours, especially if thou shalt take Orpin in stead of Arsenick, and twice or thrice increased in magnitude, and brittle.

R. of this copper one part, and of latton (ORICHALCUM) two parts, melt it with a very quick Fire, and first indeed the latton, to which afterward add the friable copper; pour out the mixture melted and thou

shalt have a very hard metal unfileable, yet not so brittle, but like steel, of which diverse things may be formed serving in-stead of iron and steel instruments, take of this hard metal three parts of the best tin without lead one part, melt and effuse it, and the matter of looking glasses will be made. This mixture is a hard white metal making the best looking glasses, but if this labour seem tedious, take of copper three parts, of tin one part, of white Arsenick half a part for the matter of looking-glasses, which are fine but brittle, as well in the melting as polishing, therefore carefully to be handled. I must here set down a thing worthy to be observed, and known to few; viz. a false opinion of many, especially of those who attribute knowledge to themselves of the properties of metals. In the second part (of subtile spirits) mention is made of the pores of metals, for experience witnesseth, that those subtile spirits as of harts-horn, tartar, soot, and sometimes those sulphureous ones of salts and metals do evaporate through pewter vessels, which at the first hearing every man cannot conceive, for whose sake this discourse is made. Make two balls of Copper, and two of pure Tin not mixt with lead, of one and the same form and quantity, the weight of which balls observe exactly, which done, again melt the aforesaid balls or bullets into one, and first the copper, to which melted add the Tin, lest much Tin evaporate in the melting, & presently pour out the mixture melted into the mold of the first balls, and there will not come forth four nor scarce three balls, the weight of the four balls being reserved; if then metals are not porous, whence I prey doth that great alteration of quantity proceed? Therefore know that metals

are porous more or less; gold hath the fewest pores, silver hath more, Mercury more than that, Lead more than Mercury, Copper more than Lead, and Iron than Copper, but tin hath most of all.

If we could destroy metals, and again educe them destroyed from power to act, surely they would not be so porous. And as a child without correction is unapt to any goodness, but corrected is endued with all kind of virtue and learning, so also we must understand of metals which left in their natural state, namely drawn out of the earth without correction and emendation remain volatile, but corrupted and regenerated are made more noble, even as our bodies destroyed and corrupted, at length shall arise clarified before they come into Gods sight. Well said PARACELSUS, that if in one hour metals were destroyed an hundred times, yet they could not be without a body, reassuming a new species and indeed a better, for it is rightly said, UNIUS CORRUPTIO, ALTERIUS GENERATIO; for the mortification of a superfluous sulphureous body is the regeneration of the mercurial soul, for without a destruction of metals perfection cannot be; therefore metals are to be destroyed and made formless, that thereby the superfluous earthy combustible sulphur being separated, the pure fine Mercurial species may spring forth. Of which thing more, when we speak of Artificial Stones.

Of the smoothing and polishing of looking-glasses.

A Looking-glass though it be very exactly melted and proportioned, yet it is of no value if not rightly polished and smoothed; for easily

in the smoothing any part it may suffer some dammage hurtful to it, and it is necessary to take from them first, the grosser part by the wheel, as the custom is with Pewterers and Copper-smiths with a sandy stone, then to apply to them a finer stone with water, until they are sufficiently smoothed by grinding; which done, the looking glasses are again to be taken from the wheel and to be moved to the small wooden wheel covered with leather, rubbed over with a fine prepared glazing stone until the crevises contracted in the turning no more appear, having got a cross line, afterward another small wheel covered with leather is required, to which a blood-stone prepared and washed with the ashes of tin rubbed on, to which likewise by the aforesaid means, according to the same line, the looking-glasses are so long to be moved till they get a sufficient fineness and brightness. You must keep such looking-glasses from the moist air, and breathing, and to wipe them when infected with air and breathing not with any woolen or linnen cloath, but with a Goats or Harts skin, and not any way, but according to the cross line, and with which the looking-glasses are smoothed. They may also be smoothed by lead artificially melted, by first rubing them with a smiris and water, and then with a finer smiris and lead; lastly with a blood stone and ashes of tin; likewise also with whetstones, by changing for a finer every time, whence at length also they acquire a splendour by the ashes of tin.

Also the outward part of the looking-glasses (convex) may be smoothed, which represents the species short, and spreade the dispersed rays: but the inward part (hollow) gathers and multiplies, and puts forth or exposeth the image.

Let these things suffice concerning the melting of looking glasses, & polishing requisites, for the collection of the Sun beams, and although from the aforesaid mixture other kinds of looking-glasses might be made representing wonderful shapes and several excellent things, as Cylindrick, Pyramidal, Parabolick, & etc. they are omitted as impertinent to this place, yet I could shew a way to make them, because I have undergone no small labours and charges in the searching of their preparation and use, if it were necessary. But of all looking-glasses that is most useful whose preparation we have shewn, whose diameter is at least two or three spans, if thou wilt perform any special thing; although it be but of one or two spans, yet it gathers abundance of beams, so that thou maist melt tin and lead with it, if it be well shaped: yet the larger are the better. Nor ought they to be too deep, that they may cast their beams the further, and better perform their actions of functions, let them have the twentyeth or thirtyeth part of the sphere (the section being exactly observed) which is the foundation of the Art.

Of Artifical Gems, and Metallick Glasses.

As for metallick glasses pertaining to Alchemy, and much conducing to the perfection of metals, and esteemed by the Ancient Philosophers, I would not omit to say somewhat in this place, because they are easily made by this furnace.

And indeed the Ancients have found these glasses questionless by

chance, in reducing the calcined bodys into glass by a strong fire, for very many secrets by this means not sought for are found out. Oftentimes it happens to our labours, that past hope we find something better or worse, than the thing sought; and I think it hath thus happened with these glasses, but however it be, I am sure these glasses have stood us in much stead; for ISAAC HOLLAND saith plainly, That vitrified metals, being again brought to metals, by that reduction do give better and nobler metals than the first vitrified; and indeed gold gives a tincture, but silver gold, and copper silver; and so consequently the glass of other metals give better metals in reduction, the truth of which experience proves, and although I have not yet made great tryal in this work, yet I know that metals brought into dead ashes to be turned into clear glass cannot be again reduced into metals without great profit: yet one metal is more pliable than another, nor are our glasses the Artifical stones of gold-smiths fixed to other large ones for ornaments sake, made by the addition of glass made of fusile sand; but ours are made of the juice of metals. But I do not deny the virtue of Venice glass, and others in the mundifying of metals, chiefly copper and tin, which yet is not comparable with metallick juices. I freely confess I have tryed this thing twenty times, and I never was decieved by it: But I know not whether it may prove so in a greater quantity, because I never tryed it, doubting of my vessels not fit to retain fusible glasses a requisit time: for I have spent much labour in making these kind of vessels, but hitherto in vain. For there is very great hope of gain, if thou hast very strong crucibles, nor is this perfection of metals without reason,

for whilst the metal is burnt to ashes, much of the superfluous combustible sulphur is burnt (as you may see in Lead, Tin, and Copper, from the sparks appearing in their calcination whilest they are stirred and separated) which if again reduced (viz. being calcined) its better and heaver part (by benefit of melting) sinketh to the bottom, the worser flowing on the top is changed into dross or glass. And so the separation of metals is made by the help of the Fire alone, to the ignorant and unexpert incredible: but consider gilt silver to be separated in fusion, which is as it were corrupted by the common sulphur, and the metallick species, being lost, it turns to a black dross before that in melting it forsakes the gold: which way also silver is separated from copper, and this from iron. Observe also that black and crude Antimony, being reduced into ashes by calcination, and melted is separated by a strong Fire, the purer parts descending pure and white like silver, but the impure parts ascending are changed into glass or dross, which separation would never be made without incineration although the Antimony should have stood long influx.

Thou seest therefore the power of Fire alone in melting metals, wherefore believe thou that thy labor shall not be in vain if thou knowest how to help the Fire. Exercise thy self therefore in it, for thou art sufficiently instructed, and this furnace will help thee; without which it is impossible to manage such things well, as experiment testifies, confirming my words.

Mention being made of metallick glasses, which belongs to the perfection of metals, I am forced to say something also of other AMANSA,

or coloured glasses, which are called Gems, and are worn for beautifying, which though it be not profitable, yet it is a delightful labour, which knowledge, as well noble as ignoble have long sought, not for gain, but recreation sake, erring from the true way (although prolixity described in many tongues) through ignorance of the art to render crystal or flint fusible, and colouring it, being content with lead glasses made of one part of crystals, or flints, and three or four parts of minium or ceruse, glass of no worth, as not only very soft and unapt for polishing, but also heavier than it ought by means of the lead, and having a yellow or green colour, for every glass made of crystal or flint, and minium or ceruse by themselves, viz. without the addition of other colours, gets a yellow colour from the Lead, hindering and altering other mixt colours; therefore a good stone is not made this way of lead and flint, but Leaden glasses of this sort, Venice glass, Ashes of tin, and colours being added to them, be used diversly of the gold-smiths, namely to colour gold, otherwise of no moment.

Therefore I will give another preparation, namely out of flints and crystals alone without minium and ceruse, with metallick colours, having the colour and elegancy of excellent stones; but not harder than glass; for although crystal is harder than iron, yet by melting it is deprived of its hardness in some measure, and is made like to glass, yet so much hardness reserved, as serves to write on another glass, which glasses are easily polished, and in all things and by all, most like, hardness excepted, to natural stones; with which not only various kinds of stones may be made, and other gold, silver, and wooden works

or pictures adorned; but also diverse supellectils, as salts, hasts or hilts, cups, & etc. and also images and antiquities may be formed (by fusion) like to those cut out of gems by the hand of an ingenious workman, most delightful.

They are made after this manner: first you must look for flints and crystals not coloured, but very white, gathered out of sand or streams, which you must heat in a covered crucible, and quench them glowing hot in cold water, that they may crack and may be pulverised; otherwise they are so hard that when they are powdered, they take part of the morter and so are defiled; therefore it is worth your labour to handle them well. Afterward Rx. of flints, prepared, and the purest salt of Tartar, made in glazed vessels, but not in copper or iron, equil parts, mingle them and keep them for use.

And if thou wilt made this mass into a gem, you must first mingle some colour (what you desire) afterward so long place it (being put into a clean covered crucible scarce half full) in a very strong fire, till all the salt of Tartar hath evaporated, and the flint together with the colour come into substance fusible like glass: you must then put a small clean iron wire, and draw out a little of the melted mass for tryal; whether it have stood long enough in the fire, whether there be yet pustles and little sands, or whether it being exactly melted, it shall descend to the bottom, which done, you must take off the crucible, and place it under some hot iron or earthen vessel, that it may wax cold with the melted stone; otherwise the mass will be broken in the crucible into very small parts, and would be unfit for greater works:

neither must you pour out the melted mass for fear of the attraction of aire, and pustles to arise thence. But being willing to make out of the Mass by Fusion, not Engraving Money or Images; there is no need to leave the mass in the crucible to cool, but presently to pour it out hot in a copper morter, and nothing will stick to the crucible, but all the mass will be poured out without any waste: And this mass, if thou wilt, thou maist powder or break into very small bits for fusion and impression. But the mass when cooled in the crucible, is to be taken by breaking the crucible, and to be reduced into greater or lesser stones by cutting; but melting for money or images; you must place the money or image, which you will imitate, with the backside or hinder-part downward in an iron Ring, a Fingers breadth broad of greater capacity than the money, upon a stone or plain wood, and sprinkle on a little Tripoly, or fine Sand, through a cloath, namely, as much as sufficeth to cover the mold, and upon this to put more, well moistened with water, like ashes of cupels, and to press it, being most tenacious, firmly to the mold, but warily, lest the mold move; which done, you must turn the ring, and with a knife lift up the mold, and to take it, being lifted up with ones hands or tongs, the image being left in the sand, to be dryed by heat of the Sun or Fire. Afterward to cast the image, place the ring with the image impressed in the sand under a tile, and administer a strong fire, that the whole ring, with the sand, and the image in the sand may be very hot: then take off the ring, to see if the image have suffered any loss; which, if it have not, you must put upon it so much of the aforesaid glass, coursly beaten, as sufficeth

in the fusion to fill the image impressed on the sand; which done, put the ring again under the tile, and administer a fire of fusion, till the glass melt in the ring; to which, touch with a smooth iron and light, (with a handle) being hot the ring being taken out of the furnace with tongs, pressing the glass well to the mold; and then place it under a hot iron, or earthen vessel to cool; and being cold, take the image from the mold, which answers to it in all things, if thou hast aright proceeded, exactly representing the Carvers art, or a seal impressed on a jewel, which excellent work is most fit to feign, and represent Antiquities and Rarities.

The colouring of the aforesaid mass follows, by which it is made most like to Gems.

It behooveth that colours be taken from metals and minerals, namely from Copper, Iron, Gold, Silver, Wismuth, Magnesia and Granate; of other colours I know nothing of certainty, Copper commonly makes a colour green like the Sea, Copper with Iron, grass-green; Granate a smaragdine colour, Iron yellow or jacynth; Gold the best skie colour; Wismuth common skie colour; Magnesia Amethystine, mixt, they give other colours; E. gr. Gold mixt with Silver gives an Amethyst colour; Iron and Copper, a pale green; Wismuth and Magnesia, a purple; Silver and Magnesia, various colours like an Opal.

Images are also made of divers colours, if the masses of diverse colours be broken into bits and mixt, be put upon the Mold, & etc.

And if thou desirest an opac mass (green, red, skie colour, & etc.) add a little calx of Tin darkning, on which as on a Basis the colours insist. For example, in making a Turcoise stone or a Lazulus, mingle with the Azure made of the silver Marcasit or Zafora, (to the colour of the mass) the calx of Tin, that they may melt together, and before the impression be made, put upon the Mold some prepared gold, then spread and put upon this the aforesaid glass; and the fusion and impression being made, will be made thence a stone having golden veins like LAPIS LAZULUS very delightful; But there must be a calx of Gold not losing its splendor in the fire, such as is made by Mercury, or that which is better, which is precipitated out of AQUA REGIA: of which above.

Of the preparation of the colours for colouring the mass of Flints and Crystals.

The plates of copper often heated, are to be quenched in cold water of which more in the Fifth part, from three to six grains of it may be mixed with 1 ounce of the mass for a Sea-green colour. Iron reduced into crocus by reverberation; of which from four to 10 grains are added to the mass for a yellow or Jacynth colour; Silver is dissolved in AQUA FORTIS, and precipitated with the liquor of Flints after it is edulcorated and dryed, whereof from one to six grains, added to 1 ounce of the mass, they make mixt colours.

Gold is dissolved in AQUA REGIA, edulcorated and dryed, precipitated first with liquor of Flints, whereof from four grains to 1/24 ounce

mixt with one ounce of the mass, make a most elegant Saphire. And if from three to six of that soluble ruby made of the Gold, and the nitrous REGULUS MARTIS be added to 1 ounce of the mass, they make a very polite ruby: Magnesia pulverised, whereof, from six to fourteen grains, to 1 ounce of the mass, make an Amethyst.

Marcasit dissolved in AQUA REGIA precipitated with the liquor of flints, edulcorated and dryed, whereof from one to five grains, to 1 ounce of the mass, give a Saphire, but not comparably so polite as one made with gold.

But being unwilling to calcine Marcasite, let him take Zafora, and mingle to 1 ounce from five to ten grains; Granates of BOHEMIA, or Oriental pulverised, add from six grains to 1/24 ounce to 1/8 ounce of the mass, for little green stones like to the natural smaraged or emerald: other things which remain of the mixture of the colours, are to be learned by experience.

To what uses coloured flints and crystals are appointed, is not here to be treated of; one use excepted, which I set down for the eyes, which are weakened by too much watching, the heat of fire and smoak; see thou have a waxen mold circularly round, of the bigness of a dish or trencher; (the Optiques are wont to call such LENTES) to which, put the best clay well mixed with hair; anoit the waxen type with oil, and exactly apply the best prepared earth of crucibles (and durable in the fire) the thickness of a finger; which being dryed, perforate in some part, that the wax being melted by the fire, may flow forth: afterward burn the mold in an earthen furnace; being burnt, fill it with prepared

glass, and place it in a wind furnace till the glass melt; which at length being cooled, take off the type by attrition, and there shalt thou have the crystal resembling the form of the type; which afterward thou must make and polish like spectacles in an iron dish on both sides; and take it out with a strong iron wire, and thou shalt have a good crystalline LENS for a small-price, which otherwise is scarce made of crystal of so great a bigness. And if thou wilt, thou maist colour the glass green, very pleasant to the sight, and fit a foot to it for greater benefit. And the glass doth not only serve for the Multiplication of light in the night time, that thou may see a thing a far off in a chamber, but also for the fixing and calcining minerals by the Sun-beams, and melting of Metals, and multiplying of Pictures, like an hollow glass, and also for other uses it may be compared with an hollow looking-glass, which doth the same of an equil bigness with the hollow glass; nor is there any other difference of them but reflexion. This glass instrument is made likewise another way, and by less cost and labour, if it be of a polished looking-glass, if two great orbes are cut out with a diamond, and if they are somewhat softened with fire, and are left there so long in the heat, until they shall stick like wax very close to the stone, which done, let them be cooled again, which afterward taken out, will represent the form of an hollow glass; to which, it behoves to fix a leaf on the convex part. And the glasses do the same than an hollow metallick looking-glass doth, the reflexion excepted, which is not so strong as of the hollow glass: And although the glasses are sooner broke; yet they are very fit for the making of the following Instrument.

And they are bound together with a strong wire, applyed across on the concave part, and ash hole is cut in the brim with a diamond on one side, of the bigness of a pea, then the crevises are exactly closed in every place with the best lute; which done, a silver or copper ring is to be tied about it, holding those glasses straightly, so that the Instrument may be fitted to the foot, all which well done, those strong wires are separated or cut off, with which the glasses were bound at first, namely, near the copper ring: afterward very pure AQUA VITA is to be put in through a funnel, as much as is required for the filling it up, the Instrument being filled, the hole is shut up, which is to be kept for use; and this Instrument is better than the hollow glass; especially, if it have in its diameter the breadth of one foot, and may be applyed to prospective pictures, it doth excellently represent and multiply them.

Behind which, if you place a candle in the night, it gives so much light in the Chamber, that you would think it came from the Sun. It doth also many other things which are here omitted as, superfluous. And you may gather the dispersed light in the aire in the night time with it, so that you may read the smallest writing. Such and others of the like things may be done by this furnace, all which to set down, would swell the Book too much. Other things of the metals examination and purification by fusion, in another place.

Take this, Reader, which is given to thee, in good part, at another time thou shalt have better; and do not mistake my writings, as if I did reprove the examinations of metals by the Ancients, fusions and

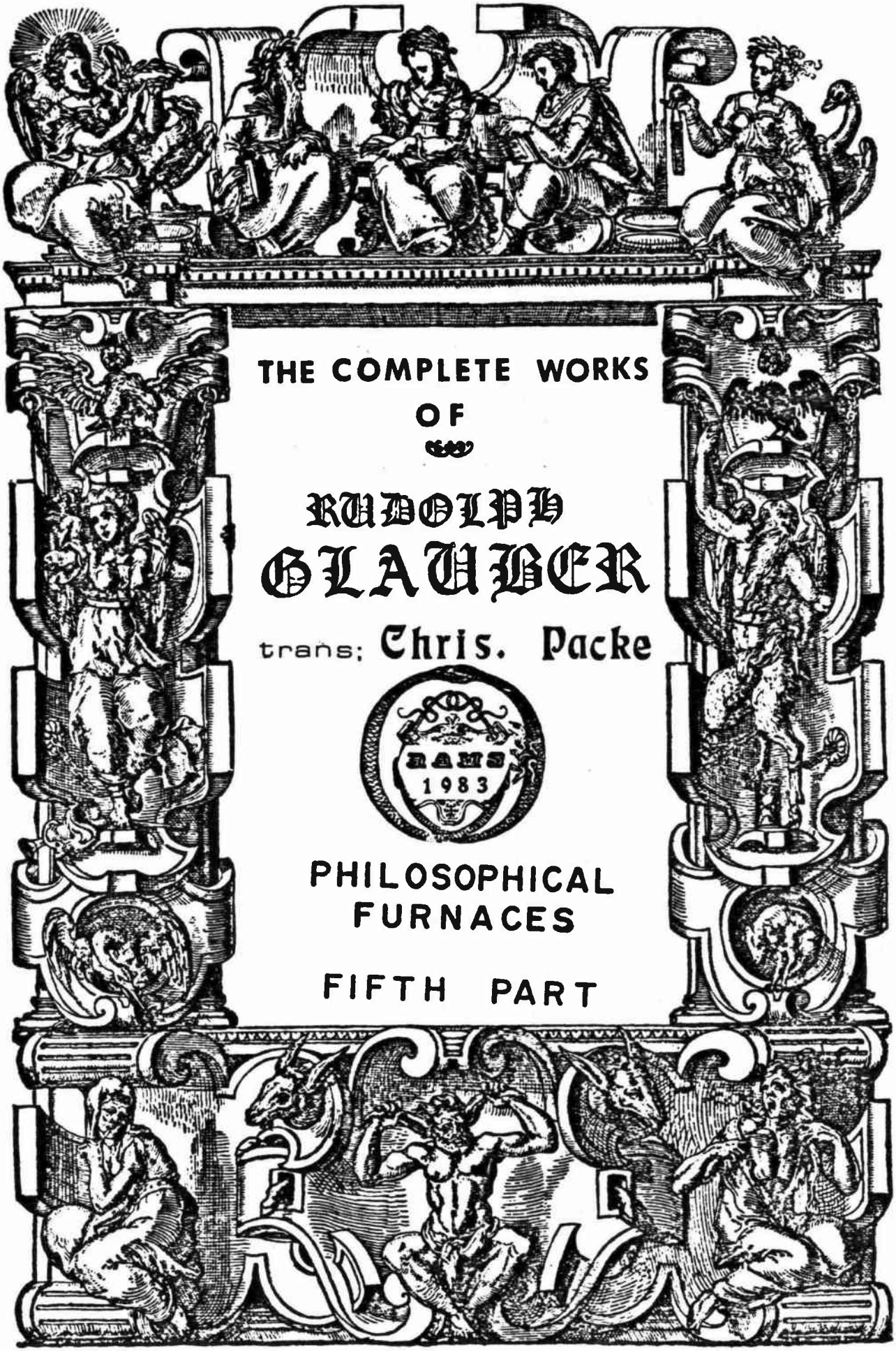
separations, who only would communicate my opinion, and yield my assistance for further proceeding; for I know that dealers in metals giving too much credit to their small proof when they find nothing, do, contemn ores as barren, often abounding with gold and silver; when nevertheless, JOHN MATHES. says expressly in his SAREPTA, that minerals oftentimes tryed in a small quantity do yield no gold and silver, which in a great quantity, yield a great deal, wherefore credit is not always to be given to such tryals, often deceiving, as experience testifies.

And this not only in those minerals which are digged out of the earth; but also in those calyie and sandy minerals, abounding with silver and golden flames; out of which neither by the less nor greater proofs, nor ablution nor Mercury is drawn with gain that thin and fiery dispersed gold: which by some waters is done without fire easily; for I know such mines are found neer many rivers of Germany, and many places in other Nations of Europe, out of which honest gain without much cost and labour may easily be gotten. Neither are they dreams, which I have spoken parabolically of the perfection of metals, for it is possible by art to help nature in the perfecting things. There is therefore no more need of any thing than of knowledge; therefore the nature of metals being known, and their properties, they are easily separated, purged and perfected.

But what I have written of the universal medicine, I have done for the aforesaid causes, which have made me believe the thing, not as professor of the Art. The other things of coloured red glasses and looking glasses I have added, because they are easily prepared by this furnace,

as sometimes necessary in some works. Other things of the handling metals are not without cause now omitted, which happily may be sometime delivered in another place, wherefore now we end.

F I N I S .



THE COMPLETE WORKS
OF

RUDOLPH GLAUBER

trans: Chris. Packe

RAMS 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 judged 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 shall 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 MENSTRUUM 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 MENSTRUUM. 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 subjects, 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 hands 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 perswade himself, that a MENSTRUUM 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 closed: 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 dryed, 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 liniament 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 so 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 closeth 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 muchless 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 SMIRIS 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 hath 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 hath 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 suspition 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 SALIUM.) 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 VEHICULUM (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. Husband-Men 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 consists 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 turfsses.

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 crucibles 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 crucibles 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 hath 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 hath 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 sides of the form. And if the earth be beaten in too 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 do not 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 cut off 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 heat 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, and be 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 hath been spoken, suffice concerning the making of crucibles: let every one therefore that hath 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 calx 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 mixt 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 Potters 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, and 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 behind, 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.

He 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.

F I N I S .

A N
A P P E N D I X .

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 prepararation of sugar like to the Western, and of tartar like to the natural Rhenish, 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 nine 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 verdegrease, 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, Alchmeny 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,

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.

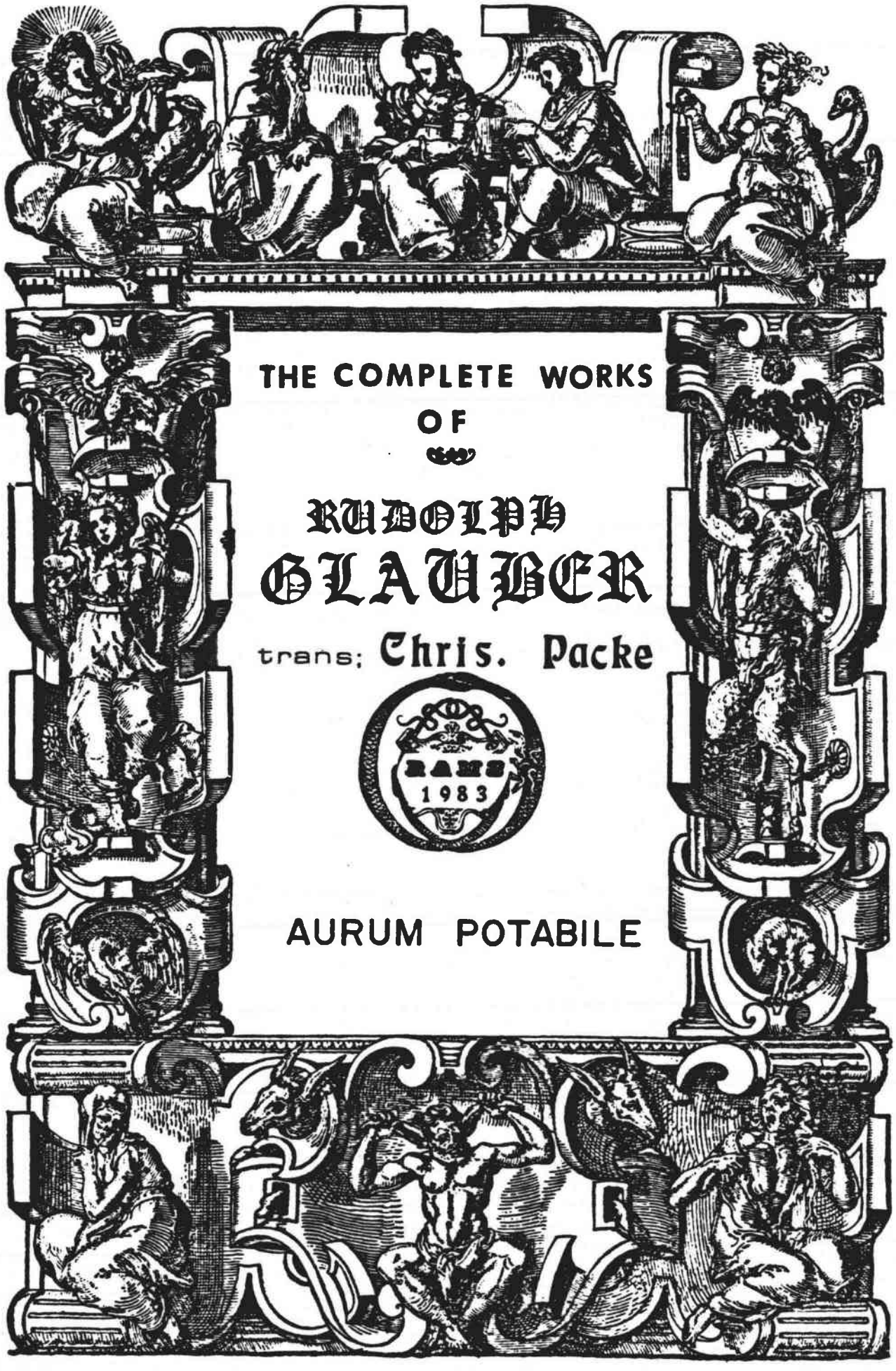
A certain Allome exalting and fixing any colour, especially requisit for scarlet and other precious colours, with a certain perpetual cauldron, that doth not alter colours, and is not costly.

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 Margarites; 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.

F I N I S .



THE COMPLETE WORKS
OF

RUDOLPH GLAUBER

trans: Chris. Packe

RAMS
1983

AURUM POTABILE

OF THE TRUE TINCTURE OF GOLD,

Or the True

AURUM POTABILE:

What is is, and how it differs from the false and sophisticated Aurum Potabile: How it tis to be Spagirically prepared; And how to be used in Medicine.

Of Aurum Potabile.

There is no man that can deny, that the true and ancient Philosophers did study long life, and the conservation of their health. Whence it came to pass that they did diligently seek out the subject of preserving health, and prolonging life; wherefore by the help of fire they did practise the separations, and proofs of all vegetables, animals, and minerals, seeking out their powers and virtues: Who found out the greatest harmony of all things as well in the heavens, as on earth, betwixt the Sun, Gold, Man and wine. For it cannot be denyed, that the life of all things proceeds from the heat of the Sun; wherefore they sought to unite gold the terrestrial sun or body fixed and perfect, caused by the rays of the sun, with man by the help of spirit of wine.

But haply there will be some, whom this my narration may offend denying that gold is the Son of the sun, or a metallick body fixed and perfect, proceeding from the rays of the sun; asking how the solary immaterial rays can be made material and corporeal? But they are very ignorant of the generation of metals, and minerals. And although I am not now resolved to write of the generation, and original of metals, yet endeavouring to demonstrate that there is a vivifying power of the sun to be found in gold (destroyed and volatilized) and to be prepared into a most wholesome medicine for man, I will not omit for the sake of the ignorant and incredulous, to demonstrate the truth by one or two examples, which although I could demonstrate by most certain and firm reasons, yet for brevities sake I am now resolved to omit them, recommending to the searcher of the Nature, and propriety of metals, my treatise DE GENERATIONE METALLORUM, which without doubt will take away all scruple from him; objecting only against him that opposeth the truth, two questions and reasons which are to be confuted: and the first is, whence comes that increase of both the quantity and quality of any viscous, mineral liquor, that hath been exposed long to the Sun in an open glass vessel? Whether from the Sun, or elsewhere? But thou sayest, that that encrease comes from the air, the vehicle of all things. I answer, if from the air, whether was not that air impregnated by the Sun? And whether there be any thing in the air, which is received not from the stars? But place this liquor in a cold Cellar, in a moist air, and thou shalt by experience know that no weight is added thereto, even as in the Sun, or (in his stead) fire: that Liquor will draw some

phlegmatick moisture which will be easily separated by heat, the weight of the former liquor being left. This may be shewed by this Example: dissolve some sulphureous metal, as Iron, Copper, or Zinck, with any acid spirit, and at length take away the spirit, make the remainder red hot; yet not too much, but as much as sufficeth to take away the spirits, which afterward (its weight being observed) put in a crucible on the fire, but take heed lest the metal run over, but at length let it darkly glow with the crucible, for the space of three or four weeks, which done, take it away again, and weigh again the metal, and thou shalt find the evident encrease of the metal, which thou shalt perceive more evidently by this way, as follows: Put copper, or some sulphureous metal, with 16 or 18 parts of lead in a well burnt cupel; made of the ashes of wood or bones, in a tryed furnace, (the weight of the cupel, copper, and lead first exactly observed) and cause the copper to evaporate by fire with the lead, which done, take the cupel when it shall be cold, and again weigh it, and thou shalt find it far more weighty, so that its weight (though much of the lead goes into the air in the cupellating) not only exceeds its former weight, but also of the copper and lead by the said cupallation; therefore it is justly demanded whence this Encrease proceeds, whether the heat of the fire was not coagulated into a metallick body by means of that melted metal? Therefore it is probable, that if you knew the metallick matrixes in the surface of the earth, in which the beams of the Sun and heat of fire being received, may be coagulated, metals may as well be generated in them, as in the bowels of the earth.

But thou repliest it is probable the heat of vulgar fire to have something metallick in it, which comes by attraction of the melted metal in the Cupel, but not in the Sun beams.

He that will thus try the truth, let him put a cupel very well burnt in the beams of the Sun, together with copper and lead, to which let him apply a hollow Looking-glass, so that it may be operated upon by the Sun-beams, gathered into a center, and may thence be made hot: But thou must continually hold the Looking-glass in thy hand, that thou maist turn or direct it to the Sun, according to the course thereof, lest the cupel wax cold, the beams of the Sun being turned away, but if it be rightly observed, the work shall be done no less than in a furnace of fire with glowing heat.

You must have a Looking-glass at least in diameter two feet, nor must it be too deep; but be in depth the 18 or 20 part of the globe, that so it may the further cast the beams: it must be very artifically smoothed, that it may more exactly gather the beams to the center. Now the preparation of these burning-glasses is not of this place, but in the fourth part of our Furnaces, where we have taught not only how they are to be made of metals, but also of glass, and how polished and used.

This demonstration, which might be otherwise omitted, is therefore set down, that it may be known how gold proceeds from the Sun, and is secretly endued with its proper strength and proprieties, by Chymistry, reducible into that which it was before its coagulation, namely, into a heating and living spirit, communicating its strength and faculties to man's body. Therefore the Ancients used great diligence in the

reduction of gold, in which nothing is found more excellent than the purest and finest spirit of wine made by distillation, and they did not use common gold melted out of stones, or washt out of sand, but purged by benefit of fire, and Philosophically quickened, and unlocked, not by help of corrosive spirits, the usual way of vulgar Chymists, but by some water which Nature freely gives without help of violent distillation; by which they manifest that which is hid in gold, and they have hid what is manifest, and therefore they have made it fit for the separation of its tincture from a gross and black superfluous body. For they knew that the compact body of gold hath no affinity with the vital Spirits, therefore they have chosen only the finest part of gold to their Elixir, viz. its tincture, which they have radically joined with the spirit of Wine, and being joined, have made them spiritual or volatile, so that neither can be separated from each other in the fire, and being in the fire, are sublimed, or fixed by a longer digestion, and coagulated into a fixt stone, which they count for the greatest treasure in the World. Therefore the ancient Philosophers affirming, that there is not a better medicine under the Sun than it, which is made from the Philosophical union of wine and gold, both by an inseparable recoagulation and fixation; nor without gold can spirit of wine, nor this without it be made a medicine, because gold without spirit of wine cannot be made volatile, nor this be coagulated and fixt without it. We therefore, their Posterity justly, follow the opinions of the most famous men, not for their authorities sake, but for ocular demonstration, which is the truest tryal.

Therefore the knowledge of the preparation of this medicine being bestowed on me from the highest, I have intended, because a man is not born for himself, briefly to deliver its preparation and use: but I will not cast pearls before swine; but I will only shew the way to the studious searchers of the work of God and Nature, who doubtless will understand my writing, but not the ignorant and unskillful; let therefore the brevity of the preparation offend no man, because I mean not to prostitute this Art (divinely obtained, not with idleness, but with much watching, labours and pains) nor give to the unworthy a bit before chewed, but only to communicate it to the pious, who shall see with open eyes, that the thing is so. I desire therefore, the simplicity of my style may offend no man, being not adorned with rhetorical figures, after the wonted manner, for truth wants not many and elegant words, being contented with simplicity and brevity, with which it is easier and better demonstrated, than with those intricate and sophistick discourses.

Rx. of living gold one part, and three parts of quick Mercury, not of the vulgar, but the Philosophical every where to be found without charge: and labour, (thou maist also add living silver of equil weight with the gold, and indeed better than only gold, for the greater variety of colours proceeding from the mixture of male and female: but one perswaded that a better Tincture proceeds from gold alone may mix gold only, not so, one skillful of metals, who knoweth the power of the cordial union of gold and silver, dissolved in one and the same MENSTRUUM) put them mixt in a Philosophical vessel to dissolve, and in the space

of one quarter of an hour, those mixt metals will be radically dissolved by the Mercury, and will give a purple colour; after encrease the fire by degrees, and it will be changed into a very fine green, to which taken out, pour the water of dew to dissolve, which may done in half an hour, filtre the solution, and abstract the water through a glass alembeck in B. which pour out again afresh, and abstract, which do three times, in the mean time that greenness will be turned into a black colour, like Ink, stinking like a carcass, and therefore odious: and it behoves sometimes to take away the water reaffused and digested, and that blackness and stink will depart in the space of fourty hours, and will produce a pure milky whiteness, which appearing, take away all the moisture till it be dry, which will be a white mass, and in a few hours of a pleasant colour, divers colours first appearing, it is turned into a fine greenness better than the former, to which you must affuse the spirit of wine well rectified, to the depth of two or three fingers, and that green gold dissolved will draw that spirit of wine, for the great amity, like a dry spunge drawing waters, and will communicate to it a quintessence as red as blood, by which means the greenness is deprived of its quickening tincture, the superfluous ashy body being left.

You must decant and filtrate the tinged spirit, and in a B. by a glass alembick, abstract it from the red tincture, attracting the fiery essence of the spirit of wine, so that they may be very close and inseparably conjoined, from which an unsavoury water only distills, the virtue of the spirit of wine being left with the tincture of gold like a red fiery salt, fusile and volatile; of which grain 1. can tinge

one ounce of spirit of wine, or any other liquor, with a blood-red colour, for it is soluble in any moisture; and therefore may be kept in a liquid form for the Panacea of most desperate Diseases. Now I will communicate the properties of the true tincture, by which true potable gold is known. This tincture next to the stone is the best of all medicines, between which and that, there is but this difference, the soul of gold is volatile, nor hath entrance into imperfect metals, and therefore cannot transmute into pure fine gold, which virtue is attributed to the Philosophers stone. The soul of gold, though it be the best part, yet it is not fixt in fire, but volatile; but the Philosopher's Stone is fixt in fire, and remains, by reason of a longer digestion. But whether that soul or volatile tincture and red Lyon may be fixt by help of fire, and turned into the Universal medicine, and tinging stone, that I know not, because hitherto I have not tryed, & etc. therefore he may who extracts the soul of gold, make further tryals, whether he can find any thing better. For this work treateth of nothing but the best medicine of gold, but other things I know not.

Therefore the deceit of the Distillers of Wine, and other vegetable waters, selling potable gold, is not unknown, being not ashamed to sell any water coloured yellow or red to the ignorant for a great price. And the error of others dissolving the body of gold in AQUA REGIA, or spirit of salt, which again they abstract to a dry remainder, to which for extraction they affuse the spirit of wine: Which is not an extraction, but some particular solution of gold, made by help of the corrosive spirits left in the gold, tinging the spirit of wine with a yellow colour,

which so coloured, they call their potable gold; which notwithstanding is reduced into gold, the spirit of wine being abstracted, which can do no more than any other Calx of gold, which the ARCHEUS cannot digest, but separates, being indigested, with the Excrements. And also it is the error of others, ignorantly deceiving themselves and others, extracting the Calx of gold with peculiar MENSTRUUMS and spirits, knowing not that the MENSTRUUM affused to gold to be red of it self by a long digestion, which decanted, they administer instead of potable gold, who if they weighed the remaining Calx, would by experience see that nothing departed from the gold, which you may try by the setting of the spirit or MENSTRUUMS in a remiss heat, or longer in cold, which of it self doth wax red, as if it had been affused to the Calx of SOL. But the cause of this redness is (unknown to them) nothing but a certain nitrous salt and volatile, as of Antimony, Urine, Tartar, Harts-horn, Hair, & etc. exalting the colour of any Sulphur.

Wherefore it necessarily follows, if ARTISTS mingle with the spirit of wine in which is a sulphur, such exalting salts, that it will thence be exalted in colour, and wax red; which also happens to them, who use to extract a tincture with distilled Oils, having a volatile salt, as are oil of Lemmons, Cloves, Soot, & etc.

For such like tincture or potable gold is inefficacious, as experience witnesseth. But I would not say there is no other tincture to be prepared out of gold, beside this tincture: for being dissolved in sweet MENSTRUUMS, that it cannot be separated by precipitation, it can do wonderful things in many grievious Diseases; but always the living metal is to be chosen instead of the dead.

But true potable gold is not so only in name and shew (as are divers waters tinged with a yellow or red colour) but also endued with golden faculties and virtues, so that it may actually appear to be made of gold, but irreducible by Fire into Gold, spiritual and penetrative, strengthning the vital spirits, that they may overcome their enemies. But it must also be endued with this Virtue, that it may change imperfect metals, chiefly Mercury, Lead, and Silver into pure gold; not truly like a fixt tincture, tinging with profit the baser metals in flux; but only perfecting particularly in a moist way by digestion, where some part of the metal alone is turned into better. For this tincture of salt or gold is very volatile, so that it cannot resist the fire; but with a gentle heat it melteth like wax, and is sublimed like a red salt, soluble in spirit of Wine, that it may be fit for Physical uses.

Also true potable gold being tasted, is neither corrosive, nor astringent like other solutions of gold; neither doth it pollute the hands, the nails and hair with a black or yellow colour, but rather makes them more fine; neither doth it infect copper, tin, lead, with rust or a black colour, but rather makes them more clear; neither is it a body of gold reducible by extraction, nor into white gold, which may recover its former colour by Antimony, and AQUA REGIA, but it is like an ashy earth, and sublimable in a gentle heat like Arsenick, not enduring the tryal of the cuple, which virtues if it have, it may be called the true Tincture of Gold: but if not, not so, but rather a sophisticated potable gold, not to be medled withal.

Of the medicinal use of this golden Medicine.

We have before demonstrated the sun to be the original of gold, or endued with the incredible virtues of the terrestrial sun. For the strength and virtues of all vegetables, animals and minerals lie hid in it; which cannot be manifested but by a Philosopher, and that by separation, to wit, of the intrinsical and pure parts, from the impure.

This speech will happily seem to thee incredible or not very likely to say that gold is reducible into a spiritual essence, agreeable to humane nature, endued with the strength of all animals, vegetables and minerals. Surely thou shalt hardly perswade him whom VULCAN hath not made a Philosopher to believe it. But who will trouble himself so much as with sure reasons to decide all Controversies, which if possible, yet for many reasons is here omitted; but for surities sake I will send back the Reader to the second part of our Furnaces, where he shall find how out of Antimony and Sulphur, by a good Chymist, with the help of fire, may be drawn not only the force and faculty of divers vegetables, but also their natural odour; which yet did not appear in them before they were radically dissolved, which if it may be done by any imperfect and fetid mineral, why not also by a perfect and mature mineral?

If we were good naturalists, and very diligent Chymists, then we need not to fill Elaboratories with so many pots and boxes, nor spend so much cost in fetching in so many foreign medicinal species, because without question the strength and properties of all vegetables, animals, and minerals, by an easier way may be found in some few subjects. And

as the true tincture of SOL well fixed, is endued with all the virtues of all vegetables, animals and minerals; so also deservedly is ascribed to it the force of curing all diseases; but with a difference. For there are divers kinds of the Gout in hands, and feet, as also of the Stone and Leprosie; which sometimes are inveterate and uncureable Diseases, sometimes new and cureable. Who therefore, not mad, would promise to cure all and every disease indefferently, by any certain medicine? Certainly no man, although he had the very stone of Philosophers.

For oft times the Stone of the Bladder is expelled or cut out, most hard and insoluble by AQUA FORTIS, which not any medicine not corrosive could dissolve; which strength, although they ascribe to their medicine, yet they cannot perform it. Promises therefore do not suffice, which none can perform: for PROMISES BECOME DEBTS, which is observed by few; wherefore by the haters of the Art the truth suffers, and the hope of good success of Chymical medicines dyeth. IT IS BEST therefore TO PERFORM MORE THAN PROMISE, and the work shall praise the workman. How can a Medicine penetrate to the extream parts of the body; to wit, the hands and feet, and dissolve the coagulated matter waxing hard, which out of the Body no corrosive Medicine can dissolve? It is sufficient if a medicine finding a viscous tartareous and salt matter, not yet coagulated, do dissolve and expel it. The like is to be understood of the stone in the reins and bladder. In this manner I will ascribe the curing of the Gout in the hands and feet, the stone in the kidneys and bladder, to my tincture of SOL, as well in old as young; but so that, if need be, specifical Catharticks may be administered, and extrinsecally Bathed for

promoting the cure, whereby Nature may the sooner do its office. But above all things, we must not slight Divine Providence: For oft-times God smites us with a Disease incureable by Art, unless Divine wrath be first appeased by BLUSHABLE REPENTANCE, which is the best medicine of all. As also the cure of all Diseases coming of the corruption of the Blood, as the Leprosie, the French Disease, and other impurities; which are taken away by this tincture, if withal Catharticks and Diaphoreticks are administered, cleansing and renewing the blood above all other medicines. This Tincture also takes away all the obstructions of the Liver, Spleen, Kidneys, and other parts, because it warms, attenuates, incides, and evacuates the original of divers Diseases. It also cures all violent and acute diseases, as the Epilepsie, Plague, Feavers, & etc.

It provoketh the Menstrues of old and young, chiefly, if also extransically it be rightly administered: which way many are well cured, who otherwise are like to perish miserably; it warms and cleanseth the Matrix above all other Medicines, and renders it fit to perform its office: It preserves it also from all accidents of STERILITY, and other very grievious Diseases, causing death. It expels the water of the Dropsie, by urine, it rarifieth and dryeth up the superfluous moistures of the internal and external parts, like the Sun drying and consuming waters, by which means the body recovers its pristine sanity: of other diseases to write in particular there is no need, because in all and every one, without difference, it may be used as a general Medicine, in old as well as young. This medicine doth not only restore, but also conserve health till the predestened time.

The Dose is from three grains or drops to twelve or more, but to children 1, 2, or 3, with its appropriated vehicle, or in wine or beer to be administered daily, which Dose may be taken oftener in a day, respect being had to the sick party.

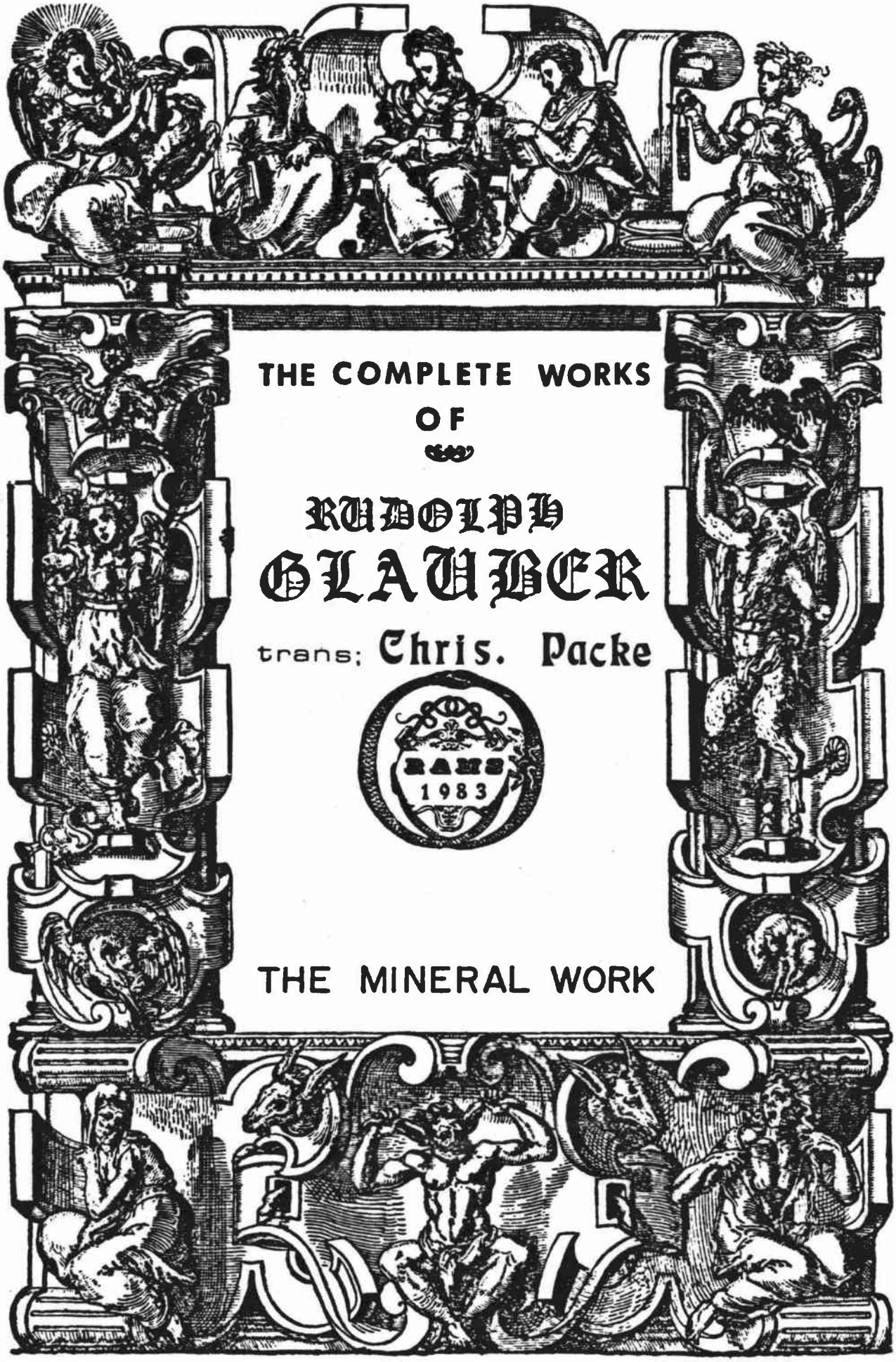
And so I make an end, hoping to haved pleased my Neighbour: for without doubt, who useth this golden Medicine well, shall do well, chiefly lifting up his heart (acknowledging his sins) to God the Giver and Creator of all good, in filial humility, imploring his help and blessing; which the omnipotent God and merciful Father, that he would bestow on us his temporal blessing in this life with sound health, and hereafter life eternal, of His free grace, LET US PRAY, AMEN.

F I N I S .

I N D E X .

The illustrations of the original have been excluded, being deemed superfluous in this modern age. As far as the written part is concerned, not one word has been excluded. Many Alchemical Secrets are herein contained; Those that have need for them, must seek for them.

A Friend of the God Vulcan. D. H.



THE COMPLETE WORKS OF

RUDOLPH GLAUBER

trans; Chris. Packe

RAMS 1983

THE MINERAL WORK

THE

MINERAL WORK :

The First Part.

Wherein is Taught the Separation of

GOLD

Out of Flints, Sand, Clay, and other Fossiles by the Spirit of Salt, which otherwise cannot be purged. Also a PANACEA or Universal Antimonial Medicine, and the use thereof. Invented and published in favour of the Studious in the CHYMICAL ART.

By JOHN RUDOLPH GLAUBER.

A Preface to the Reader.

There will be some without doubt, because the Edition of other Pieces (of which I made mention in some former Tractates a few years past) hath been hitherto by reason of diverse journeys, and other various impediments, neglected, who will think (having no knowledge of me) that I am unable to perform my promise; and there are others, who knowing my condition, and the Contumelies of my Enemies, will fear that I

being diverted from my purpose by those Reproches, will make void my secret promises. But I have resolved to stand to my promise, that these men may see that I am neither moved nor altered with the Taunts of the Envious; but that they may be convinced by real demonstration of my Secrets; some of which, I shall now for the publick good endeavour to communicate. And although the ingratitude of the World be cause enough for my silence, yet the uprightness of my Heart would not permit me to conceal those things, notwithstanding the maleviolent and ungrateful. Beside also the following Reasons moved me, because there are some ambitious men, who falsly boast of the knowledge of diverse of my secrets; wherefore, some have been moved to think that mine are not my own, but the Works and Writings of others; by which means I have been deprived of my due Praise, being attributed to another. And this I have often found, that one or other having by entreaties obtained a secret from me, have afterward through Ostentation ascribed it to themselves.

There are also others who fear not to reproach me, and my Writings, as though they were trifles, not attaining their desired end, who (rather than I who have written plain enough) are themselves to be blamed; for being ignorant how to work. Such and other things might deter me, but I would not omit the publishing of these Writings for those mens sake who are pious and honest. Wherefore I openly affirm, that these things published by me are not only no trifles, but most true, and also my own, and not the Invention of another. And I call him a lyer, who shall boast himself the Author without any of my help. But of these enough! Yet I would have the Reader know, that for the meaness of the stile,

I am not like many Writers, who more look after the flourish of words than the thing it self; I rather seek that my Neighbour may profit by me. Wherefore, for his better understanding, I had rather be prolixe in words, tedious to delicate ears, than write in obscure brevity adorned with Rhetorical figures. For I know that the studious in the Art do affect a prolixt, plain, and distinct information or instruction, rather than a CICERONIAN or obscure. And now, in the Name of God, I will begin my Work, which is most profitable to all, and will faithfully communicate and publish the same in that manner as it was written by me in my travel, under the title of THE MINERAL WORK, divided into three parts, In the first of which shall be taught how out of sand and golden flints, corporeal gold may be drawn by the help of Spirit of Salt. Which secret, although it may seem small, yet it is that whereby (a knowledge of the true Stones and true sand being obtained) life may be sustained, and also the cost laid out may be recompensed, as shall be proved in the following parts.

In the second part shall be treated of the original and generation of metals, and also of the destruction of Minerals and Metals.

In the third part shall be demonstrated the possibility of metallical transmutation by Nature and Art, and that with divers reasons: which demonstration is not (unless I am deceived) performed yet by any, being the foundation of all metallick Philosophy, and the GOLDEN CROWN of all my writings. Which God grant I may perfect, to the glory of his Divine Name, and the good of my Neighbour, Amen.

The First Part of the
M I N E R A L W O R K .

A most profitable process of the separation of Gold out of Flints, Sand, Clay, red and black Talk, and other Fossiles, containing very subtile Gold, thin and spongeous, which otherwise cannot be separated, either for its scarcity, or the obstinacy of the Mineral, by reason of the great Cost to be bestowed; viz. very easily with the Spirit of Salt.

Know first, (good Reader) that not all Sand, Clay, nor all Flints, and other Fossiles do contain Gold, but only some, without the knowledge of which, this secret availeth nothing. And because the knowledge of these are very necessary for the Artist, I will shew how they are to be proved, whether they contain Gold or not, that he labour not in vain, but that it may prove to his commodity or profit.

The madness of Men, searching after uncertain things is wonderful, but neglecting certain, although exposed to every ones view, for many seeking the perfection of Metals to gain Riches, are busied about an uncertain thing, because of a thousand scarce one obtains his end: altho' they may be perfected and purified, I mean imperfect and impure metals, so that good Gold and Silver may thence be extracted, but this Art is given to few, neither is every one fit to perform the business; because it requires an ingenious and experienced ARTIST: But the thing which is certain, may be performed with small cost and labour by any vulgar

Chymist, having any knowledge of the Art of fusion and separation, being an ingenious man, and not seeking things too high or too gainful at the first tryal. Be cautious therefore in the extraction of the aforesaid stones, for if thou shouldst with the spirit of Salt extract many of them, having no Gold without doubt thou shalt find no Gold there: And if thou shouldst extract some contained in them, and if thou be ignorant of the separation of it by Antimony, thou canst thence hope for no profit.

First then, the knowledge, viz. of those stones is necessary afterward of that separation by Antimony. Impute therefore the fault, if thou errest, not to me, but to thine own ignorance, if thou knowest not to extract the Gold; for I have written clearly, though thou shouldst not know any thing that were omitted. And I before admonish thee to be cautious in thy work, lest thou labour for nought: For it is certain, and no fiction, that in many places there are found golden flints, and golden clay, and sand, oft-times abounding with gold. And if they do not abound with it, yet may be extracted with profit: but the flints abounding with it are extracted with greater gain. There are also found whole Rocks and Mountains of Gold, and great Mountains filled with golden Sand and Clay, not returning the charge of washing, either for its too great rarefaction or spungiosity and levity, by reason of which, its washed away with the sand; all which, how poor soever, may be extracted by the spirit of Salt with gain, and by Antimony fixed and purified. In brief, this is such a secret, by which, no man can be an impediment to another, as in other mechanical operations, whereof no

man may be ashamed; for God did therefore create Gold in the earth and stones, that we may therefore extract it to the glory of His Name, and the benefit of our Neighbour; neither hath he forbidden the true and genuine use of it. I say therefore in truth, that I have here described this Art, how ever despised by the ignorant, yet of greatest moment, and almost incomprehensible. Now consider the thing a little farther, thou shalt find every where in the earth great Treasures to be hidden, which only through ignorance are not discovered. Truly it is known to all, that there is found golden sand and clay in diverse places, which for the aforesaid Reasons are left unlaboured, but by this our Art may easily be worked upon.

There are found also silver Mountains, out of which, silver cannot be extracted for the little weight it yields: there is also found in many places a certain yellow or reddish earth, or such like clay, which though it contain store of silver, yet it cannot be extracted with profit by this way, yet separable, with gain, but not by the spirit of salt, which leaves it untouched, but by some other thing, every where to be found in pleanty, of which, for some reasons we shall speak nothing here.

And this way of separation makes much for the poor mineral of copper, which with profit cannot be worked upon by the vulgar way, to be separated from the copper, afterward by ripening it into a better metal, or turning it into verdy-grease, for want of a better art, which business also may well and honestly more than maintain a family.
This way also may the rejected dross of the gold, silver, and copper

be with profit separated. But because I have decreed to handle here only the extraction of gold out of stones, therefore these menstrues which are used in the extraction of copper and silver, are deservedly omitted, and reserved for another place, where sometime they shall be delivered, to wit, if I shall see that this demonstration shall be accepted in mens eyes, which more very excellent shall follow. As now I have undertaken a more excellent matter in love to my country, by which it may appear, that GERMANY however reduced to want, is yet rich enough, if it would but at last look upon its hidden treasures. There is no need to offer a fore-chewed bit, for demonstration is sufficient, neither will we obtrude a good upon the negligent; for to the ungrateful the best things are unacceptable. These therefore being waved, in short we will give the demonstration and extraction of those flints, not doubting but the expert and experienced, though the sluggish may not, will thence reap profit, and give God the praise.

What belongs then to the aforesaid stones, out of which gold may be extracted, thus the matter stands. All kinds of flints for the most part have invisible gold, sometimes visible and invisible, volatile and corporeal together: but many commonly contain impure iron-like volatile gold, and also mature, and a few, sulphureous and copper like.

Stones which the GERMANS call QUARTZENS and HORNSTEIN, containing pure and corporeal gold, although mixt with silver and copper, may be burnt and ground, and extracted with Mercury, and if they abound with gold, be purged by flux; which labours are usual with diggers and dealers in metals, of which I do not intend to write, because others have

heretofore writ of them. But those flints QUARTZEN and HORNSTEIN every where almost to be found, containing but a mean quantity of dispersed iron-like Gold, Marcasite-like, and that either fixt or volatile, cannot be separated with gain, to wit, neither by Mercury nor by Flux, wherefore they are neglected by the Miners, either out of ignorance or for the intolerable costs. But I having tryed those base stones, that how little gold soever they possess; yet may be separated with great gain, I would not intermit to publish this knowledge for my Christian neighbours sake, not doubting but this publication will be profitable to very many. For I am not ignorant that there are as well learned, as unlearned, noble as ignoble, secular as spiritual, either by war or otherwise exposed to poverty, so that they are hardly able to maintain their family, & etc. and for their sakes and others in want. I have published this secret, which rightly handled may bring no small gain yearly, but especially where those stones are plentiful, and also that spirit of salt, whereof the description is given in the first part of the Philosophical Furnaces, and hereafter there shall be given a better, if nothing hinder; in the mean while use and enjoy these. And if it happen so that thou canst not rightly perform all things of the aforesaid tractate, blush not to learn the manual Operations (which cannot be so exactly described) from those that are experienced, lest you hereafter unprofitably spend your labour and costs. As for those stones know that very many of them are found in several places, chiefly in those that are sandy and mountainous, but in some more and better than in others, for there is seldom seen sand without flints, and oft-times

the sand it self, though very little doth not want gold. But they are very likely to be found on the shores of Rivers, where the waters washing away the sand from the flints, they are found in great abundance, though they are not so easily known by their outside, as those which were found clean in the sand, because they are covered with slime. Wherefore they must be broken with a hammer, that that may be seen which is in them, which may better appear if they be burnt, and quenched in cold water. For the stone retaining its whiteness when it is burnt and quenched doth contain nothing; but acquiring a redness it shews there is something in it, and the more red it is the better token it is.

N. B. But this is not to be understood of sandy stones, waxing red in some part, in the fire, containing no gold, but of flints out of which by a mutual percussion fire is brought forth, which the more pure they are the purer gold do they yield, There are also flints out of which fire is forced by percussion being red in the fire, which contain no gold but Iron; which you may know by that clear redness before the burning, which being burnt is changed into an obscure redness, not shining and crude: but the flints containing Gold, being burnt do acquire a fair golden yellowness, or reddish colour, as if they were covered with gold, and that through the whole substance if they be broken in pieces. And these give a pure gold, but those other yield a red extraction like blood, yielding not gold, but the purest and malleable iron, good in Chymick uses, (but chiefly for silver to be cemented and exalted) for gold is seldome to be found in them; the which is well to be observed lest thou draw out iron in stead of gold, and so lose thy labour.

Also the best stones containing gold, are those which are white and shining, here and there throughout having in the whole substance green spots and lines, red, yellow, skie coloured and brown. There are also black flints out of which fire is forced by percussion, having gold and iron, which may be separated with profit, yielding sometimes plenty of ironish Gold, which may in like manner, be separated of which afterward.

They are very good flints also which being burnt retain a whiteness, with veins green, skie-coloured, and such like, neither are they disesteemed which burnt, have black spots, and not veins.

But the stones (QUARTZEN and HORNSTEIN) although they in burning are not altered, yet if there be seen before gold volatile and spiritual, they by separation of themselves yield gold.

Gross and subtile sand having light and yellow gold, yields in the burning a skie-coloured smoke, and is exalted in colour, viz. brownish: but that hath nothing which is not altered.

Subtile earth, yellow or red, passing through sand of a mountain like a vein contains also gold, which is for the most part volatile, and not mature, flying away in reduction, having ingress into silver and other metals, and therefore for this reason conservable.

For thy better knowledge thou mayst prove the stones, with white fusile glass, which thing is treated of in the fourth part of the Philosophical Furnaces, that thou mayst not have cause to impute the fault of thy error to me; therefore I would have thee understand, viz. that all stones contain not gold, neither in all is it seprable by the spirit

of salt: they are therefore to be known before they be applyed to the work.

Now follows the preparation of flints, and the extraction of the gold contained in them, by the spirit of salt.

First the flints being made red hot in the fire, they must be quencht in cold water, after taken out and cooled, and finely powdered.

N. B. When they are broken in a Morter the better parts may easily be separated from the baser: for while they are finely powdered, always the best part goes into red powder first, the worser part thicker and harder, containing little or nothing, being left; And if they be coursly powdered and sifted through a fine seive the more like red powder goes through the seive, the unuseful part being left in the seive like white dust, which may be cast away: and if yet some redness appears, it must again be powdered in a Morter, and the better part shall go into a red powder, the baser part being left in the seive hard and white which is to be cast away, but you must observe that not all and every of these flints are thus separable by powdering; for some being beaten do every where retain the same colour, without any separation of the better parts, which you must finely powder and extract in the whole substance, but they (viz. those separable) are more easily extracted, because all the gold contained in one pound for the most part may be gathered out of three or four ounces finely powdered and separated in the aforesaid manner; so that it is not needful to extract the whole stone, nor to

spend so much spirit of salt. But sand and clay need not such a preparation, but without a preparation being made before, are extracted by the affusion of the spirit of salt.

Rx. then of the flints as aforesaid prepared and separated two, three, four, six pound, to which being put into a curcurbit of glass whole (undivided) pour of the spirit of Salt to the depth of three or four fingers breadth, and place it in hot sand or BALNEO, that there the spirit of salt may be hot, and may extract the Gold, and so let it continue for five, six or more hours space, until the spirit tinged with a deep redness, can extract no more. And perchance at the first time (though seldom) it may not be tinged with so great a redness, then must you decant that same imperfectly tinged spirit, and pour to other flints after the manner expressed, prepared in another cucurbit, and place it with the flints in a moderate heat for to extract the gold; which done pour it off again, and pour it to fresh flints, and do so often until it hath drawn to it a sufficient quantity of gold; which afterward thou must keep, until thou hast gotten a greater quantity, and all the Gold may be separated at one time from it, as afterward shall be said.

Which done pour to the reserved flints in the first cucurbit, a fresh spirit of salt, and leave that so long in heat, until it be coloured, and extract the gold that is left in the flints, and was not at the first time extracted; which spirit being afterward decanted, pour it to the flints reserved in the second and third cucurbit, to extract the residue of the gold which was left at the first time, and so

consequently to the others reserved, until the spirit be sufficiently coloured, and can attract no more; which afterward pour off and put it to the first, which was reserved. You must also pour a fresh spirit to the remainder of the extraction for the extracting of all the gold. At length pour to it also common water to wash away the tinged spirit of gold remaining in the flints, that none of the Gold may be lost.

And this labour is so long and often to be repeated till there remain neither flints nor spirits; in the mean while you should cast away the flints extracted and washed, that the cucurbits may be filled with fresh flints, and so continue the work; and if there be no more spirit left to continue the extraction, you may then separate the extracted gold from the spirit, which is done as followeth: but first, you must have plenty of glass vessels, or retorts of the best earth, which may retain the spirits; which you may so far fill with the impregnated spirit, that the spirit in the abstraction run not over, which done, it is to be extracted in a dry BALNEO by little and little from the Gold, which spirit ye may use again in the aforesaid work. And the Gold which is left in the bottom of the vessels, is to be separated from the vessels with a crooked iron wire and (kept being very like red earth) for its use, until thou hast gotten a good quantity, viz. so much as sufficeth for separation and purgation (of which afterward) to be made by Antimony.

N. B. But when thou shalt extract red talc with spirit of salt, red or black granates, SMIRIS, or LAPIS CALAMINARIS, and other Fossiles, which beside fixt Gold contain much immature and volatile Gold; you

must in the abstraction cast in a little iron, viz. to the solution, which retains and fixes the gold which otherwise flyes away in fusion. Wherefore those solutions and extractions of Talc and other things containing volatile gold are better extracted out of iron Cucurbites by earthen alembicks than out of glass and earthen retorts, because then that volatile gold doth attract only so much thence as is sufficient for its fixation; which iron is after easily separated by the Antimony from the gold, as shall after be taught. And this is to be noted, that not the whole granete is soluble in the spirit of salt, although it be long left in digestion, always retaining its former colour; wherefore there is a difference to be made, or a preparation to be learned, requisit for the solution of the gold contained in them.

And you must extract Talc not with too much or excessive heat, lest its substance be totally dissolved in the spirit and be a hinderance to the work; because there is little profit then, for it is therefore appointed, that a little gold dispersed in a great quantity of Talc may be reduced into a little compass that it need not that all the quantity of Talc be made fusile, because it will thereby procure loss. But there is no danger in flints, because the spirit of salt doth not dissolve them as it doth Talc, but only extracts gold from thence, the stony body being left. The LAPIS CALAMINARIS may also otherwise be handled in the extraction and fixation than granates, flints and Talc, because it is almost wholly soluble in the spirit of salt; which work is not here to be handled, because the extraction and fixation is taught in a puculiar way in another place, neither do I mean to treat of it

here, but only of the extraction of gold out of flints every where to be found. And this is the way of extraction of Gold out of flints and sand in heat by the spirit of salt, to be done in glass vessels. But there is another way too, which is done in cold without glass vessels, which I thought worth the setting down, that in the aforesaid work you may choose which you please, this or that, and it is done as followeth. We must have in this way store of earthen funnels well burnt, and not sucking up the spirits; for want of which we must have such as be of strong glass: there must also be a form with many holes in it to receive the aforesaid funnels, under which must be placed glass dishes or basons to receive the strained spirit.

Here follows the work to be performed by Funnels.

The Funnels being put in the holes of the form, you must first put a big piece of FLINT in the straighter part of the Funnel, to which after put lesser pieces, and on these again less, viz. as much as serveth to fill the straight part of the Funnel, of which the larger part is after to be filled with powdered flints, but so that there be left a depth of three or four fingers breadth for the spirit of salt. By this means those greater pieces in the lower part will hinder the passage of the fine powder in the Affusion of the Spirit of Salt.

Which being done as it ought, pour to the flints contained in the Funnels the spirit of salt, two or three fingers breadth in deepness, which forthwith shall work on the flints, and attract their gold, and

then run into the dish or bason set underneath: and because for the most part at the first time, some of the powder passeth through with the spirit, you must so often pour the same spirits on the flints until there be a stoppage, and the spirit come clear; afterward pour this spirit into the second Funnel with flints; and then into the third, and so consequently, until it be strained through the flints of every Funnel; or till the spirit of salt be sufficiently coloured, which you must keep until you have gotton a sufficient quantity to be distilled by retort for the separating the spirit from the gold. Then that first spirit being strained through the flints of each Funnel according to order and coloured, pour a fresh spirit to the flints of all the Funnels according to order, beginning at the first, till you come to the last, until that be sufficiently coloured; which being done, pour a fresh spirit of salt to the flints (according to their order) contained in every Funnel. And when you see the strained spirit not to receive a tincture, it's a sign that all the gold is extracted; and then pour on no more spirit but common water, that it may be strained, and the water will attract the spirit of salt left in the flints, that none shall be lost, which acidish water save by its self to the same, and the like uses: which being done, take out the extracted flints, and fill the Funnels with fresh as before, viz. to be extracted; and do this so long as you have flints and spirit. But you must not pour a spirit not sufficiently tinged into the spirits that are well coloured and impregnated with gold, but keep it apart, and pour it still to fresh prepared flints according to order, contained in divers Funnels, viz. until it be

sufficiently coloured, and being coloured, separate it by the glass retorts with the rest, extracting it from the gold by abstraction, and and being abstracted again, use it to a new work like the former. And by this means with 100 pound of spirit of salt may be extracted some thousand pounds of flint prepared, and separate the gold contained in them, which otherwise by fusion cannot be done. But the chief point consisteth in the extraction (the spirit of salt being well and rightly first administered) viz. that the spirit may not be washed, whereby many stones may be abstracted with a little spirit. But this caution is to be observed in this extraction, which is done in cold, that it requireth a stronger spirit of salt than that, which is done in heat by cucurbits, or else the business goes on slower: but with a stronger spirit by this (the cold) way they are extracted sooner and easier than by that which is done in heat; and neither so dangerous, labourous or costly: this extraction then, viz. the cold, requires a stronger spirit of salt (which is worth noting) than the hot.

And this is that way, by which those golden flints, and other golden fossiles are prepared, and with the spirit of salt are extracted, and by which it is again separated from them: Now shall follow the manner of purification, viz. of the Gold left in the Retort.

N. B. The pure gold being extracted out of the flints, not the iron-like, there needs no great business of purification; for thou mayst purify it by fusion with borax, or with the fluxing powder made with the equil weight of nitre and tartar: but if the gold extracted out of Flints be mixt with iron, as for the most part it is, then you must not

fuse it with Fluxing Powder, because it is not thereby purifyed or rendered malleable Gold, but separate it by lead, by which way it is purged and made malleable. And if such Gold have any sulphureous impurity mixt besides, it is not to be separated with lead, because it is then partly turned to dross and other impurities by the iron with loss; wherefore it is to be purged with three parts of Antimony and separated; by which means nothing is lost: which is the best way of separation and purification of Gold, viz. the ferreous, without which it cannot otherwise be separated without loss.

How impure Gold may be separated and purged by Antimony.

This work is necessary to be known, if you think to have any benefit by the aforesaid extraction of Flints by the spirit of Salt, which without this separation and reduction is of no moment: and what profit I pray is there by the extraction of immature Gold, which by the common way cannot be purged, requiring the industry of the Artist in fusion, whereby it may be separated from its sulphureous feces and fixed? For it is easie to conjecture, that such spiritual and volatile gold mixed with iron, by that common flux is not reducible into a body, but rather into dross: for experience testifies that gold dissolved with the spirit of salt, and also iron, or any other sulphureous thing, the spirit of salt being abstracted cannot be reduced whole by the vulgar flux made of Nitre and Tartar, going into dross; which if it happen to corporeal pure, and fixt gold, how shall it be otherwise with that which is

incorporeal, unclean and volatile? For the Gold being ironish commonly, which is extracted out of stones, and iron having great affinity with gold (by reason of which being nearly united, it is difficultly separated, so that it easier goes with iron into dross than parted from it) you must of necessity make a flux not only attracting that impure gold, but also purifying and cleansing it, that which Antimony alone doth, which with its combustible fusible Sulphur easily enters that ironish Gold: But by its Mercury it attracteth the pure corporeal gold, and cleanseth it; and separates it from all dross without any loss: wherefore there cannot be a better flux, but requiring industry, or an ingenious separation of the Antimony from the gold, without wasting the gold; which is done as follows.

And first your ferreous gold, that is left in the abstraction of the spirit of salt, must be finely powdered in iron retorts or pots, and mingled with it two or three parts of Antimony powdered, and mixt in a very strong crucible filled and covered, and then fused in our fourth Furnace, until that flow like water; which soon appearing, pour them together into a heated Cone, smeared within with wax, and when they be cold, separate from the dross the REGULUS (having most of the gold) with a hammer, and keep it by it self. Which done, you must again melt the drossy Antimony (as yet containing much gold) that was left, in the crucible, and add to it a little filing of Iron, mixing them with a crooked wire, and that Antimonial combustible sulphur will be mortified by adding iron, and will yield a REGULUS containing the rest of the gold, which, as a regard is had to the quantity of iron added, will be

more or less, and for the most part will answer in weight to the weight of the iron; then cast the mass (well flowing) into a Cone heated and smeared on the inside with wax, which being cold, separate again the REGULUS from the dross with a hammer, which also is to be kept by it self; melt the dross again, as before, and precipitate it with iron, and extract the REGULUS thence, which keep by its self, for it contains gold and silver mixt. For the best gold is precipitated the first time, but afterward the baser sort, and at last only Silver. Wherefore every REGULUS is to be kept by it self, that the purest gold may be a part, and the silvered gold by it self.

N. B. And if the Antimony, by the addition of Iron, do lose its fusibility, and therefore can yield no REGULUS, it's required, that you at every time when precipitation is made, by adding iron, that you do also cast in some MISY, to make the mass to melt in the crucible and precipitate the REGULUS. All the gold and silver being reduced into three or four REGULUS'S, you must keep the drossy parts by themselves that were left, of which we shall speak hereafter.

Now follows the way of separating the Gold and Silver from the Antimony.

The aforesaid antimonial REGULUS'S may many ways be purged, and first by help of Bellows on a plain earthen test, as the custom is with Gold-smiths when they make Gold fusile by Antimony, which labour is tedious and dangerous; which cannot be done often without the loss of health, nor in great quantity: wherefore when a better way is known,

'tis folly to do so. The REGULUS'S also may be purifyed by lead on a test, which work may be done in a great quantity, but it requires abundance of coals and lead, where the Antimony cannot be preserved: but it may be done with gain, and is to be preferred before the former ways: Thou maist if thou pleasest calcine the aforesaid REGULUS'S to ashes, and then fuse them; which way the gold and silver may easily be drawn out. Thou maist also fuse them in a crucible, and by the addition of some salts, separate the antimony from the gold and silver, turning the antimony into dross, which being separated, those are found purifyed and malleable, which though it be the easiest way, it is yet also very dangerous, for the salts often, if you do not warily proceed, do spoil much gold and silver, and sometimes leave gold unmalleable, and so double the pains.

But he who knows how to do this by Nitre only, he may with great gain, and in a short time, purify a great quantity of the aforesaid REGULUS'S without loss of the gold, silver, or antimony. There are also other means for the doing of it which to relate were tedious and indeed impossible. Wherefore I will set down the best of all, most profitable in the separations of great quantities of REGULUS'S. Where first is required some peculiar little Furnace with a Fire almost like to that in our first part of Philosophical Furnaces, built for the subliming of Flowers; it wants indeed a grate, but it hath little vents for to make the coals burn, that thy antimony separated from the gold, may be sublimated or elevated into sublimatory vessels. Which being rightly built and heated, let so much of the REGULUS be cast in with

a spoon as the Fire can bear, which will quickly melt and be elevated, the air being attracted by the vents, without any trouble: which being sublimed, you may cast in more, if you have more, until all the REGULUS be separated and sublimated from the gold and silver, which are left in the Fire pure and malleable; the furnace being cold, you may take out the Flowers and keep them (of which afterwards) for uses, which way you may not only separate a great number of REGULUS'S from gold and silver in a small time, but also keep all the antimony, which may many ways be used in Alchemy and Medicine with great profit. Which sure is an excellent knowledge, for not only hereby may any one get abundantly, without wronging his neighbour, but also help many sick People, viz. by that excellent Medicine made of the Flowers: which is a special gift of God, for which we owe immortal Thanks. And this is, of all others that I know, the best way of separation of gold from antimony, which is not only done in great quantity, in a short time, and with small charge, but also without loss of the Antimony.

Here follows the Use of the Antimonial Flowers.

First, you may take the whitest of the Flowers out of the lower hole, and keep them for a Universal Medicine; but reduce the rest (being less pure) into REGULUS by the salt of Tartar, for divers uses, as shall be said afterward; or you may mingle them with an equil weight of common sulphur, or antimony, which being mixt in a covered crucible, melt them, and they will yield an antimony like to a natural, good to purifie

gold: or thou maist mingle them with other metals or minerals, that by this means they may be made better. Or thou maist use them in Chyrurgery, for they of all stiptick plaisters make the best. In brief, the aforesaid Flowers may many ways be used with good gain and success.

The aforesaid antimonial dross may also be reduced into Flowers, and used in the same manner; which indeed are endowed with as excellent Properties, as they which are made out of REGULUS'S; because in that fusion and separation of gold extracted out of Flints and Talc, the gold only that was fixt and mature, was separated from the REGULUS'S, (the immature and volatile being left in the dross) and elevated with the Flowers: It follows thence, that these are better, as well in medicine as in the transmutation of metals.

Or if thou wilt, add to the antimony (as aforesaid used) old iron, to reduce it in a furnace, and take the REGULUS, having gold and silver, which may therefore be used in other operations of Chymistry, where there is need of REGULUS, as we may shew hereafter. But the dross doth yield a REGULUS, viz. in a very strong Fire, and a Furnace with a peculiar separatory by abstraction, which although it contain not gold, yet it may be used not without gain, as if it be mingled with Tin in fusion, it procures to it a hardness and sound, useful for fashioning divers sort of Household-stuff, which is not so easily darkened as the common Tin, or if thou wilt not, thou maist make weights of it.

Hitherto, we have treated of the extraction of gold out of Flints, and of its purification by antimony; now we shall teach you how to use the rest of the antimony, as well in the perfection of base metals as

in medicine, as well for the preserving of Health, as the curing of Diseases.

But seeing we have made mention of an Universal Medicine, to be made out of antimony aforesaid, I would not have thee think that that is such as can take away all distempers in general, without distinction, which virtue is only ascribed to the Philosophers Stone, but not by me to this medicine; to which I attribute no more than I have tryed: But this in truth I dare affirm, that there is, besides the stone, scarce any comparable to it; for it doth not only preserve the body from divers Diseases, but also happily frees it from the present, so that it may deservedly be termed a UNIVERSAL MEDICINE.

The Preparation followeth.

Rx. of the flowers purified from the dross a pound, viz. of Antimony, by which the extracted gold was purified, which for the most part are of a yellow colour, having gold volatile and immature: in defect of which, take the flowers made out of the REGULUS'S, being for the most part white, to which pour in a Glass Vial, strong and long necked, of spirit of wine tartarified, three or four pound, mingle and stir them well together, and put on it another crooked pipe (within which let there be some ounces of Quicksilver, as is described in the Fifth Part of our Philosophical Furnaces) and make strong the joints with a bullocks bladder thrice folded, made wet; which dryed, place the glass in BALNEUM, and give fire by degrees, that the spirit of wine with the

antimony may digest, in which leave it for 24 hours space, and so soon as the fire is out, take out the glass, when it is cold, pour off the spirit tinged red from the Flowers, and pour on fresh; and place it, as before, in BALNEUM, to digest 24 hours space, till it be red, and do this the third time, or so often till the Spirit be no more coloured, for then no more is to be poured on, and that which is coloured, is to be filtered with Cap paper. The rest of the Flowers, after the extraction, as not requisite to this business, are to be either kept by themselves, or thrown away. But the tinged Spirit is to be abstracted out of a glass cucurbit by an alembick, to the half, from the tincture, which distilled spirit may again be used in the same work: but the tincture left in the cucurbit is the medicine, of which mention has been made.

Now mention being made also of tartarised spirit of wine, that I may satisfie the doubtful concerning that I will here also give its description, which is as followeth.

Rx. of Tartar 20 or 30 pound, put it in a large coated retort, and place it in sand, and distil the spirit off with a soft heat.

N. B. This work may better and sooner be performed by that instrument of our second Furnace; and because it requires great and large receivers, as being very penetrative, thou maist first apply a tin or copper Serpent to the neck of the retort, instead of a receiver, which is placed in a tub filled with cold water, that the spirits being thereby cooled, may be retained, which afterward you must abstract to the half, out of a glass cucurbit by an alembick: for the other half with

the black oil is unprofitable in this work, and therefore to be taken away. After that, mingle the more subtile part, distilled with half of the CUPUT MORTUUM, of the aforesaid Spirit, calcined to a whiteness, and abstract it half again in a gentle BALNEUM, out of a glass cucurbit by an alembick, the joints whereof are every where to be well closed, and the calcined Tartar shall receive with it self the stench, together with the Phlegm, only the purer parts of the Spirit, and more subtile distilling forth, which is again to be mingled with the other half of the Tartar calcined to a whiteness, and to be rectified by another alembick; the CAPUT MORTUUM may again be calcined to take away the fetidness, that it may be used again. And this is that tartarised spirit of wine, with which the aforesaid tincture and essence is extracted, and truly not only this, but of all other metals, which no other can do. And if it were lawful, I would write something more of its wonderful force and virtue which it hath in purifying baser metals, with which it hath a great affinity; for it can separate the pure from the impure, of which more in another place. But when it is to be used in mending of metals, it needs not so much rectification as is required in the extracting of metallick medicines; where you may draw it in plenty out of the dry lees of wine. But there is also another tartarised spirit of wine, which may also be used in the same work, which is made after the following way: Dissolve in a pound of the spirit of wine six ounces of Crystal of Tartar; which solution use in the aforesaid extraction, in the same manner.

Of the Virtues of this Medicine.

This Antimonial Tincture doth, above all other Medicines evacuate vitious humours, and insensibly purgeth impure blood; opens any obstructions of the Liver, Spleen, Reins, and other vessels, attracting to it all malibnities, and leaving no impurities behind it. And because it cleanseth the blood, it cures the Leprosie, French-pox, and itch, and other Diseases proceeding from the impurity of the blood. By its penetrative and attenuative virtue, it resolves all tartareous humeours, and evacuateth them, viz. which ingender the Gout, the stone of the Bladder, and Reins, but not the Stone perfectly coagulated, only it mitigateth its pain, and hinders its encrease; but being not hardened or coagulated, it attracteth and evacuateth it totally and fundamentally out of all parts; it takes away also all Fevers, and other diseases coming from the superfluity of humours. It gently evacuateth the water between the skin, by siege and urine. In brief, it strengthens and purges the principal parts, and preserves them from all preternatural accidents. It is a most excellent preservative in the time of pestilence, and other contagious diseases; and of them being caught, it is a most absolute remedy, expelling the disease suddenly from the heart, and evacuating it. In few words, 'tis of all others a most excellent Universal Medicine, very profitable to both old and young, and also very safe; but warily to be ministered, by reason of its strength with which it is endued, which is most powerful, for it is as a great fire, which extinguisheth the lesser. Truly a better medicine cannot be

desired than this, which is extracted of a very mean thing, in a short space of time, and with very small cost and pains. I ingennously confess, I never saw its like, which I doubt not to be the best in the World. Wherefore then do we seek any other but this, viz. which excels in those things which are desired from the real medicine? But as it is most excellent, yet I am certain, that many deluded people will be offended at it, being prepared out of Antimony, a mean and despised thing, and after a plain way. But 'tis no matter, FOR THE WORLD WILL BE DECEIVED, looking after gay things, disrespecting and despising mean things, when all good things, yea, even when God himself doth rejoice in simplicity, for which, by wicked and proud men he is not sought unto. But this is the effect often, by which man is so blinded, that though he know not good, when set before his eyes, yet he is studious of evil.

Of the Use and Dose of this Medicine.

Seeing of all medicines it is the most powerful, it had need be warily used, for a smaller dose is always safer than a greater; which therefore may after be given; the which is to be observed in all diseases of young and old. To children of 2, 3, 4, or 6 months old, against the Worms, Scabs, Feavers, and Epilepsie, you need not give above half a drop with a proper vehicle, which you may repeat three or four times a day: it killeth the Worms, it emptyeth the stomach of evil humours: it refresheth them, and preserves them from scabbiness; and because it evacuateth evil and corrupt humours, it preserveth them from the small

pox and measles, viz. if it be used every month; but to children of 1, 2, or 3 years old, you may give a drop, and to children of 4 or 5 years old a drop and a half: to young people between 15 and 24 years, may be given 2, 3, or 4 drops. To stronger bodies from 25 to 30 years, 4, 5, 6, or 7 drops. But the dose must be greater or less, with a regard had to the sickness of the patient. And in the Stone and Gout, may be daily administered in wine or beer, viz. in the morning fasting, unless the patient be very weak, for then you may give it twice or thrice in a day, and continue this till the cure be perfected; where it is to be observed that he must keep a temperate dyet.

In the Leprosy, French-pox and Scurvy, every morning may a dose be given, and the disease shall totally be rooted out. Otherwise, viz. the strength being too much wasted and weakened, you may give only every other day, viz. so long as shall be need.

In the Epilepsie it may be given daily; and also in the Dropsy. In all Feavers, two or three hours before the fit. In the Plague it is to be given presently, and every day to be repeated: but for a preservative to be drunk every week once. In all other internal effects it must be given daily, until the declining of the disease; but afterward by little and little, the medicine is to be used till the disease be fully cured.

In external, as in fresh wounds by a blow, thrust or shot, broken bones, & etc. every day once; with a necessary extrinsical application of a Plaister. In old Fistulaes and Cancers, it may be used once every day intrinsically and extrinsically, the place affected may be cleansed

with Mineral Oyntments. For by this means every invenerate evil, how desperate soever, is throughly cured, and pleasantly, without all pain.

But although this be most precious of all medicines, yet there is a MENSTRUUM not corrosive, with which not only more easily than with the spirit of wine tartarised, a Universal Medicine may be extracted out of Antimony, and endued with better than the aforesaid virtues; so that for the charge of one royal, in three days time, so much may be gotten as may serve to cure some thousands of men, but also all vegetables, animals, and minerals and metals, are radically dissolved and reduced into their first matter: by which means not only very great Poisons are changed into most wholesome medicines, but also bitter things are deprived of their bitterness: for by it things are so corrected, that they do no more provoke stool and vomit, viz. which are very vehement Catharticks (by nature) being changed into most excellent restoratives. Also fetid things being corrected by it, do acquire a sweet odour. And it doth not only (which seems a wonder) dissolve vegetables, animals and minerals with those things which come of them, but also the very Glasses; wherefore you must always choose the strongest glasses for digestion and solution, or in the defect of such, the weaker are to be changed every 6 hours. And yet it is not at all altered by those things that it doth reduce and turn into their first matter medicinal, neither in virtue nor colour; for it always keeps the middle place between pure and impure, of which this falls to the bottom, but that swims on the top of the MENSTRUUM, which may again be used. In brief, it's virtues in preparing medicines cannot be enough praised. But it may be compared

with the Mercurial water of BASILUS VALENTINUS: and the ALCAHEST of PARACELSUS and HELMONT, which I judge to be the FIRE of the MACCABIES turned into a thick water under-ground. It is a perpetual fire, but not always burning visibly; it is a water permanent, not wetting the hands, the Sope of the Wise, the Philosophers AZOTH, and the Royal-Bath.

Which Menstrue though I have known some years, and have often used it with metallicks, and by it have found out many secrets, yet I never thought of its use in Physick, until being asked of one who was a great Student of HELMONT, whether I knew the preparation of the liquor ALCAHEST of PARACELSUS; and naming some of the virtues of this liquor in preparing Medicines, I began to bethink my self, and I observed that it was my SECRET BALNEUM, that purifies minerals. Wherefore I presently made tryal with vegetables and animals (for I knew the Virtues thereof in metallicks) and I found wonderful and astonishing things in it, which before were incredible to me. I affirm and confess therefore sincerly, that all and every the invented medicines published by others, and my self, how rare and costly soever, are most mean things in my estimation. For this UNIVERSAL KEY was wanting to us. For our vegetables and minerals, however by art macerated, cannot be perfectly resolved, and therefore we hitherto have had but part of their virtues. But now we need not much art, labour and cost, to reduce a whole body without corrosives, into the first matter, like in shape to some clear and excellent water, of its own accord casting forth its superfluous terrestreity, and becoming a most wholesome medicine, consisting of the three purest principles; the which cannot be done without this MENSTRUUM. For, What

else could Physicans extract out of herbs than Syrups, Electuaries, Conserves and Waters? With which Preparation they were not amended, but only qualified with the addition of Sugar or Honey, because there is no separation made of the pure from the impure, or good from bad. For all are left mixt together in the Electuaries and Conserves, but in the Syrups and Waters distilled there is only some part. Extracts indeed by the spirit of Wine are not to be disesteemed, if rightly prepared, but they are no better than their simples; and besides, want that which the spirit of wine cannot draw out, which remainder, though being calcined for the drawing of the salt, which is mingled with the extract, yet that is not of much moment, for fire destroyeth the virtue of herbs, so that fixed salts, as crystallised, do perform nothing in medicine, those excepted which without combustion are made out of the juice of herbs, of which in the third part of our Furnaces Philosophical. But none dares extract the most strong or efficacious sort of herbs for medicine, because they in preparation are not corrected or amended.

But by this means the most strong Herbs, which without this Preparation are poisons, are matured and purified by the liquor ALCAHEST, so that they may safely be taken against most grievious Diseases. For God did not create these herbs in vain, as some think, which he purposely created that his wonderful works might appear, and that it is possible to take away the Curse from them by a man, being freed from the malediction by the regeneration through Christ. See OPIUM, Mandrake, Henbane, Hemlock, and other stupifying things, how deadly they are, being cautiously used; which corrected by this Menstrue, become most

safe and excellent medicines. How dangerous is spurge, seamony, hellbore, gambugium, and other strong purges (being administered unwarily) no man is ignorant: all which are by this way corrected, and changed into most wholesome medicaments. Who, I pray, dares eat Wolfsbane, and poisionous Toad-stools, and other venomous vegetables? Which are all so corrected by the liquor ALCAHEST, as that not only they are not poisonous, but are also turned into most safe and wholesome medicines of many diseases, NOX VOMICA, Levant-berries, and other things that disturb the Brain, are by this means made wholesome; also poisionous Animals, as Spiders, Toads, Serpents, Vipers, & etc. are by it corrected, as that not only they are not poisionous, but do resist and expel poison.

N. B. Consider the Spiders signed with the cross, who change their skin every month, and renew themselves, which the serpents and halicon do but once a year. How great the virtue of worms, earthy and crude, & etc. is in resolving tartarous humours, and the French Disease, many know; What then will they do, being corrected with this Menstrue? The CAUTHARIDES and MILLIPEDES are also corrected, that they may more safely be used in provoking Urine. And if that most venomous Basilisk, of which there are so many fables, whose sight only kills men (which according to the letter is false) could be had, he might be changed into medicine by the liquor ALCAHEST; as that mineral Basilisk, Gun-powder may be, which in a moment kills innumerable men; also Arsenick, Orpiment, Kobalt, and the like; so that they be deprived of their malignity, and be reduced into very excellent medicines. In brief, its excellent virtues

which it manifests in correcting of venomous simples cannot be sufficiently described. Wherefore it's worth our pains to search it with all our power, that we may prepare admirable medicines, that the sick may not for the future be so vexed with those tedious and bitter cups. Truly I cannot enough admire its great virtues, which have been hid so long. It is not a corrosive thing, and yet dissolves every thing, but some things sooner than others. It changeth and amendeth their natural virtues; wherefore it may be the comfort of Spagyrists, having a long time sought for rare medicines, viz. being that by which vegetables are separated and corrected, and also animals and minerals. Wherefore all conscientious Physicans may have commended to them the Preparation of this universal Menstrue, by the help whereof to prepare their medicines; of which the original and preparation is vile, but its virtues most efficacious, the finding out and uses abstruse. Wherefore it is not obtained, but from God, FROM WHOM PROCEEDS EVERY GOOD GIFT. Do not think then that gluttony and drunkenness, idleness, pride, and lying, the contempt of thy neighbour, malice, avarice, with an impious life, to be the means by which it is to be obtained, for it is only THE GIFT OF THE MERCIFUL GOD, viz. this Menstrue, the gate and key of which is only Divine mercy. But that thou maist know what is to be determined concerning medicines prepared out of poisionous simples, I will in brief expound that by example; for all vegetables, animals, and minerals, called poisons, making war with humane nature being intrinsically used, and therefore not undeservedly shunned of all, are like some powerful unvanquishable enemy, with all his power seeking the oppression and

destruction of his contrary, who being checked by a mediator of no less strength, and reconciled with his contrary, does no more (being unable before the reconcilation to resist his powerful enemies) fear the contrariety of his enemy, which now is made his friend, bringing aid for the extirpating and vanquishing of all such like (otherwise) invincible enemies. Even so it is with venomous vegetables, animals and minerals, destructive to humane nature: which by the liquor ALKAHEST (a checker, and reconciler) are so corrected and reduced, that they hurt not, being deprived of their malignity and made friends with men: whereby they are not longer poisionous enemies, but very safe and wholesome remedies, agreeing to humane nature, overcoming and expelling other the like enemies otherwise poisonous and invincible, for by how much the more enemy before reconciliation it was, by so much the more help is brought by it, the reconciliation being made. There is not the like found in nature, which can so suddenly correct Poisons, and reduce them into their first matter, and bring them into very wholesome essences. Let religious Physicans then that can, get this. And so I end this declaration (not without cause set down) which will move those hearts which are not as yet hardened. This certainty is a true Philosophical correction, with which that which is malign is turned into a wholsome substance. What profits that correction, I pray, which is made by the admixtion of other things, as in the mixture of Catharticks and Cordials? Truly nothing, neither can the Cordials do any thing but debilitate the Catharticks: for nature is not at once able to expel a purging poison, and attract a thing consortative and corroborative: For a Purge being given, forthwith that shews its strength in the body, whose malignity nature resisting,

desireth to expel it, before that it can attract the consortative; wherefore that friend is expelled, together with the disease. The same happens in the mixture of sugar, honey, and other sweet things with bitter, sharp and tart, & etc. whose unpleasantness is not corrected by sweet things, but only dulled, thereby acquiring another smell and taste, without any other essential alteration. Which correction is like to that which is made in Taverns, amending the air with sweet fumes, which before was infected with the spittings, spewings, and stinks of rustick drunkards, which is to rusticks an excellent correction, attracting the ill as well as the good aromatick odour, being by drunkenness depraved of their judgement, but not so to sober men enjoying the use of Understanding, to whom that seems a rustick correction. In this manner (not to be commended) are at this day simples corrected. But a true and Philosophical correction is done by it self, without the addition of other things, by benefit of the fire only, as well actual as potentially moist, by ripening, mending, and separating the malignity; which is done by the liquor ALKAHEST, as it is called by PARACELSUS and HELMONT.

But whether this my liquor be the same ALKAHEST of PARACELSUS and HELMONT, it matters not if it perform the same things.

Fire, and a fiery virtue may do much, but not by burning and destroying, but by maturation and nutrition; and feeding and moistening. Of which moist Fire, see ARTEPIUS, BERNHARDUS, BASILIUS, PARACELSUS, & etc. for maturation is not done with cold things, but hot, promoting germination. And what ever Nature hath left imperfect in the vegetable, mineral, and animal kingdom, viz. accidently; that may be amended by

Art with the liquor ALKAHEST, which is the best way of correction, until by benefit of art, and the help of nature, some better thing be found out, & etc.

And these are the virtues of that wonderful liquor ALKAHEST, which is made use of in the preparation of medicines: And, because it is said before that it shews its virtues on metallicks also, I could not conceal them from the studious. But all its virtues shall not here be related, for it is endued with so many, that no mortal is able to number them. As for me, although by divine favour and the instruction of that excellent man PARACELSUS (excellently in a certain place, but observed but by few; describing it, speaking of it briefly, but very plainly and clearly naming it) I did obtain the knowledge thereof, which afterward daily I did more and more encrease, so that I could hardly believe that any ever had spent so much money and pains in the searching of its virtues, for the trying of metals: yet I must needs confess, although happily I have made more tryal therein than any other; that many of its virtues are as yet unknown to me. Seeing then that its virtues and strength cannot all be tryed by any man, by reason of his short life, although searching an hundred years; and that by our merciful Father only to a few, and but part of the knowledge of its wonderful and incredible force, is granted, to the glory of His Divine Name, in favour of the poor sick, which none, how learned soever, with his ambitious learning and craft could ever obtain. Therefore some excellent gifts being given from the Father of Lights, the Omnipotent GOD, to some of His Children, GRATIS, and out of meer mercy, viz. for some causes, I easily believe, that it

is not His Will that it shall long be kept close, but be revealed to the world, to the glory of His Name, and the benefit of our poor neighbour. Wherefore I could not longer hold my peace, hiding my talent which I received GRATIS, though small, but communicate it GRATIS to my neighbour; but so that the Divine mystery may not be gotten by those ungodly abusers, but only by the worthy through divine favour. I affirm therefore expressly, that in whole nature such a thing may not be found; for not only by its help all animals, vegetables, and minerals may be reduced into very excellent and safe medicines, but also be brought into the first matter; minerals and metals may be purified, washed and fixed, and so changed into better bodies. That which is worthy admiration, that in so vile and mean a subject should lye hid so great virtues, by which alone without any other art, may be acquired riches and honours, and lost health. Than which thing, what doth mortal man more need in his misery, besides the Divine Word, the comfort of the soul, than for neccessary sustentation of life, soundness of body, and honest report before God and men? All these things may be had with this subject, so that one need not to involve himself into any other troublesome art or vanity of this world, having this secret, whereby all necessaries may in abundance be procured: of which gift that this unclean world is unworthy, I do affirm sincerely, because it swells with ambition and avarice; for which we are not able to give God the Donor sufficient thanks in our whole life, wherefore I would have all what state or order soever earnestly admonished, that they do not use this gift from Heaven to the destruction of their souls, but in thankfulness to Him that gave it, and every way to the good of their Christian Neighbour.

Now follow the Virtues which it manifests in Metallicks.

First, it (viz.) the Philosophical Menstrue, doth radically dissolve all minerals and metals without noise, and reduces them into very safe and wholsome medicines. Out of gold it makes potable gold; out of silver, potable silver, and so consequently of other potable metals; so that it may well be called THE UNIVERSAL MERCURY.

Secondly, This secret Menstrue purgeth, washeth, and transmuteth minerals and metals to a more noble species; wherefore it may well be called SAPO SAPIENTUM, by which the saying of the Philosophers is confirmed; IGNIS ET AZOTH ABLUUNT LATONEM.

Thirdly, by it all minerals and metals are matured and fixed, so as that afterward the immature gold or silver incorporated with them, may by cupellation be drawn out with gain, wherefore 'tis deservedly compared to HERMES seal.

Fourthly, it makes metals volatile, and radically conjoins them that they abide together, and one act on the other in the fire; it destroys and revives, kills and renews ; wherefore it is compared to the Phenix.

Fiftly, It separates metals without any loss, and that speedily; but after another manner than corrosives, so that each of them may be had by themselves. For Example: Being about to separate gold, silver, copper, iron, tin, lead mixt; one, or two, three, or four of them mixt, that they may appear each by themselves, without the loss of any, you need not cupellate the mixture with lead, which way only gold and silver

are gotten out, with the loss of all the rest: but by this way they are all preserved, where by turns, one after another, they are extracted wonderfully and swiftly, in half an hours time, by this sharp VINEGAR OF THE PHILOSOPHERS, & etc.

Sixtly, By it metals may siddenly be mortified and reduced into transparent glass, irreducible, and like AMAUSA, but reserving the propriety and nature of every metal: which in the reduction of Gold do give perfect silver; whereby it is confirmed that saying of the Philosophers, THE CORRUPTION OF ONE THING IS THE GENERATION OF ANOTHER; and that of PARACELSUS, EX ALIQUO FIAT NIHILUM, & EX NIHILO ALIQUID. But this incombustible water, or permanent water, shews the truth of the Philosophers writings, generally mentioned it. In it the solution, putrefaction, distillation, sublimation, circulation, ascension, descension, cohobation, inceration, calcination, coagulation, fixation and fermentation, & etc. in their work to be done at one time and one way: In which only operation all the colours appear of which the Philosophers make mention: as the head of the crow, virgins milk, dragons blood, peacocks tail, green and red lion, & etc. There is also by it demonstrated the truth (by the liquor ALKAHEST) of that Hermetical saying, THAT WHICH IS ABOVE, IS AS THAT WHICH IS BENEATH, & etc. and many other things are performed by its help, as making that secret Sendivogian CHALYBS; also that long sought for oil of Talc.

So far (courteous Reader) hath come my Experience; neither doubt I, but by it to obtain that universal SALAMANDER which lives in the fire.

These things which I write are true, and no fallacies. And though

this secret be incredible to the ignorant, for the wonderful virtues it showeth in the preparation of medicines, I would willingly publish it to the world for publick good, but on consideration I held it not meet to communicate it for certain causes. But only lest the knowledge of it should perish, and that the true (and almost extinct) medicine for the curing of diseases vulgarly incureable, might flourish, I have revealed this secret MENSTRUUM to two friends, viz. its preparation and use. (See the preparation in Mirac. Mundi, and Apology against Farner).

But do thou not think, because I write of these high things, that I do intend to make common the Secret to all in general; not so, but I endeavour to confirm him that seeketh, and give him occasion to search this secret deeper; which being found, he shall not only find the truth of my words, but he shall daily by exercise obtain far greater things than these.

And because I have never aspired after vain riches and honours, nor never desire them: I might well be perswaded to leave to others, as yet not hating the wicked World, my troublesome labours, because in this my painful age such tedious labours are very burdensome; besides Philosophy hath pointed me another way, so that what I am able I have determined to abstain from these vanities, and to seek a perpetual good, the life of rest; but my counsel shall not be wanting to those that seek it: for besides moved with the former reasons, also seeing innumerable many vain Philosophers, as well learning as unlearned, uncessantly working, and losing their time and labour, and at last despairing, are perswaded that there is no truth in the Philosophers writings, but to be all filled

with lyes and deceits; whence royal Chymistry is disgraced.

But this MENSTRUUM sufficeth to defend the writings of the Philosophers, without the metallick transmutations; so that I verily believe the time to be near, when the Omnipotent GOD, before He judge the World by fire, will shew His omnipotency to the Nations, by the revealation of the wonderful and incredible things of nature; of which, transmutation of metals is not the least, which in the third part of this Mineral Work I shall deliver to the last age, (being acceptable to God) to the profit of my neighbour, and for demonstration sake. Wherefore I now pass over such things, with a firm hope, that this faithful Admonition shall be received as an undoubted and infallible truth.

How the aforesaid REGULUS of the flowers and dross of Antimony, is to be used in the bettering of course Metals, shall be shewn, that ART may not be abused.

The Antimonial REGULUS, a radical metallick humour, may help to perform wonderful things, for being reduced to a water without a corrosive, it resolveth all metals, cleanseth, washes, and purifieth them, and turns them into better species, so that particularly not a small gain may be from thence received. But how it may be reduced into water, and how by its help metals may be resolved, volatilized, and again fixed, hath been demonstrated by ARTEPHIUS, BASILIUS and PARACELSUS; wherefore we need not here repeat their writings, but refer the Reader to their works.

But not only the REGULUS, but also all Antimony may many ways be used in the separation of metals, viz. for the extraction of hidden Gold, which cannot be done without Antimony; as shall appear by the following example. When you find a marcasite or other ironish fossile, that will not yield to the tryal of lead, add to it three parts of Antimony, and being well mixt, melt them in a covered crucible, and being melted, pour it into a cone; and when all is cold, separate the REGULUS, which purge again by fire as before, and thou shalt find gold contained in the aforesaid fossile: And if it be indued with more plenty of gold, for it is not all drawn out at one time, viz. with the first REGULUS, another REGULUS is to be melted, by adding more iron and salt-petre, which is also of a nature near to SOL. And if these marcasit fossiles are not ferreous, you must in the first fusion, add iron and nitre to them, or else they yield no REGULUS. By the adding more scales of iron, more REGULUS is made, and for the same use as that is, of which above in the fusion and separation of extracted gold; weights also may be made out of the dross. And thus are LAPIS CALAMINARIS, marcasit, kobalt, zink, talc, and other fossiles separated, viz. containing gold.

But all gold containing iron (as that of Stiria, Carinthia, the Granacia, and of Transylvania, & etc.) may this way be easily separated with profit, by the help of iron. And if the iron have no gold, yet if the Antimony have it, it may thence be separated by fusion with iron, viz. if it be brought to a REGULUS. The rest of the Antimony may again be fused with new iron and new glass of more weight than it, but less than this, and be reduced into a REGULUS fit for the following uses.

Out of the dross let weights (that nothing may be lost) be made, that thou maist have the more gain; as may appear from the following example.

When you have the Antimony, a hundred of which contains two duckats, if you will separate the gold; take a hundred (weight) divided into three or four parts, fuse it according to art, adding a little iron and salt of ashes, and reduce them into small REGULUS'S, weighing a pound or two. Then melt the dross with half the weights of the iron in a large and strong crucible, and thou shalt have more REGULUS,S about fifty pound or more, dross 40 lib. which make weights of, or else guns, & etc. the rest, about eight or nine pounds, will vanish into smoak. And so thou hast reduced the gold contained in a hundred weight, into one or two pounds, which thou maist sublime by fire into flowers (leaving the gold in the fire) for its uses, but those 50 or 60 pounds of the REGULUS'S prepared by adding much iron, they having little or no gold, you may mingle with tin for its beauty, hardness and sounding, to make divers sorts of household stuff, as platters, dishes, & etc. for tin mixt with the REGULUS looks like silver for whiteness and hardness, and sounds like it, nor is it so easily dulled as unmixt.

Now let us weigh what gain may come from the separation of the meanest Antimony. Put case that a hundred weight of Antimony be sold for three Royals (for so for the most part the Polonian is sold, than which, although that of HUNGARIA and TRANSILVANIA be dearer, yet this hath more gold) to which add 60 pound of iron, which is sold for half a royal, and the charge of coals and crucibles requisite be half a royal more: the total of the expences is four royals, for which take two duckats

in gold, sixty pound of REGULUS, eighty pound of dross, and one or two pound of flowers. Those 60 lib. of REGULUS may be sold at the price of tin, whereof a pound is sold for a quarter of a royal, and then their whole price is fifteen royals. Then the eighty pound of refuse made into weights, may be sold at forty shillings, or at least twenty four shillings, or half a royal; and all things being considered and reckoned, as they ought, there may remain the value of sixteen royals.

And though the Antimony should yield but one duckat, and a pound of REGULUS should be sold at the eighth part of a royal, yet the remainder would be above six royals: And in a day there may easily be two hundred weight separated by two men. And then suppose it should contain no gold (as some Antimony doth not) yet may four or five royals be gotten daily.

But when you have Antimony, one hundred whereof contains three, four, or five duckats, and iron requisite to the separation containing one or two duckats, then there is so much more gained. Then let him that undertakes this business seek for the best Antimony and iron, and he may well gain in a day twenty, thirty, and sometimes sixty royals.

N. B. And if you should have so much REGULUS that you could not mix all of it with tin, for want thereof, then it may be sold in parcels, so that one lb. may go at a fourth part of a royal; by which means the daily gain may not be deminished, but may be rather encreased; as may be seen by what follows. The REGULUS of Antimony is the masculine species of Lead; whose first being is gold impure and immature: but the first being of common Lead is impure and immature Silver; as experience

witnesses; for Antimony being purged and fixt, yields gold, but the common lead only silver. And because Antimony, which is better than common lead, is called the PHILOSOPHERS LEAD, or their SECRET LEAD; of so many named, but known of few; not that the thing is unknown, or of an unknown original, but by reason of its hidden properties; therefore I say that its virtues are not all to be known by any mortal, though he should have a hundred years to search into wonderful nature, for it is unsearchable, and the creator of all wonders, let him injoin himself silence, neither let him glory in the knowledge of it, who hath not made tryal of it; for in it, through it, and by it, Nature and Art do strive for perfection. Of which more elsewhere.

Now follows the Use.

Having mentioned ANTIMONIAL REGULUS, which is Lead and better than the common. It must also purify impure metals, wash them, separate the occult Gold and Silver in them; that which the common Lead can do, to which, if those be added, it attracteth the more impure part in the Cupel, which it convereth into dross, and draweth down with it into the porous ashes, leaving the purer Gold and Silver in the Cupel: but from some Tin and Copper not yielding to the Lead, nor willing to be washed by it, it cannot extract their Gold and Silver, neither hath any one written the way of separation of it. LAZERUS ERKER indeed hath described (and others also) the way of separating Silver from Tin and Iron, which is not to be disesteemed if it be accidently mixed with Silver,

which is separable that way, but not so, being generated in, and radically mixt with them, requiring other Lead, willingly embracing Tin and Iron, which nothing but REGULUS can perform.

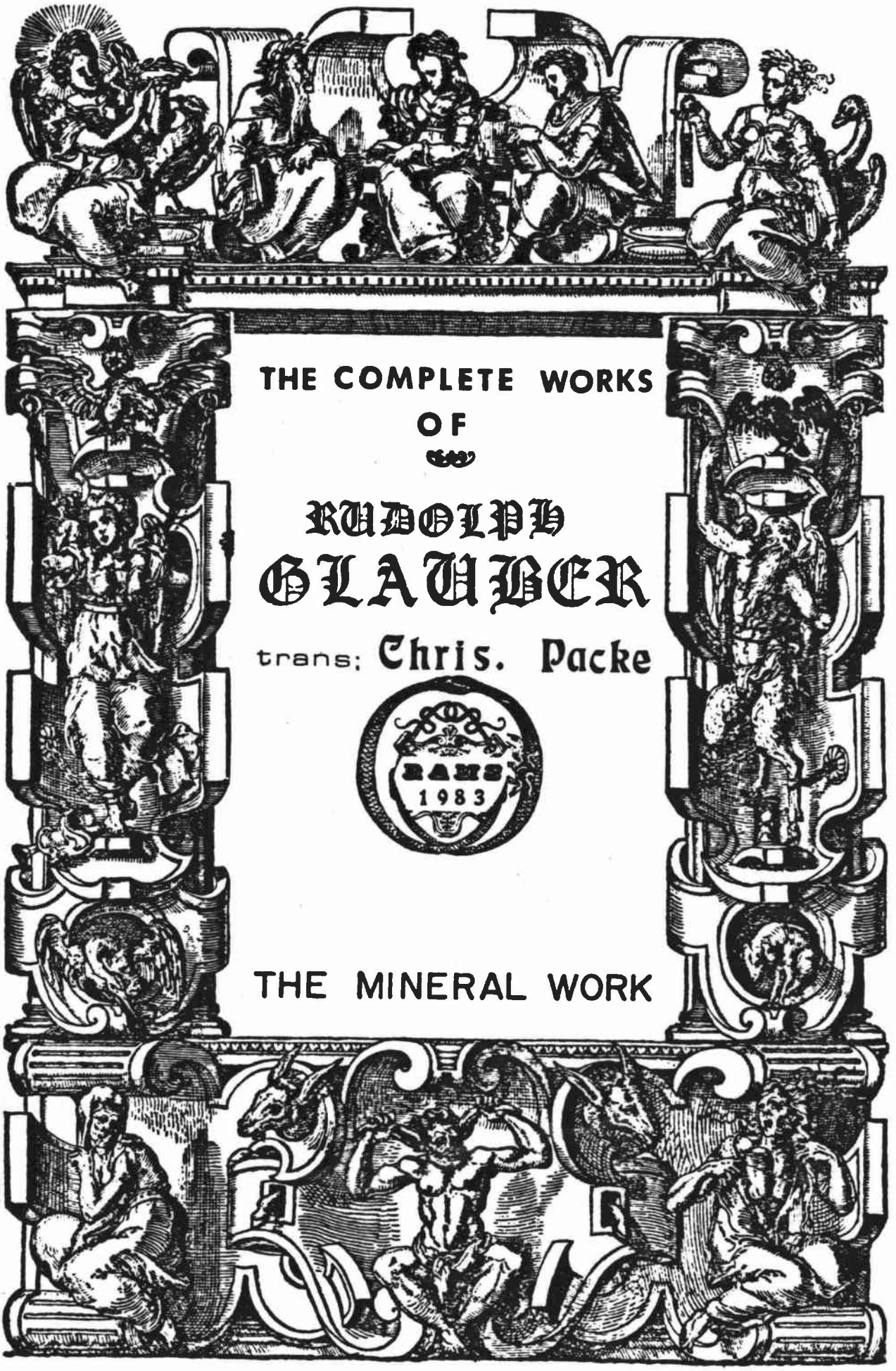
But seeing Tin and Iron do for the most part, contain much Gold (but chiefly Tin) viz. inseparable by the common way, it will be worth our pains to seek another Lead and way of separation; as it is apparent to Refiners, proving Tin and Iron by the common way on a test; whilst Tin and Iron melted in the Lead, do forthwith shew their stubbornness by innate properties and forsake it, viz. as a contrary rising to the top like dross or ashes, without any separation, Gold and Silver being excepted, if accidently mixt together, which are left with the Lead; but not so being hid in their middle or centre. But that the truth hereof may appear, I will demonstrate it by example: Place on a test under a tyle 16 parts of Lead, and one of Tin, after the manner of proofs, give a fusing fire for to separate the dross; and all the Tin almost flying away, will at the bottom be burnt, and separated like ashes, being sublimated on the top of the Lead; not deprived of its Gold and Silver incorporated together, which afterward I shall demonstrate, when all the Tin is sublimated from the Lead, and calcined, and the test taken from under the tyle, and the rest of the Lead poured off, and you shall find after cupellation no more Silver than the sixteen parts of Lead did contain before, if they had been cupelled without Tin; sometimes less, some part being taken away by the Tin in the examination: the same is done with Iron, although thou shouldst add Copper with glass of Lead, to retain the Tin and Iron, thereby to separate their Gold and

Silver, you would effect nothing: for although some more Silver may hereby be extracted, yet that would not come from the Tin or Iron, but from the Copper: it may therefore be extracted another way, of which, hereafter.

In the mean while I will prove clearly, that the separation of tin and iron by common lead, thereby to get their gold and silver, is of no value, which being left in them, are turned into ashes and dross.

Take any tin, and reduce it into ashes by lead, or agitation, on a smooth earthen vessel (tryed before, by the common way, for distinction sake, which calcine well, that the corporeal tin powdered, may be calcined, or being melted, may be separated from the ashes. Then take of these ashes one part, and of the following flux, or of that a little after six parts or more; being mixt, fuse them in a strong crucible with a strong fire, until the Flux have Consumed or drunk up all the calx of the Tin, and of them both shall be made one, viz. yellow or red Glass, which may be tryed with a crooked wire put in: which if it seem not clear, the crucible must be covered again, and a greater Fire be given, until the Fire be perfect; which labour in one half hour is finished: which done, pour it into a brass morter, afterward to be covered, until it be cold, that it leap not out and be lost.

Afterward powder it, which with calx of Tin, mix the equil weight of filings of Iron; being mixt, put them into a strong Crucible (because the Flux is very penetrative) covered, and give a strong Fire for fusion half an hour: which done, pour it out, for the Tin hath made separation, and reduced some part of the Lead out of the Flux, sinking to the bottom



THE COMPLETE WORKS
OF

RUDOLPH GLAUBER

trans: Chris. Packe

RAMS
1983

THE MINERAL WORK

to be separated when it is cold, to be reduced into dross on a test, and then to be cupelled, and you shall find grain Gold drawn from Tin without Silver. And if before you weigh the calx of Tin by the lesser Hundred weight, and after that the grains of Gold, you may easily conjecture how much Gold is contained in the whole hundred weight of Tin ashes, viz. at the least, 3, 4, 5, or 6, LOTONES or HALF OUNCES, if thou work aright.

See then the Fault is not to be imputed to the metals, but us, being ignorant of the separation of the Gold and Silver.

You should not perswade your self by this means to get much wealth out of Tin; for I have not written this for that end, but only to demonstrate the possibility. And if thou think that Gold will come out of Iron by the fluxing powder, mingle then filings of Iron with the Flux, before thou put in the calx of Tin, and thou shalt find in so doing, that Gold doth come neither from the Flux or Iron, but out of Tin; then being hereby assured, that 'tis the Tin which contains Gold, thou mayst consider, how most conveniently that may be extracted, viz. with other Lead, and another way, as shall be hereafter taught. Neither think that Tin contains no more Gold than you have heard; for more there is if you can wisely extract it: neither do I deny, that more Gold may be extracted out of the Tin, but more care than this is to be given, if you desire more plenty. But Gold may thence be extracted, not only by Flux, but diverse other ways, in diverse weights; for what is written, is only for demonstration of the possibility, that the Gold contained in the imperfect metals, may be extracted by a secret separation.

The Fluxing Powder requisite to this Work.

Rx. one part of very pure and white Sand, or Flints, having no Gold fusible; to which, add three parts of Litharge of Lead; being mixt, fuse in a very strong Fire, that thereof a transparent Glass may be made of it, which pour out, that it may be cold, and reduce it to powder, which use in the aforesaid manner. But you may ask, why Sand and Flints are mingled, seeing they are not of a metallick nature: to which I say, the calx of Tin, cannot, as also other Fossiles be Examined by Lead alone, for the following Reasons, viz. because in the Calcination of Tin, its metallick nature is hidden, but the impure and earthy parts are manifest, wherefore it hath no longer affinity with Lead and other metals; unless the hidden parts of the lead be manifest, and also other metals and the manifest be hidden, for then they easily embrace one the other, and are again mingled well, and not altered.

What belongs to the alteration of other metals doth not belong hither; for to this place only pertain Lead and Tin, the alteration of which is demonstrated by this tryal; whereby it appears to be thus.

Lead reduced into ashes, by it self, or into Litharge, and deprived of its metallick form, cannot so in this work be used without the flints or sand, for the following reason. The lead and glass thereof made by it self is very fusible and volatile; but the calx of tin is very difficultly fused: which two calxes, although they should be mingled to fuse in a crucible, yet would not be mingled, nor being fused, embrace one the other, by reason of the difference of their fusibility; because

the calx of lead alone being fused by a small fire, will perforate and penetrate the crucible, the calx of Tin being left in the crucible; wherefore you must add sand or flints to the lead, viz. to hinder its fusibility, that it may endure the same degree of heat with those that are difficulty fused, and further their flux. For like things do mutually affect and embrace each other; as water doth water, oil oil, and glass glass; and metals other metals; but water is not mingled with oil; neither are glasses mingled with metals, but metals with metals, and glass with glass, whether it be made of metals or out of sand. Wherefore they greatly err who mingle the calx of metals difficultly miscible, or other hard things with lead to prove or examin, not considering that corporeal lead hath no affinity with them: who remaining in their errour, and not weighing the thing further, consequently can find nothing of any moment.

But when the calx of metals united with lead by a MEDIUM, as flints or sand, are brought together into transparent glass; then the lead being precipitated and separated from the mixture, it cannot be, but that the gold and silver contained in them must be carried away with it. This is a true and philosophical tryal, and not to be contemned, for many things may be by it performed.

N. B. But this is not to be passed by, that in the mutual mixture and fusion of the glass of lead and the calx of tin, and other hard metals, one may easily err, viz. in the precipitation (which is done with the mixture of iron) of the gold with the lead into REGULUS, by either the excess or defect, so that nothing may be gotten, which is

committed in precipitation. For if the mixture stand long in the fire not fused, it is burnt, so that it cannot well be separated, and if it stand too long fused in the fire, the gold is attracted by the dross, by reason of the mixture of the iron, having great affinity with the gold, so that by this means nothing can be gotten: wherefore the Work is to be done warily, and with wisdom and industry. You must have a care you burn not the REGULUS of lead with too much fire, when you reduce it into dross; for fear of attracting the gold from the iron, and turning it into dross. And although this may by Art be prevented, yet we must not presently create every one MASTER OF ARTS, it requiring diligence and daily exercise, besides the reading of Books. But this Secret shall other where be communicated.

This admonition then I give, that thou do not impute thy error (if thou dost err) to me, but to thy self, for what I have written is true: and do not thence infer an impossibility of attracting gold by iron, out of lead, and of turning it into dross, which is no wonder to me, though it may so seem to thee. Which he who hath the knowledge of metals will himself easily perceive. But that thou maist be certain, try the certainty after the following manner: Take two hundred lib. of lead, of the lesser weight of the Refiners, put it on a test under a tyle; add eight or ten LOTONS of pure gold, of tin two or three; six or eight of iron, viz. of the lesser weight: make them flow together an hour to make dross; as Examiners use to do; then pour it out, and separate the lead from the dross, viz. to cupel that which is separated, then weigh the grains of gold left, and thou shalt find half of it consumed

by the dross. If this happen to corporeal gold and fixt, How will it be with that which is newly extracted out of an imperfect metal? Therefore you must diligently search out the natures of metals, and then such cases will not seem incredible.

From hence then, and other Examples mentioned it appears, that that separation which is done by tests and cupels, is not true and legitimate; and consequently, that another profitable separation of metals is to be sought; because by this the greatest part of gold and silver burns into dross, witness Experience, for which cause the former example was alleadged; whither belongs the proof, viz. how much gold the dross hath attracted, which is done as followeth: Rx. the remaining black dross, to which add a double weight of salt of tartar, put it in a crucible filled but to the half (for fear of boiling out) and covered, that nothing fall in, under a tile or among live coals, one or two hours space to digest; and a new REGULUS of lead shall be precipitated, which separated from the dross, you may cupel, and you shall find new grains of gold attracted by the iron in the dross, and now separated by the salt of tartar, overcoming the force of the iron. And so you have heard from two examples, how in the coction of the separation gold may be drawn out of lead by tin and iron, and that therefore there is no need, that gold be separated by the ANTIMONIAL REGULUS out of the aforesaid metals, and not by lead, if you would extract the true substance with gain.

N. B. Gold may likewise be separated out of the glass of lead (being first dissolved with the ashes of tin) with coal dust, adding it in the

flux and stirring it with an iron wire; and also with common sulphur, by burning it on it: but the aforesaid way with iron, is to be preferred before those two which spoil the gold, & etc. wherefore the remaining dross is to be gathered, which by some abstracting furnace by other means may be tryed, for to recover the spoiled or lost gold and silver.

And all these are alleadged to demonstrate that the gold in tin and iron is to be separated by the ANTIMONIAL REGULUS, and not by Lead. But how this separation may be perfected, you shall hear in the third part, where we will treat of lead, explained by PARACELSUS, in his book called COELUM PHILOSOPHORUM, and other artificial Chymical labours: wherefore here we omit it, being superfluous to handle one thing in divers places. In the mean while exercise thy self in lesser things, that thou maist be more fit for greater when they shall be set forth. But wonder not at my liberality in publishing so great secrets, for I have reasons for it. Such a burden is too much for me alone, neither doth it profit the Covetous to sell his goods to them which keep not their words, nor pay the money, after they have obtained their art, which hath happened to me. Wherefore I have determined to communicate some secrets to all the world indifferently, that the poor may receive some profit by them; knowing that though I write plainly, yet that all will not at the first view obtain their desires. For some are so dull, that they cannot imitate a work though often seen. For some have often visited me, to see my new manner of distilling, which though it was sufficiently demonstrated to the eye, yet they could not imitate it, till with often perusals at length they have found the right path.

Others have left it as too hard a work, when it would not presently succeed, which if it happened to those who had an ocular demonstration, how much more difficult will it be and hard to them who have nothing but what they have heard or read. Wherefore I am certain, that though I should publish every one of my secrets, yet could they not be performed by all men, my coals and materials being less sufficing for my necessity. Wherefore I fear not to publish, the next opportunity offered, divers profitable and excellent secrets, viz. in favour of all and every one.

As for the spirit of salt necessary to this work, you may find it in the first part of my Philosophical Furnaces corrected and amended; but the way of separation in the fourth part.

And so I finish this work, being published in favour of those who by war (though honest men) are reduced to poverty. But what things are deficient in this little tract shall (God willing) be delivered in the next (which shall follow in a short time) largely and clearly without fraud.

FINIS.

THE
SECOND PART
OF THE
MINERAL WORK.

Of the Birth and Original of Metals and Minerals, viz. How they are produced by the Stars, and take to themselves a body out of the Water and Earth, and are found in a sundry shape. Written and brought to light for the sake of the Diligent Searchers of Nature.

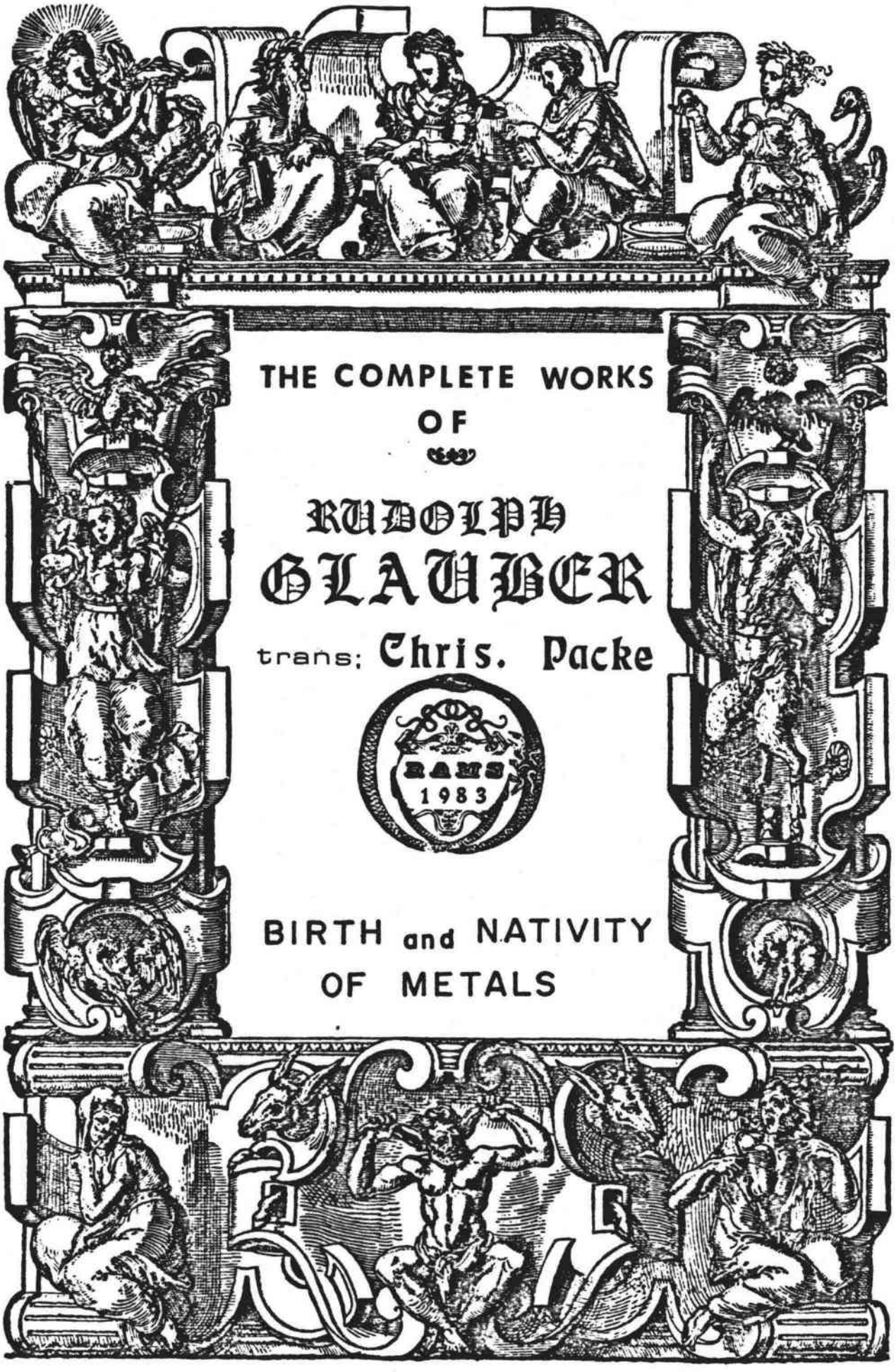
A Preface to the Reader.

Courteous Reader,

Whereas in a former little Book, lately by me published, I mentioned this little Tract of the Generation of Metals, and through want of time, could not hitherto make it publick, although earnestly desired by men of the meanest and highest condition: I have now determined to spare so much time from my other Imployments, as to do this Work for the publick good, no ways doubting, but that (although this my opinion of the Generation of Metals, doth not agree with all the PHILOSOPHERS) yet will it get credit from, and the assent of not a few quick-sighted men.

That which I here declare, I do not exhibit it with flattering words, or many circumstances, or the testimonies of other Writings, but with a naked and genuine simplicity; for which very cause I would not make this little Tract too prolix, but have unfolded my mind with the most

Compendious style that I could. But let none think that I endeavour to weaken and nullifie the Opinions of other men concerning the Generation of Metals, and obtrude mine in the World, no, not in the least: I leave to every man his free will, and the Liberty of viewing others, who have written Monuments of this thing, and of comparing of them with my writings, that he may evidently perceive which of the two Corresponds most with Nature and Truth: I aim not at any Honour hereby, as if I were wiser than the common sort: Nor do I reap any benefit by making this little Book, but 'tis done only for this end and purpose, That (because I have formerly written of Metalline things, and have also made mention of this little Tract of the Birth and Nativity of them) I may give light unto my Writings, and render them more easie to be understood; for I should most bitterly suffer, if but one only should be lead into error by my Writings, but I trust that the light is springing up unto many, by the guidance whereof they will more cautiously handle than hitherto they have done. Let the Benign and Merciful God, our Father of all things, of whose Wonders the Heaven and Earth are full, give unto His poor needy Children that which may tend to the Glory of His most holy Name, and to our health.



THE COMPLETE WORKS
OF

RUDOLPH GLAUBER

trans: Chris. Packe

RAMS
1983

BIRTH and NATIVITY OF METALS

Of The

BIRTH AND NATIVITY

OF

METALS .

There have always been many, and various Opinions concerning the Original of Metals and Minerals, to wit, of what matter they are first of all generated in the Bowels of the Earth; and how come to such a fixity, insomuch, that a young Beginner in this hard Science, hath been in suspence; which of them he should assent unto, and by what Philosophy he should direct his course.

And whereas, throughout the whole Universe in so many Nations, there are so many men, both of high and low degree, as well Learned as unlearned, who busily seek at this day, to get their Felicity from the Metals; and whereas, without the true Knowledge of them, nothing at all of profit can be had (for by what means I pray can any one convert any imperfect Metal into a better, if he be ignorant of what Parts it is composed; into what Parts it is to be resolved before that it can obtain a more Noble Form) and that the Knowledge of their Generation is worthily necessary for their Melioration; we will in a few words clearly evidence. What is to be considered as to their Nativity. Although the whole Company of Philosophers do almost unanimously testify, (but yet in succinct, obscure, and aenigmatical Terms) That Metals receive their Generation from above, by the force of the Stars, and are produced in the bowels of the Earth; yet some there are, who contend very ignorantly, and affirm,

that Metals have not any seed at all, as other Animal, and Vegetable things have; and that (upon this account they have no propogating faculty, but were produced such in the belly of the Earth, by GOD in the first Creation of things. But this Deceit is too gross, and palpable, and may be met withal most easily, by daily experience, declaring the contrary. For when being found in the Earth, they are by the Miners brought to light, we abundantly, and ocularly perceive, that even now they daily grow, and will not cease from this motion, unless robbed of their Vegetable Virtue and Life, by external Accidents, which very thing convinceth the Opinion of Error. Some there are, who teach that God, when he made the World, did instil into the Matrix of the Earth, not the Metals themselves, but their Seed only for its own propagation; which, if so, then long ago, would this Seed have afforded a new harvest of it self (of which, no foot-steps are any where extant) by its own absolute Vegetation. Know therefore, that the manner of the Metallick Seed is far different from that of the vegetable and animal Seeds, which are perceptible to the sense of sight and feeling.

For the Metals are not all together created in the beginning of things, but begotten in length of time, out of the bosome of the Elements; and on them, being created by the Omnipotent GOD, is the Command Injoined, and this Power implanted, that they should give growth to all things, by their Virtue and Efficacy; for accomplishing of which thing, the one cannot in the least want the Company of the other.

For the Stars or Elements of Fire, delivers out the metalline Seed out of its own bowels; which the air carries down into the Water, that

it may adapt to it self, a palpable form or body, which the Earth (embracing it) doth cherish, nourish, and augment from form to form, until it comes to be a perfect Metal, which it (at length) brings forth into the light, as a Mother doth her mature young one; which Conception and Generation of the Metals, taking its Original at the very beginning of the World, will always continue even unto its Dissolution.

For by the efficacy of the Elements, new things are from thence generated, and contrarily, old things are destroyed; which thing is not only done in Metals, but most apparently in Vegetables and Animals: for none can deny, but that various Herbs, and little Animals are produced upon this Stage, by the alone virtue of the Elements, without planting of the Herbs, and without the Seed of the Animals, which to pursue, I could lay down many Documents, were it needful, but 'tis altogether needless, to say any thing of that, of which none are ignorant. And now, who will not believe, but that the same may be done in Metallicks. God Omnipotent hath implanted in the Stars, or Element of Fire, the vivifying prolifick and seminal virtue of all things, which power it doth not keep shut up within it self, but sends and lets it down by Divine appointment into the earths center, by mediation of the air and water; which fiery beams cease not, by reason of their implanted impulse and virtue, to go forward, until they do at last meet with a place, beyond which it is impossible for them to go, nor can they stay there any longer, but leaping back from the center unto the circumference, are dispersed throughout the whole earth, cherishing and impregnating it: which thing, unless it were done, and those sidereal virtues

should remain in the center of the earth, and never flow upwards, nothing at all would grow upon the Earth. But because heat, and whatsoever is of the fire, is endowed with this nature, to go forward as far as it can, and where it can go no farther, 'tis struck back, and leaps from the center to the Superfices; which thing is evident in a burning-glass, whereinto when the Solar beams fall, and cannot penetrate the compact and polisht metal, they are dispersedly forced backwards, and in those fiery beams, whilst (every where) they leap back, do in the porosity of the earth snatch up, as it were, a fat humidity, adheres thereto, and by mutual mixtion are coagulated into a certain palpable Essence, out of which, according to the purity or impurity of the place, a pure, or an impure metal is with length of time produced; because a metal doth not presently become ripe in the same moment of time; but the Seed of the Metal is by little and little nourished and increased in the matrix of the earth, with the heat of the central fire, until it attains its perfection.

Like as in the generation of Vegetables and Animals, it comes in use, whose seed being received into the suitable matrix, takes encrease from thence by little and little, until (if no obstacles prevent) it obtains a predestinated and appointed form, whence 'tis that according to the purity of the place the metals are also varied: For it is but one only seed out of which Metals and Minerals do proceed: but the place and other accidents are the cause of their Unlikeness, as we shall prove in the subsequent writing.

But to some men it will seem monstrous, that I say there's a place

in the middle of the Earth, the which nothing can pass through or penetrate, but is stopt; that which is heavy remains there, but the more light is carried backwards: which opinion it will be worth while to explain.

In the Creation of the World, the Elements being as yet not separated each from the other, but being a CHAOS, God instituted their separation, and ordained a place where the more ponderous part of the mass should be separated, (which is the Earth) which thing is even continually done, because every heavy thing or earth knits it self to its assigned point, as a Bee doth to his hive, from whence at length this Globe is made or born, upon which we inhabit: Presently after, that which was next in weight, the water, made its separation from the other Elements, and encompassed the Superfices of the earth, having the same center with the earth, insomuch that if the earth were not, the water it self would have chiefly or primarily encompassed the stable and founded point of Gravity of the Magnet; but because the earth exceeding the water in ponderosity, doth intercede, it worthily assumes its appointed place, and takes the waters upon its back.

Now, as the other two Elements, the lightest of them, the Fire, God likewise sent to its proper aboad, a place most remotely distant from the inferiour Globe of the heavy Elements; the other light Element, the Air, being the MEDIUM between the fire and the water, God hath set it between them two, that constantly touching each the other, they might mutually circulate, cherish, and uphold each the other, until being at length dissolved, they are reduced into their own nothing, from whence they were produced.

For the Fire cannot burn without the Air, nor the Air be conserved without the Water, nor the Water be nourished without the Earth, nor the Earth (being as it were dead) bring any thing to light, except the Element of Fire doth first spiritually instill, thereinto its own seed, whence it is afterwards made corporeally and sensibility, such as is necessary for all growing things.

And now, lest what I have spoken (viz. that the Earth hath its own center unpassable by any thing, whereinto the sideral rays striking, are contracted into a streight room, and (driven back) from thence are sublimed and distilled throughout the whole Orb, from whence all kind of Metals and Minerals (by the help of the Earth and Water corporifying them) are produced may seem a fable.

Know, that this Philosophy is demonstratable by many uncontroulable reasons; which Philosophy I do not my self only embrace, but also many more have done, amongst whom the most famous SENDIVOGOUS is not the least, who writ, That in the Earths center is a vacuity, in which nothing can rest, the which thing even the reason or order of Nature seems to evidence, in whose middle point a void place is necessarily requisit, into which all the virtues of the Stars may pour out themselves, may mutually operate upon each other, and excite a marvellous heat, permitting neither delay or quietude for any thing in that place: but from thence, even the unbroken virtues of the Stars are by little and little enforced to go back unto the circumference, where joining themselves to the most pure earth, they exclude a metallick child; so that you need not wonder, because of that most intense heat that sways there, when as all the

Asterisms, the Sun, the Moon, the other Planets, with Stars innumerable, do into that place inject their powers with all their might. If you consider but the solar magnitude only, being by Astronomical Calculation 64 times the bigness of the earthly globe (omitting to speak of the other innumerable huge bodies, that jointly cast their influences into the belly of the earth) what an unspeakable furious heat thinkest thou that all these will give, which in the center of the earth muster up their virtues, and make them manifest and efficacious: Consider a little how much one pugil of the Sun-beams can do, being taken in a concave glass, or a metalline ring well polished, or any other instrument, and straightened into the center for a concave glass rightly made, having but the Diameter of a span, doth easily burn wood, or any combustible body; but if the Diameter be two spans, it melts with the Sun, Lead, Tin, Bismuthum, and other metals easily fluxible; if 4 or 5 spans, then it melteth Copper and Silver, and so mollifies Iron, that it may be wrought upon the Anvil. If now experience evinceth this thing, that a little handful of the beams collected and streightened into a point, be of so great a force as to melt even metals, and to fume away Mercury, Antimony, and Arsenick, Auripigment, Koboltum, and other volatile and immature metal of like kind; what thinkest thou would be, if the beams were congregated the compass of 10 or 20 fathoms, doubtless they would burn up all other metals, except Gold, like a flame, and elevate them into fume? And what are 10 or 20 fathoms, if compared to so many thousands of thousands which are attributed to the Sun, whose heat (passing by to speak of the other great Stars) if it were congregated into one

place, (which is so done in the earths center) what an incomprehensible burning heat, thinkst thou, would be there? Verily nothing would be fixt enough to resist the burning; and indeed there is nothing in reality that doth resist it, whence necessarily that point is vacuous wherein nought can rest or remain.

Thou wilt object, that I speak of many things, but prove a very few; for who was ever there, and beheld such a Cavity? I Answer thus, that albeit, there be no ocular Testimony of this thing, yet naturally Philosophy affords Testimony sufficient, whereby 'tis in very deed demonstrated, that such a place there is: now none denies, that the Sun and Stars by their motion do inviron the terrestrial Globe, and imprint their beams thereon, which being granted (for no sober man will contradict this) it also follows, that those hot and invisible beams do by an innate force and vigor go forwards, until they are somewhere stopped, and a further progress prohibited them; which thing is done in the middle most point of the Earth, or all the Philosophers are altogether Lyers, who unanimously believe, that the heat is carryed directly forwards, and not backwards: but behold an apparent Example of this thing: Put a Coal upon some thick brass, or iron plate, and thou shalt see that the side under the Coal will first wax hot by the penetrating heat; take off the Coal and try with thy hand, and thou shalt find it hurtful by the overmuch heat; try also the under side of the Plate, and thou shalt find it to be but gentle warm, and after a little delay, try yet once again, and thou shalt find that the heat is gone directly forward, and that the underside of the Plate is hotter than the upper part, whereupon the Coal lay.

Hence thou maist clearly perceive, that the heat never goes backwards, but is carried directly forwards; which being so, thou shalt be enforced to confess NOLENS VOLENS, that in like manner the Astral heat sticks not in the Superfices of the earth, but pierceth even to the very bottom center.

Well, but thou wilt again object, if the Sun-beams descends through the earths thickness, even to the very center, Whence is it, that the whole earth grows not hot thereby, or at least so warm as it is on the surface? For 'tis found by experience, that the digged up earth is not warm, but cold, and no heating beams are therein perceptible. Take this for an answer, That the dispersed beams of the Sun do not display their efficacy, but only in those places where they are collected and become sensible; a hint of which you may observe in the earths surface it self; where a speedier passage being not permitted, but through the hardness of the stones, and its own density, there being a stop and obstruction, the heat becomes duplicated, and manifestly augmented, insomuch, that in all very hard rocks and clifts there is sometimes created so great a heat by the continual Conflux and Condensation of the Sun-beams, that if accidently, wood or fuel be laid thereto, it burns and flames up, which never happens in a thin and porous Aire (how near soever to the Sun) it being uncapable of stopping those beams; for by how much the higher you ascend into the Aire, by so much the more intense shall you find the cold to be; insomuch that the most Touring Mountains, altho' posited in warm Countries, are always covered with Frost, Ice, and Snow, when as in the bottom of those Hills, the Ground is very warm, and brings

forth varieties of Fruit, although it be more remote from the Sun; The cause of which Cold in the Tops, and of Heat in the Bottom, only consists in the reflection of the solar Beams, which are stayed and multiplied below; which thing cannot at any rate be done in the Fire that is above.

These beams having first passed the superfices of the Earth, where they were a while joined and multiplyed, are by little and little debilitated, and return to their simplicity; whence it comes to pass, that that part of the Terrene Globe, which is furthest distant from the Centre, hath as little heat, as the Aire on high: but if it were possible to ascend higher, and nearer to the Sun, the heat would by little and little be encreased, and be found greatest at the Sun it self: In like manner may a Comparison be made about the Earths heat, which near the Surface is very faint, but nearer the center, more and more encreasing; (there being its Seat and Collection) so that the middle Earth, between the Sun (from whom the heat flow) and the Centre, where the whole being gathered together, is repercussed, may deservedly be esteemed the coldest part; of which truth, a certain demonstration is readily produceable.

For when in the hottest day of Summer, watry Clouds are elevated by the Winds, higher than ordinary, they are made pure ice by the force of a most intense Cold, which fall down in little bits of that form or shape, which they were imprinted with the Aire, to the great detriment of Vegetables; and is by us called Hail, and so cold, that we are not able long to hold it in our hands, and usually lies some days in the Suns heat ere it melts by the warm Aire, and returns into Water.

Now then if there were not a great Cold in the middle Region of the

aire; whence is it, that those Clouds are so frozen; and who knows how great the Cold is, where the Aire, in its own middle point, is most of all cold; doubtless it is so great, that no living thing is able to live therein the twinkling of an eye, but would incontinently be transmuted into a stone, even as we have frequently perceived the earthly exhalations born up on high into the middle Region of the Aire, to have been there coagulated, and compacted into the most hard stones, and so to have fallen down; and not only stones, and so to have fallen down, and not stones weighing some pounds, but also metals too, and chiefly iron of a great weight, representing the shape of many conglomerated drops, have been in that part of the Aire condensed out of dry Exhalations, and thrown down thus concreted; the which thing others have handled more at large; whence 'tis sufficiently evident, that the Sunbeams, in such places as they can freely pass through, without any impediment, give not any heat from themselves; but only where they are detained and fixt, and by how much harder the detaining matter is, by so much it causeth a better heat. Thou also seest that Wood, or any porous Body never contracts from the Sun, so great a heat, as a stone doth; nor doth a stone, so much as a metal, although all placed the one by the other, to the Suns heat; the cause of which diversity, doth alone consist in the pores, of which some bodies have more, some less; thereby granting a more speedy passage to the heat; for 'tis (as I have often said) the property of the heat, to hasten directly forwards, as long as 'tis not impeaded, and extremly unwilling to go back. A Testimony whereof, as well the Kitchen Fire, as the Solar, or Fulminous Fire affords

unto us; for if any body sitting near the Fire, hath casually in his pocket, any metal, be it a key, knife or money, the heat (easily penetrates the thin Garments) lights upon the metal, whereto it adheres and augments; and gets so much heat, that sometimes it cannot be held in the hand; but the cloathing, although nearer the Fire, is scarce gently warm; the same thing usually falls out in Thunder, whose Fire, because it flies very furiously, if it hath not room to pass the pores of solid withstanding bodies, it dissipates and dissolves them in a moment, and leaves porous bodies whole, which Lightning, often melts the sword in the scabbard, or money in the purse, the Receptacle of them being whole; It also breaks the hollow and marrowy bones of Animals, the flesh remaining whole and sound; the Cause thus, for that this fulminous heat most swiftly penetrating, is deprived of time to penetrate, and warm a metal by degrees, and will not return backwards, contrary to its own nature, and therefore subdues and conquers the weaker Element by force and power; for Fire only is the most potent of the Elements, and knows not how to yield to the other three, but they are compelled to stoop to it, with which priviledge the said Fire is from God endued, even from its very infancy.

In the same and like manner is it with the Sun's, Moon's, and other Stars heat, and occult Virtues, which by their efficacy, hasten on forwards so long, until they meet with that which they cannot penetrate, where making a stand, and heated as it were together, are compelled to go back, searching after a place to rest, and become corporeal; for the chiefest heat being in the Earths Centre, gives not any delay to

any thing, but continually drives back, what flows thither, into the porous and moist Earth, where the Beams being sublimed and hidden, may cloath themselves with a sensible Corporeity, and proceed from one degree to another, until they are well concocted into perfect Metals, no impediment intervening.

But let me not be mistaken by any one, as if it 'twere my Opinion, that in the Centre of the Earth, the fiery place is constitute, of which the Scriptures make mention; for I have nothing to say as to that place; nor desire to know ought concerning it. This place which I describe, is discovered to us by natural Philosophy, but that place the Scripture makes mention of, I leave to Theologists, by which they may terrify the wicked Multitude, that they precipitate not themselves rashly, and by Troops thereunto.

And now because the Hellish Fire is here mentioned, I cannot omit to blast the most unsound Opinions of some putatitious Doctrines thereabouts: There are in many places found Mountains, belching forth, with huge force, flames, fumes, ashes, and stones; In EUROPE, is the Hill AETNA of SCICILIA; in Island, is HOCTIS, behind NORWAY, there's also VESUVIUS, adjoining to NAPLES, and many more other places in other parts of the Earth; some part of which continually burn and fume; others at certain times and intervals; which places, many account for the fumings of Hell.

But verily this cannot be rational, because those burning Mountains have a natural Original, and Cause of Fireing, known but to very few; for in some places are found Mountains wholly Sulphure which being kindled,

either by the Central or Elemental Fire of Thunder, or any other accident cannot but burn, and when such a Mountain hath but once taken Fire, and begins to burn, who can restrain the burning; no body, because of the greatness of the Fire, and danger of what may happen, being therefore left to it self, it feeds downwards, being never destitute of matter fit for the Fire.

And now if any one understanding by the Monuments of the Ancients, that these Mountains have burned for some ages, yea, and for Thousands of Years, should wonder, whence Fuel sufficient for that Fire should be had, let him know, that this may easily be done; that a Mountain should burn without intermission, not only for the magnitude of the Terrene Globe, in which a mountainous Wax, or Bitumen, Brimstone, and such like, Combustible Things abound: But also, because of the never-interrupted Motion of the Stars, whereby they never cease replenishing the Earth with their out-flowings, and generating (besides Minerals) such Combustible matters as these, augmenting and cherishing the Fire.

But they endeavour to confirm their Opinion by the lamentable Howlings, which at some times are heard nigh those Mountains; which Crys, the credulous Vulgar People report to be of the Souls, which are lost: But these are but Trifles; for those Out-crys are then only uttered, when the Mountains endeavour to throw out much Fire, otherwise they burn and fume very gently, which as soon as the Adjacent Inhabitants perceive, they well know, that they shall shortly have an Harvest of ashes, fire, & stones, out of the Mountains: and that they may avoid the hazard and danger threatned by the Fire, they carefully keep far

enough off. And for the most part, a great Quantity of the Sulphur is prepared in the neighbouring parts, whereby the needy get their food, by digging it up, purging it from its impurities, and preparing it for humane uses; but as to the Crys, it seems to be nothing else in my opinion, but only the Fire breaking forceable through the streight Channels, the hard stones and Caverns, and producing thereby a dreadful sound, which they commonly call Ejalation, or Howling. They also add, that about those fiery Mountains, Ghosts, Visions, and Spirits usually appear visibly. This also is true, and Grounded upon Nature, but yet thou canst not prove that they are Devils and infernal Spirits; there being even otherwhere seen, and found diverse Spirits in the Bowels of the Earth, being Monsters not unwonted, or strange to such as dig, or are Miners, by which they are frequently injured; yea, and sometimes destroyed, lamed or infected; sometimes these spirits are hurtless and idle spectators, or playing with the workmens implements, or even labour themselves not in the least filling their Pockets, how strongly soever they shew themselves bent upon their work. But such spirits appear in various forms, oftentimes resembling an Horse, a Dog, or other Beast, sometimes a Dwarf-like crooked man; frequently they appear claothed with an ashy Cowl of a MONK: they usually are Testimonies of great Felicity and rich Mines; sometimes they do great mischief, by choaking the Miners with a wicked habit, or throwing them headlong into the Pits, by reason of whose malice many of the rich Mines are unavoidable left undigged, they boldly defending their hidden Treasures.

Let these things concerning the spirits, about the burning Mountains,

of those remaining in the profundity of the Earth, and appearing in the several shapes, be spoken by way of Parenthesis. And now I return to the thing in hand, and will demonstrate, that there is nothing of Community betwixt these burning Mountains and the central or infernal fire, but that these blow out a thick and material fire; which I thus prove.

First of all, These Mountains do at sometimes cease to burn, breathing out smoke only between whiles more copiously: sometimes they dye and expire through want of fuel to supply them.

But the central fire can never be either diminished or vanish as long as the sun shines and stars glister, and send down their virtues into the earths centre. Even as the infernal Fire shall never expire, the Scripture thus testifying, wherefore that fire, though a most furious Mountainous fire, cannot be either of these two, but is meerly material, subject to encrease and decrease, and its food desisting, plainly extinguisheth: Besides, the fire of those Mountains heats not fervently, but for the greatest part smoke obscurely; but the adjoining Earth is very hot, for the space of some miles, so that you cannot long stand there without injuring your feet. The Waters also which flow down from them, are boiling hot, and manifestly smell of sulphur a good Portion whereof they have within themselves.

Besides these flaming and smokeing Mountains there are sometimes found other Denns or Caverns, breathing forth neither Flame nor Fume, and yet a great heat, which is another kind of fire, which is largely treated of in the Chronicles of Metals, where amongst other things, this

is also added; That on a time a Wind gaping, arose in a certain Mountain, and sent forth a huge heat, and in the night only was some splendour perceptible, ascending towards Heaven, and sometimes a breathing heat was only observed.

On this a curious MONK was in himself perswaded to let down into the cranny, a pot, bound on an Iron Chain, with intent to draw up some molten Gold, which he believed to be thereunder, which when it came to touch the fire, it presently melted and fell down, the which in like sort burnt away like Chaff, with a good part of the Chain also, and was ejected and thrown up again in the form of a fume, with a great noise and crack, but the Monk hardly scap'd with his life, the gold being left behind in the Hell; but thou maist readily divine what sort of fire this was, which reduced the Pot and Chain into fume in the twinkling of an eye, that it was not a material fire, because void of smoke, but the astral fire.

It is well known to the Miners, that the central and gehennal fire doth oftentimes ascend the high parts of the Mountains, and warm them, and there cherish and maturate the metals: which Caverns, when in their searching for Metals, they come nigh unto, they feel too much heat, that they are even against their wills compelled to desist. But this heat, although indeed in the action of the growing, Minerals doth usually excite and make great enough; yet for the greatest part it derives its Original from the central fire, and this central from the Stars. But after what manner and reason the stars beget the central fire, and this generates the Minerals and Metals, I will demonstrate to the unknowing as briefly as I can.

Thus therefore stands the case: We read in MOSES, in the first GENESIS, that God, when he made the World out of the confused CHAOS, did give the Elements their original first, and assigned to Earth its proper place, and injoined on earth its Office to be done; but by what means they are preserved by the interceding perpetual Circulation, natural Philosophy doth demonstrate. It will not therefore be to our purpose to treat prolixity of them, but only of the rise and nativity of metals, will I compendiously speak as far as I know of them, viz. in what manner the metallick kind draws its original from them, together with its encrease and augmentation, and how having arrived to the top of their perfection, they come to their end.

I have a little before demonstrated, that the superiour element of fire, as the Sun, Moon, and the other Stars, send down their invisible virtues and fiery beams into the earths center, where they are congregated, and cause huge heat, and being not permitted there to rest, leap back again,and are scattered throughout the universal Globe, and impregnate it with various and wonderful Crescentials, which are called Minerals by the Philosophers, cherishing and perfecting them in various forms. The reason and manner of which thing I will here in a few words unfold.

Every spiritual thing, come it from whatever body it will, is invisible and impalpable, nor can any thing be made of it alone, but its forced to remain a spirit, until it meets with a subject whereto it may adhere, be united, and by the benefit thereof be turned into a Corporeal Nature, and pure, answerable to the purity of the subject and

spirit, the spirit is in the room of seed; but the subject answers to the earth or matrix in which the spirit is concocted, into a sensible body suitable to its own nature. But 'tis to be known, that the manner of Metallick conception and generation, is far different from that of the Vegetable and Animals: For in most Vegetables that have arrived to their perfection, nature works out a seed for a further propagation and encrease, being the most excellent part of the herb, which at the Springs Entrance being committed to convenient earth, produceth a new plant in all points like unto the former, from whence it sprang, by which doing new seeds of the same plant, are always conserved. Although indeed some plants are not propagated by the seed, but by the root. Yet they are very few, and in such, the root it self serves instead of seed. And that in some places Plants grow out of the earth, without the assistance of either seed or root, its done by the help of the Elements, in whom the same force of impregnating the void earth and production of Plants, is at this instant, as was at first, when they generated and brought them forth in the beginning of the world. In like manner is there a twofold production of Animals, the one done by a proper sperm, by which they are propagated, the other is a production of some little Animals, upon the world's stage, even without Sperm, by putrefaction only, and the mutual action and passion of the Elements.

These two ways have footing also in Minerals, the one is the Universal impregnation made by the Stars in the beginning of the world, the other is Daily. And even as the first generation of Vegetables and Animals is to be accounted far more execellent than that which is

accidental and quotidian, so is it with Minerals also. As some Vegetables arrive to their perfection, and perish sooner than other some, so do metals and minerals also; and by how much the sooner and quicker growth they have, by so much the sooner do they perish; and so on the contrary. And as a rational and moveable Animal is a thousand times in his nobility and fixity beyond a Vegetable, so also doth a Mineral, by reason of his fixity, far transcend any Animal; which wants an immortal soul.

Now when the Vegetabes, Animals and Minerals, fatally terminating their period, are corrupted, and return to nothing, each Element takes to itself what is its own. The Stars, the Spirit, the Earth, keeps the body which it formerly gave, and the Principles of the thing do each return unto their Fountains from whence they at first did flow.

And in this manner is there perpetual Death and Regeneration of things, by the testimony of Experience.

There are many ways by which Metals are brought to light, viz. by huge fires: if by Accident and Carelessness of Shepherds, a Wood catcheth fire, the Earth by reason of the intollerable heat Gapes, and the molten Metal flows forth and is detected: sometimes also vehement Earthquakes discover them.

Besides the Veins of Metals are found out when deep Wells and Pits are digged, or by the Plowing in the Fields, they are sometimes digged up, and their Veins discovered: strong Rivers washing away the Earth and Sand, do sometimes open their Veins; the Fruits of which being found in the Banks, give cause of searching after them.

They are also discovered by means of an Animal, even an Horse, by pawing with his foot, beating away the Earth uncovers the Vein, which happened at GOSTRIA in RAMELSBUG; even Hogs searching after Acorns, have digged up Mine-pits; or a pure Metal lifts up it self into the Aire in the likeness of a Reed, by which means the exceeding rich Mines of Silver at KUTTENBERG in BOHEMIA, was by a Monk manifested to the World, who walked in the Wood gathered a Silver Reed growing out of the Earth, and put it in his Cowle, and declared the thing in the Convent.

Sometimes also most vehement storms pulling up very great Trees by the roots do open veins. Most frequently a Corruscation gives undoubted testimony of Veins, which being enkindled by the warm air, runs a long some space, in the likeness of a blue flame; nor is the finding out of the process of Veins (not lying over-deep buried) very difficult if you rightly consider, for they continually breath forth a warm Sulphureous vapour, upon which, not only the grass growing is thinner than is elsewhere wont to be, but even the Trees that grow upon them are dwarf-like, have paler and thiner Leaves than other Trees elsewhere planted have.

Likewise where the Dew, Hoar-Frost, sooner melts and vanisheth, 'tis a testimony that a Metal is thereunder, the cause of which melting, is the warm vapours ascending from the Veins.

But that testimony which the most imploy themselves in, in seeking by Hazel rod (which my self have many times experienced) is fallacious and uncertain.

This is the Work of the Art, if any one conjoining Metals in the

Fire under a certain constellation, melt them into an electrum and make of them a little Ball, perforated in the middle, wherein a wand of hazel of one years growth wanting little boughs, is to be implanted, which carry streight out before thee where thou conjecturest Metals to be, when the little Ball, bows the Rod & bends towards the ground it is without doubt that thereabout are metals, & that the labour undertaken about them will not be in vain.

This testimony proceeding from the Natural and infallible foundation of Philosophie, is deservedly to be preferred before all other Arts concerning the finding out of Metals.

Nor mayest thou wonder thereat, for we are unacquainted with most things, who is it that can certainly unfold why the Magnet attracts Iron, and heated Amber attracts Straw, Grass, Thread and other Vegetables? The whole Earth is full of unsearchable Wonders and Secrets of GOD which are to be diligently observed by us.

Now as to the causes, why so many kinds of Metals are generated so unlike amongst themselves: some think one thing, and some another; many will that the Seven Metals only have their product from the Seven Planets, viz. Lead from SATURN, Tin from JUPITER, Iron from MARS, Gold from the SUN, Copper from VENUS, Quick-silver from MERCURY, and Silver from the MOON; but I am not of that Opinion; for how can the Sun, Moon, or any other Planet seek out to it self in the profundity of the Earth, a peculiar place where to sow its Seed, and procreate a Metal, conformable to its self; whereas we see that no Metal is digged out of the earth, alone, but always mixt with others; for thou shalt never find Lead but

there is silver in it, more or less; no Tin is digged or washed out but it hath Gold and Silver; all Copper and Iron contains Silver, and sometimes much Gold which is neither conceived of, or believed by the Metallurgists, nor is ever Gold found without Silver or Copper, and Silver is very seldom void of Gold or other Metals; but if each Planet should generate its own Metal, how comes it that another is adjoined to it? I speak of those Metals only, which are either solely contained in their own Veins, or else are found and washt out in grains in the Earth or Sand, either pure or mixt with stones.

I exclude those which are (two or three mixt with each other) each in his own proper Vein, and are a burden or impediment, to one another, as Metallists speak, and are often carried along a great while together, and not seldome do come together making one Vein, and are by and by separated and dispersed into various little Veins; and now, if each Planet should create his own proper Metals verily he would also chuse his own place, and would not suffer another to possess his proper nest, and disturb his operation.

But let us allow to each his proper Metal, and then what Star should we assigne to Bismuth, Cobalt, Antimony, and Zink, for their Generator, they being undeservedly excluded from the Metalline Company, wherewith they are nearer assined then MERCURY, being fusible with other Metals, and brought to use by the Artificers hand, which with MERCURY Cannot be done; indeed some are to be found alone, in Veins, as Lead and Silver, but Gold being any where found and cleansed from every Mineral, and washed out of the Sand, yet never wants Silver and Copper, Tin and

iron are also gotten out of Sand, and Earth in small pieces, never simple, but mixt with stone; these grains or pieces yield the most Excellent Tin, (Called by the Germans DEFFIN TIN) and for the most part contains more Gold than that which is digged out of the pit, Because while those little granulated stones are washed out many granulated ones containing much Gold, commix themselves therewith, and are excocted and melted together with the Tin; in like manner the little grains of Iron yield the most Excellent Iron. The Miners find Mercury either running or enclosed in a Red stone but to be excocted and vivified by Art; sometimes also Copper is found in very little stones like the Angulated Piris Stones; otherwise all Metals grow in their own Mines or Veins of the Mountains, out from whence being gotten with greatest labour and cost, together with hazzard of life, are purged from the Mine, by beating, washing, and melting; but how each are to be known, exploded, digged, beaten, washed, melted, and separated from hetrogeneous things, is copiously demonstrated by the most Famous and Ancient Metallists, George Agricola and Lazarus Erker.

I do therefore conclude that Metals, and Semi-metals or Minerals, have their birth from one common Seed, but are by accident severed into various forms and shapes.

For the Virtues of the Stars being jointly carried into the Centre of the Earth, do not remain alone, but being mixt each with the other, go back into the Caverns of the Mountains, seeking a place of Rest, where they may make themselves a Body; which if it be pure, makes also a pure Metal, if impure, an impure Metal, and such place is most like

unto a Matrix, conceiving Seed from the Male, which if it forms into a body, cherisheth, and being excocted to maturity, perfects it. Now the Astral Spirits supply the room of man-like sperm, which being received into the moist Earth, in Caverns, as in a Matrix, is nourished, and fashioned into diverse metallick Forms, and palpable Bodies, according to the purity of the place.

Hence also 'tis evident, That various kinds of Metals are generated out of one Seed accidently, because the Metals, whilst in being, do grow riper by little and little, and are more and more meliorated, and daily experience doth demonstrate, that they are nobilitated, not only under the Earth, but even above it. Hence 'tis, that the Miners diging out an immature Mineral, as BISMUTH, COBALTUM, or ZINK examining it, as they do Silver, and finding nothing, say, that they came sooner there then they ought, which Minerals being exposed to the Aire, and then exploded, and tryed after some years, are found to contain much silver.

On this account I affirm, That if the common Seed of Metals, had always a clean, and fitting Matrix, and no accidental impediments intervened, nothing else but Gold (the highest perfection of metals) would be generated; and that this is Natures intention, always to bring to perfection, what she hath begun: but Gold only attains this state, all the rest remaining imperfect; but it shall be clearly demonstrated in the Third Part ensuing, that by genuine Alchemy, even they may be advanced to the same degree, which if it could not be demonstrated, that imperfect Metals might by Art, be brought unto perfection, and by industry, and the Fire, it might be very probable and credible, that each Metal had its own appropriated Seed and Planet.

But now, if common lead possessing but little silver, by the usual trying of the Cupel, may, by the benefit of maturating Salts, be so far perfected by a short digestion, as to yield much silver, and by a longer digestion or fixition, to yield, even Gold it self, which it had not in it before (Cons. Part 3rd.) 'tis evidently perceptible, that 'twas not Nature's intent, that Saturn should so remain in his Saturnine Estate, but that he should be made Silver and Gold.

The other imperfect bodies may also be maturated by digestion, that they shall yield forth fixt Gold and Silver.

In like manner the spurious Metals or Minerals, as ANTIMONY, COBOLT, ZINK, BISMUTH, and others of that kind may be so fixed, as to be behind them, in the Cupel, good Gold and Silver, which is most plainly done in the Third Part.

Thus thou seest, That 'tis not Natures Fault, that there is so many imperfect Metals; but 'tis to be imputed to external Impediments; for if that Gold lay not hid in the Potentia in the imperfect Metals, by what Art could it be reduced into action?

Art cannot create either Gold or Silver, but Nature can, and yet doth not always accomplish it upon the Earth without the industry of Art: When a Gardener suffers the seed and root of the Plant to wither, nor commits it to the Earth, that it might be perfected; 'tis not the fault of the seed, but the Gardner, who suffers it, that it comes thus to perish. Nature doth very often want help, as appears in the fruits of Animals, and Vegetables; and why may not help be necessary and profitable in metalline products, where, by the Artificers Ingenuity, they

may be holpen. 'Tis evident then, that Nature aims, as well to make Gold out of Minerals, and baser Metals, as to make a Man of an Infant; or a Tree of a Nut: and if it be otherwise, it is not to be imputed unto her, but to external Accidents.

Now I suppose that I have sufficiently proved by these things, that all Metals proceed out of one seed and root; and may be reduced thereto, and also, that Minerals may be compared unto the first buding of Vegetables, imperfect Metals to Semi-adult, or half ripe Plants; but Gold to perfect seed or fruit, brought by Nature unto its end or bound.

But this is to be understood of the Universal Birth, and Generation of Metals; which for the greater part, drawing their Original in the profundity of the Earth out of the Central seed, do grow in Caverns and Veins, and increase together into various forms, and are from these digged out with great costs, hazards, and labour.

Now there's another Generation actuated in a plainly-diverse manner, without the Central common, and propagated seed, done upon the Earths superficies, by the Operation of the Stars above; yet 'tis the least part of Metals, that are thus generated. It hath been said, that there is a twofold manner of Generation, nature makes use of in Animals and Vegetables, and so its in Metals.

The First is most frequent and notable, the other is rare and insensible: The one is done in Plants, by the preparation of the seed or root; the other strongly perfected by the influence of the Stars, and the Elements efficacy and power: for Example, if Rain-water, being received into some Vessel exhales in the heat of the Sun, or of the Aire,

an Earth remains, which by an innate power, produceth various little Plants, little Animals, small Worms and Flies, without the access of seed.

The same happens in Metals, when the Sun, or any other Star operates upon the moist Earth; the astral Virtues are congregated, and being made corporeal, do exhibit diverse Minerals and Metals, according to the purity of the Matrix, or moist Earth; where the Water is instead of the Matrix, and the Stars instead of the Father, or Seed: likewise, it is not possible for Metals to be generated in the Centre, where all things are dry, but far off from that place, where the Waters moisten the Earth, and with which the Central Spirits can join themselves, and pass into Bodies and Metals.

For a dry spirit cannot coagulate himself into a body, by reason of his dryness, but wants a fit subject, from whence to take its body, which is Water: as soon as ever the sulphureous spirit is mixt with the water, it is no more common water, but the rudiment and beginning of a metallick generation called Mercury by the Philosophers, not the vulgar being already made metalline, but a viscous water, which the metallurgists call Gur or a fermenting spume, which if contained in a convenient place, and cherished with the due Central heat, and an humidity, is in length of time maturated into a metal.

The Conception therefore, and generation of metals is not in the profundity of the earth by the mediation of the central spirits carried upwards, but also in the superficies by the stars casting their Invisible beams into a subtile, and fat earth where they are held, and become Corporeal.

For the sidereal fire never ceaseth to infuse its virtues into the earth, and to Impregnate it with various products of vegetables, animals, and minerals, according as it meets with a matrix, nor is this done only in the earth as being most fit for metallick generation, but even in the air in thick clouds, do they act the same thing.

Truly we frequently see that not only little Animals, as Palmer-worms, Caterpillers, Frogs, & other insects are there conceived and thence excluded, and descend mixt with the rain, but tis also evident by Credible Testimonys, that stones of an hundred weight, also Masses of Iron in the form of small Conglomerated drops, exceedingly malleable have fallen down from the air, and also various Comets and other Igneous substances being gathered together in the air: are kindled; their matter being taken away they die, and falling down upon the earth like a fume of Arsenick they infect it with their brats, whence an harvest of many deadly diseases doth most pleantifully bud forth. Nay even thunder and lightning it self is nothing else, but a subtile nitre enkindled, and with the Crack falling stones are procreated in the air; thence it appears, that not only the central fire doth ingravidate the Intrals of the earth: but also the Astral fire seeks a place of creating metals in the superficies or in the air it self, but no where more apt then in the veins and dens of the earth.

I well know, that there are many Opinions of those metals, which are not in the bowels of the earth; but are found above either in the earth, or sand in little grains, but they are for the most part Erroneous. Most men do think that gold which is found on the banks of Rivers

and there washed out, was not generated in that place, but were broken off from some veins of gold by the strength of waters, falls, or floods, and brought thither out of the mountains, which indeed may be true, for sometimes torrents do hurry alongst them little shining golden grains which are afterwards taken up on the hairy backs of the beasts, but that all gold found in Rivers, and streams, is by the help of currents washed out of the mountains, seems unlikely, but was rather generated there; for sometimes gold is gathered by a river from whence the fountains are exceedingly remote and distant, which should bring it thither.

Likewise in open Mountains, never seen by any fountains, is gold gathered out of the earth or sand, of which kind is almost all the gold, which the Hollanders buy of the Indians of the value of an hundred or thousand markes, which is not gotten out of the fountains or rivers, but for the greatest part out of the sand in open places, Elevated from the waters.

Such sublime and dry places have been in Germany, also where the auriferous earth was carried down to the rivers, and separated from the gold, and even to this day where little grains of Zwitter or Tin are washed out, are grains of gold also found, not in low deep places, but scattered about the mountains and are usually melted with the Tin, whence tis that such Tin is generally wont to abound with gold, which thing I have frequently found experimentally.

The cause why gold is oftner found near rivers and streams is this, because that being carried on with force they wash away the sand, being lighter and leave behind them, the more heavy grains of gold, from which

the remaining sand is washed away with less ado; but now the Rhenish gold, such as here is in Germany, and the like, is not pure, but mingled with silver and copper; nor is it always alone, or fine, like a metal, but in the form of an heavy and sulphureous powder, whose combustible sulphur being burnt and removed by fusion, it acquires a golden colour tenderness, ductibility and purity.

But that which is brought from India, is, as to appearence gold, and is some greater, some smaller grains, and not as that with us, yet not fine, but some is found better than other some.

I sometime saw a dutch Merchant having a lump of this kind of gold well neigh, fine or of Twenty four Carots weighing some Lotons, but generally they are of the bigness of a midling sand. But that which is washed out of Hungaria, and Transilyvania is esteemed the finest of all, which I have found equivalent to duckets.

Now I suppose that I have sufficiently demonstrated, that all gold is not generated by the central fire in the belly of the earth, but also in the superficies thereof, by the virtue of the superiour stars, and not only gold, but other metals and minerals, especially Iron and Copper are in like manner generated, and Iron most frequently, which is plentifully found every where in round or angulated little stones, for the most part of a golden Nature, and though commonly neglected yet deserve well to be observed.

Such also are those Flints which are within of a reddish colour, containing a golden iron, for there is a great familiarity and friendship between Iron and Flints, where under lays hid, a great secret and in the third part shall be explained more at large.

Now for a further conviction of such as are incredulous, the metals are generated upwards or here above in a moist earth without the central seed, this example is conducible in marshy parts, and places that are always moist, the Superiour Stars have a fit Subject to generate Metals in, witness Holland, where they yearly dig a peculiar turf or earth, which they burn instead of wood, which contains, besides sulphur, Arsenick, Iron and Copper yet, all, is not thus, but only that which is digged out of the most deep places, and is called BASSERT, the rest called BEEN seldom contains any thing other than, sulphur & a little Arsenick, whereas the other hath very much, sulphur and Arsenick being unwholesome a fire to such as are not there unto accustomed, which although it be in depth Twenty, Thirty or Fourty feet, yet do they scarce extract or dig out five or six, or at the utmost ten foot, because in some depth it wants sulphur altogether, and is unfit for the fire.

Now then such as try for bituminous Turf, or such as search for the depth of a Marsh, or seek after a sandy bottom, drawing forth the earth with long borryers or Caugers, do find that by how much the deeper they go, so much the less, sulphur they find, and at the bottom none at all.

Whence tis evident that sulphur, Arsenick, or that Mineral that lays hid in the earth received his Original from above, and not from beneath. But the most Metals are produced in the earths bowels, and the fewest nigh the Circumference, whose seed is found more powerful in the deep, than in the Circumference; for the sideral virtues do constantly hasten to the centre, and not finding further passage fight together, and strive each against the other, and cause a huge heat, by

the repercussion whereof the whole globe grows warm, and is gravidated with all kinds of Minerals.

Thus then are all Minerals, and Metals procreated, as well in the deep as in the Circumference, out of a most subtile Astral seed, with a sutable moisture wherein it frameth a body to it self, nor let any wonder that Metals are generated of an insensible, and most subtile warm vapour, if joined with humidity, they fall not down from heaven as a stone from an house, but descend spiritual, and getting a fitting place in the earth do (by the waters mediation) put on a body, and get their weightiness from the earth, even as the seeds of vegetables and Animals, which (as is most evident) give only the form, increase and life, but supplys not the place of the body it self.

But most false is the foundation of such as imagine, that Metals have there Original from common running Mercury, and burning sulphur (each being a semi-metal) tis indeed certain that metals are born of Mercury and sulphur but not the common, but such aforementioned, viz. Astral, a sulphureous warm, dry, and spiritual soul, and terrestrial viscous water, from whose mutual conjunction (as of Male and Female Seed) all Metals are born.

That Erroneous Opinion hath been the cause of many labours on, Mercury and they are not a few, who have wasted all they had by this, their Philosophy. And how many have attempted to fix common Mercury either with or without Gold or Silver, and do at this day attempt the like, with hopes of turning it into Gold or Silver, but all in vain, my self have to my loss tried it, and how far I have come, the third part shall declare.

In like sort as great a number have attempted to extract running Mercury out of Metals, intending to fix it (as the first of Metals) into Gold and Silver, but all in vain, for as the beginning was foolish, so the end terminates in loss; and such have chiefly with much trouble sought after the Mercury of Saturn or Antimony being perhaps seduced by the sayings of the Philosophers, who affirm that Saturn the Father of all Metals reduced into Mercury may be easily Changed into Gold, but this is not that running Mercury but a viscous water, that may be handled like the first being of Metals, according as the Artificer willeth, and may be changed into any form. I cannot tell what madness possesseth men that aim to reduce Saturn or Antimony into running Mercury in hopes of a more easy fixing it, whereas neither of both ever was running Mercury and in my opinion will never be, but grant it may be made Mercury to what will it be more profitable then Saturn it self, it being hereby made more volatile, and not more fixt, but say they Mercury is a purer substance then Saturn and will therefore the more freely be amalgamated and fixed with the Sun and Moon, no, by no means. Well! I will grant that Mercury may be made of Saturn or Antimony which yet I can hardly believe, what will profit thee? Nothing at all: but now I readily believe, and have experienced that Saturn and Antimony being after a Philosophical manner reduced into Mercury that is, into a viscous water, is most easily joined with the Gold and Silver and is to be fixed even without them, but twas never seen that, putatitious Mercury of Saturn did ever accomplish any praise worthy thing in the Meliorations of Metals. I grant that running Mercury may easily be made

out of any Metal by the addition of vulgar Mercury and I have tried it, but what profit comes therefrom; enquire of those that have to their loss practised thereabouts.

If running Mercury were the principle of metals, some small portion thereof would verily be found in all mines of metals, or in most of them, but because it is not there found it necessarily follows, that such opinion is to be accounted a vain fiction.

Now all Philosophers do unanimously testify that nature forms the first rudiments of metals, out of the Astral Spirit, and terrestrial water, by affirming that every thing may by art be reduced into that, out of which it was at first made.

And whereas metals may be reduced into a viscous water without any corrosive, and this by a due heat and digestion transmuted into more pure, and better metallick forms, tis undoubtedly credible that they proceed from hence, and not only metals, but also many stones, and mineral things, either containing metals or void of them, found upon the earth, and under it, have their first beginnings after the like manner, my self having seen some mine-diggers, in sandy mountains digging for other things, who have accidentally chanced upon this GUR or KUR, thinking it to be a lump of Fat, one of them carried it home, and annointed his shoes therewith, but the next morning he found them over laid with a stony crust, and the lump or mass it self converted into an hard stone, but I am not ignorant that stones are otherwise generated, the reason how, pertains not hereunto.

A metal being reduced into its first matter like to KUR, is in the

Artificers hand to induce into it, what form he lists, nor can it indeed be ever meliorated unless it be first reduced into its PRIMA MATERIA. In a solid metal, it cannot be perceived of what parts it is compounded, but being resolved, its parts are discovered, and it being by extraction deprived of its proper Soul, wherein its life and whole dignity lodgeth it is no more a metal, but resembles an unshapen brittle earth, without metallick Liquability, and its whole goodness consists in a very little quantity of soul, and starry masculine seed, the remaining body being a dead and vile earth.

Finally, even this (which I have mentioned in my treatise of Potable Gold) sufficiently confirms that metals are also created upon the earth, because, that not only the solar beams being collected in various subjects become corporeal, but even the heat of our usual fires doth likewise do the same thing which the tryals of the Cupels abundantly testifies, let the Reader search and view the place. Nitre and other salts are evidently produced by the sun, in a moist earth, which thing will never be effected in a dry. And the Philosophers making mention of the melioration of metals, have always minded inceration, as exceeding necessary to their intention.

In this work, moisture is the patient, and heat supplys the place of an Agent; this is discernable in Vegetables, Animals and Minerals, there being nothing that can attain perfection, without due moistening or endure the action of a maturating heat.

And by how much the thicker and fatter the water is, by so much the fitter for a matrix, and therein seed will more greedily and speedily stick and germinate.

But by how much the thinner, it is by so much the more fit it is to be accounted for the seeds vegetation.

Water of it self cannot be made a metal, unless it be first impregnated with seed by the stars, and gifted with a Vegetating life; which seed is the original, the soul, and life of all metals; and how much the more of such seed they have, so much the better and more fixt they necessarily are.

On this account I firmly adhere to this Opinion, That metals receive their Soul, Spirit, and life from the Stars, as from an universal seed, and their Body from the Water as an universal mother, and derive the diversity of Bodys, and degrees of Goodness according to the Situation, purity or impediments thereof, and are digged out by men (for whose sake (as the noblest Creature) all things are made) with great greediness, costs, and hazards from the Bowels of the great Animal, and are prepared and elaborated for their many-fold Uses.

Let thus much suffice as to the generation of Metals; but now by what means they arrive to the utmost end of perfection and Die, and are hindered in their growth, we will not pass over in silence.

Thus therefore the Case Stands, There is a certain time prefixt to all Creatures, how far they may come or protract their life, which predestened time if it be cut off, and attains not unto its scope or end, it comes by accident and may not be imputed unto Nature, and this is done sundry ways according to the various tempers of such enemies as they meet withal, some are hurt by the cold Air, prohibiting their growth, as is evident in Metals digged from their mines or trunks and exposed

to the air, then ceasing to grow, and were they ripe or unripe Metals, so remaining, but if they get a new matrix, then as the seed of a plant on the Earth, they begin again to grow and hasten towards perfection. To some, as to Vegetables and Animals; the aire is the life, of which being robbed, they expire and Die. The air destroys Fish, the water is their life, but the death and destruction of two-footed and four-footed Animals.

Even as all the elements have their proper off-spring which they cherish, so are they the destroyers of other things, which the rise and death of Metals clearly teacheth.

For as soon as ever (being conceived in the earth) they begin to grow, they become partakers of a certain saltish Nature, as their Matrix, in which, and by which, they are afterwards perfected, wherein as long as they remain uninterrupted, they go forward, and are bettered in quality and quantity, but as soon as ever their contrary, as Aire or common Water meets with them, they are stopt from proceeding further in the matrix and Die.

They being (because of this most subtile salt) while in being, most impatient of both viz. Water and Aire.

Now if the aire invades them, their life, consisting in a Volatile salt, is elevated and drawn back by the Stars: If water breaks in, they dissolve and are washed away, the matrix, being destroyed by its contrary Element, whence 'tis that such Metals in their PRIMUM ENS, lying Embryon like, and obnoxious even to the smallest corruption, do perish, and never attain to the appointed perfection by reason of such destructive

accidents and injuries, whose tender salt is gone into sulphur, and is no more subject to the corruption of either Water or Aire. As for those that are Mature and perfect, if they are not cut off from their flock being extracted out of the Earth, form which they have no more nutriment, their sulphureous covering being laid aside, the defence and safeguard of their Nature being banished, they rightly resemble a decrepid Old man, whose Radical moisture is dryed up and are dissolved and eaten up by the same Astral Salt, or Vehement Corruscation, from whence they did spring, and thus are reduced into Nothing; amongst which, viz. metals, as well as amongst Vegetables and Animals, Nature observes a perpetual Circulation of Life and Death.

It sometimes happens that the diggers finding a metal excavated by the Astral salt, like to the Honey Comb by the Bees, are accustomed to say, that they came thither too late, whence it is concluded that the same corruscation is the beginning and end of metals.

Tis of small moment to know who first digged up metals applying them to use; ADAM was the first to whom GOD revealed the Art, because he could not want it.

It seemeth certain, that that which was by his successors discovered to NOAH, and from him propagated unto us will undoubtedly be conserved unto the Worlds end, because of its great necessity and benefit.

But as this Art is profitable and useful, and noble, so it is chargeable, costly, and dangerous, and also uncertain of getting gain, but yet not to be neglected on that account, it being an honest thing, and pleasing to GOD, and managed heretofore by many Prophets and Kings, and

now at length, diservedly had in great estimation by us Christians, because of its necessity.

He may well boast of earthly felicity, to whom GOD shall vouchsafe to give such a Light, of seeing by what Artifice Nature is to be holpen, and that which is superfluous and adhering to vile and abject metals every where, may be removed, and the defect supplied; such an one hath in very deed a rich and durable Mine; neither are Ghosts, Inundations of Waters, evil Tempests, unwholesome Vapours, and other inconveniences, that hinder from a purposed intention, to be feared. But verily man, by reason of the continued wickedness of his Life, being made uncapable of this high Art and Science, is compelled to get out Metals from the Earths bowels, in the sweat of his brows, and to pass over his life in cares and labours.

And thus I conclude this Tract concerning the generation of Metals, and refer the Reader, desiring things more at large, to the Third Part, wherein is accurately taught of what property Metals are, how to be distinguished each from the other, opened without corrosives, reduced into their first matter, and how by the benefit of art and fire, new and better Metals are to be generated out of that first matter.

Likewise, how they are to be examined by a far better way and manner than usual; how to be purged and separated each from the other, and also unfolding (as far as is permitted) a little Book of the most expert Philosopher PARACELSUS, or his Book of THE VEXATION OF ALCHYMISTS, whereby the honour due unto him (though much obscured by evil slanderers) may be again restored unto him, and whole world may know that he was

most expert in natural things, and wrote very faithfully, and left unto us a large light, though observed by a very few, for the encreasing and propagating whereof, and defending it against the haters of the Light, I will enter upon the Third Part, for my Neighbour's good, for the accomplishment whereof I pray GOD, the Creator of all things, and the Patron of Truth, mercifully to vouchsafe his assistance. Amen.

Finis.

The

THIRD PART

OF THE

MINERAL WORK.

Wherein under the Title of a Commentary on a little Book of Paracelsus, called, The Heaven of Philosophers, or a Book of Vexations, the Transmutation of Metals are Taught in general; with an Appendix demonstrating their particular Process, Melting, Exploration, Separation, and other necessary Operations.

A Preface to the Reader.

Courteous Reader,

I will not conceal from thee the reason why I have taken upon me in this Third Part to explain a Book of Paracelsus, called The Heaven of Philosophers, lest thou should'est believe I wanted matter to write, did I not encrease my Book by the Writings of other men. That Good which I have here decreed to write, I could have done even without the admixtion of Paracelsus's Books, but this properly is the cause, because Paracelsus in our precedent Age, published very many most elegant Books for the Publick Good, but obscure enough, and for this reason are by the unskillful accounted false, and are contemned; but yet because they

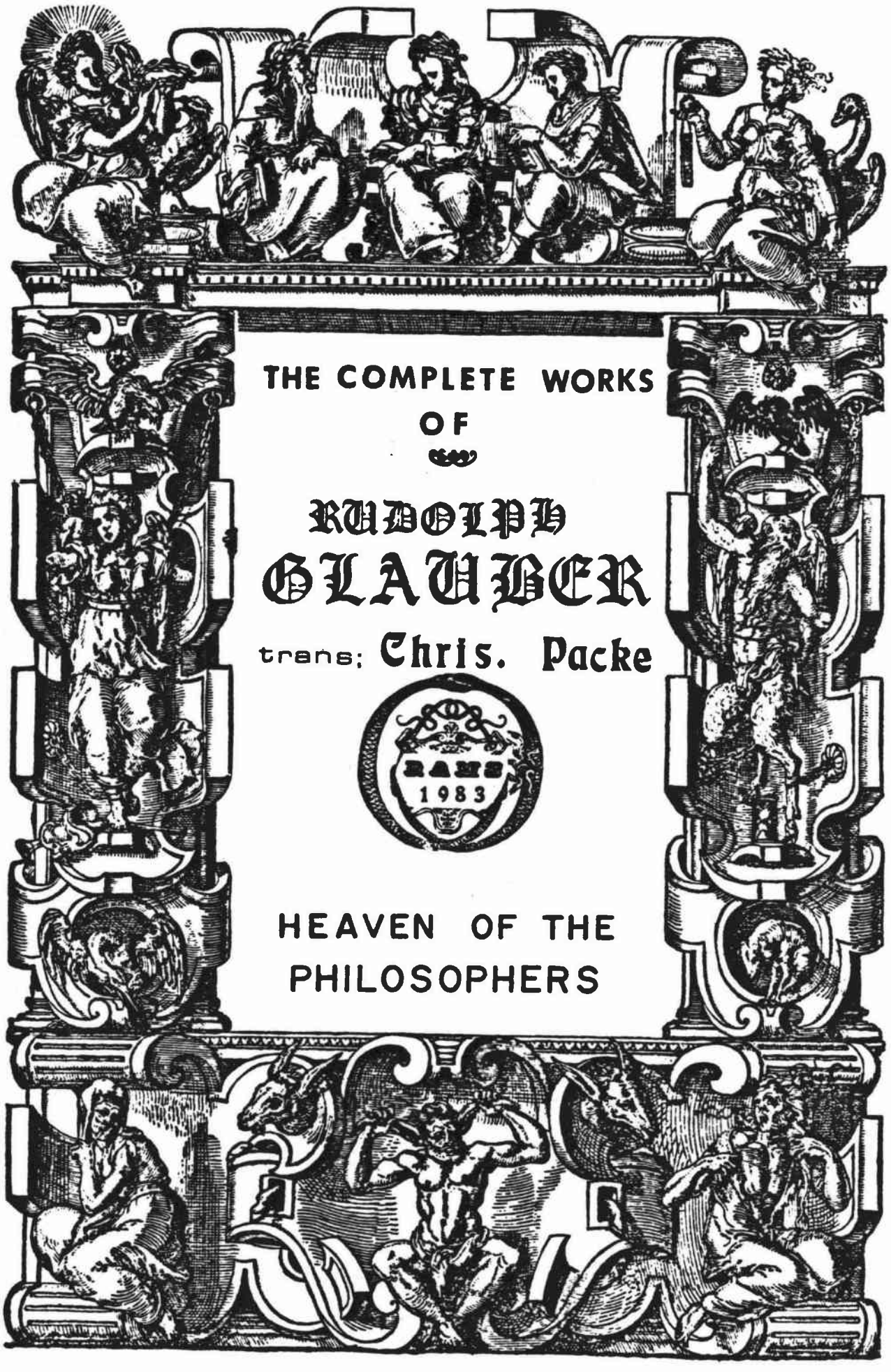
are stored with ARCANA'S or Secrets, they are most highly to be esteemed. Now, after that I had perceived the said Books to be true, I did very impatiently hear such sinister reports of this man, as blazed him abroad for one Ignorant of all things, and a Vagabond; who in very deed had but a few Equils in true Genuine Philosophy, Medicine, and Alchemy.

He did many good turns to all, especially to the Poor, of which many Testimonies are extant; and amongst others, that Epitapth is to be seen, which is in the Hospital of St. Sebastian at Saltsburg, where he was buried, and to which he bequeathed his Goods, and is graven in Capital Letters in a Marble, and erected in the Wall, the Tenour whereof I my self have read, and is thus: Here lies buried Philippus Aureolus Paracelsus, a famous Doctor of Medicine, who by a wonderful Art cured those direful Diseases, the Leprosie, Gout, Dropsy, and other incurable Contagions of the Body, and to his honour gave and bequeathed his Goods unto the Poor. He died in the year of our Lord, 1541. the 24th. of September.

And what hast thou now to say? Had he not been such a one as is mentioned in the Epitaph, the Magistrate would not have honoured him with so eminent an Encomium. Moreover, all prudent Lovers of Truth do to this day believe, that he never had his equal: And although through the Envy of some unlearned men he is despised, yet it derogates nothing from him, for he will still remain Paracelsus.

And now, seeing that our Paracelsus hath hitherto undergone such bitter things, and that none have dared to open their mouths against those slanderers, I will attempt the explication and illustration of

his chiefest Books, and prove that he was not either a Lyer or Imposter, but most experienced in the light of Nature; and to this end will I begin with his Heaven of Philosophers: I will not avow, that he could make heaps of Gold and Silver, (himself mentioning not any such thing, but he only discovers the possibility of the thing, which even I also will endeavour to declare, although I am ignorant of doing it in great quantities, which thing I am not greedy after) yet 'tis my contentation to be capable of discovering truth from falsehood, and convince such as are incredulous, having some hopes, that by this my faithful writing, an occasion will be administered unto others of searching after and obtaining their desired end. Amen.



THE COMPLETE WORKS
OF

RUDOLPH GLAUBER

trans: Chris. Packe

RAMS
1983

HEAVEN OF THE PHILOSOPHERS

THE HEAVEN OF PHILOSOPHERS :

or

A Book of Vexations.

By Philippus Theophrastus Paracelsus.

The Art and Nature of Alchemy, and what is to be taught concerning it; being comprehended in Seven undoubted Rules, respecting the Seven vulgar Metals.

The Preface. Theophrastus Paracelsus to all Alchymists and Readers of this little Book.

Beloved and Expert of the Art of Alchemy, and all ye who promise to your selves much Riches and Gains of much Gold and Silver, which thing Alchemy doth plentifully teach, and ye (who being occupied about these things) would be vexed, and cannot cease until you have experienced what it gives, and what promises it performes; verily, daily Experience teacheth, that there is not one of a thousand that becomes Master of his Desire; which I will not call the fault of the Art or Nature, but the unskillfulness of the Artificer.

Wherefore I will not stuff this little Book of Alchemy with difficult Art and tedious Labours, as the common Alchymists are wont to do.

Silver Rx. Antimony melt it with Nitre and Tartar, of this take one Lot, of Gold one Lot, of Tin three drams, of Schlich one dram, of Sulphur two Lots, of Vitriol two lots; let them flow with Silver in a Crucible with Arsenick. Because also all the signs of Heaven, and the

characters of the Stars and Planets, together with their changed and inverted terms and names, as also the Receptacles of the matter, and the Instruments of Artificers are usually very well known; It will not be needful to treat of these things anew in this Book, although herein are used these signs, names, and characters, when it seems convenient and profitable.

Now here is delivered another Reason of Alchemy, is seven Rules, accommodated to the seven Metals, after an infallible manner, although in Expressions not adorned, but undressed and simple: Yet, as to the sense, the expressions are abstruse and profound as can be; which may deservedly be called the Mistriss and Summ of all Alchemy; from which even the mysteries of other things may be produced, divined, and known, with many new Speculations, from whence new Cogitations and wondrous Operations, do (by examining and trying) come forth to the Light, that in many places they are even, in the Examen or tryal it self, found to contradict the Pleasures of the Philosophers.

Likewise in this Art nothing is more certain, than that which is least apprehended and believed; and this is the only fault and cause of all various Operations in Alchemy; whence 'tis that many suffer loss by their own unskillfulness, and so labour in vain, either because there's more of the matter, or less, or equil weight, whence the thing is more corrupted in operation and destroyed; or if the thing is truly lighted on, it is become more exalted, and tends unto Perfection.

For the way is most easie, but is found by but very few. It's also expedient, that an ingenious man consider the Art and certain Rule of

Alchemy, whether he would make something or nothing: he ought to make a nothing, that he may bring something into nothing, and that something may be again generated out of nothing; which Saying is incredible, but yet most true; Corruption makes a good thing perfect: Yea, good cannot appear, because of his covering and hider; good also is begun whilst 'tis hidden; the hider ought to be removed and destroyed, then the good being freed, will manifestly appear in his lustre, the GLOSS: the hider or covering is the Mountain, Sand, Earth, or Stone wherein the Metal was generated. Now every visible metal is the obscurer or hider of the other six metals.

Because therefore that by the Element of Fire Imperfect things are corrupted, burnt up, and sublimed such as the five metals, Iron, Tin, Mercury, Copper, & Lead are; but the perfect not at all, viz. the two most Noble, the Gold and the Silver, therefore they ought to abide even in the fire, and to assume their body out of the other Imperfect metals, in which they are destroyed, and to appear visibly; which, thing, how it may be done, and what helps are thereto necessary, shall be taught in the seven Rules, viz. What the nature and property of every metal is; what operation he hath, being mixt with others; and what he can do.

'Tis also to be observed, that these seven Rules cannot forthwith be understood by one that is somewhat dull, as the first reading and view, a weak understanding cannot compass hard things. Hence every of these Rules wants much search and travel. Some are puffed up and proud, supposing themselves well to understand; and these things are childish, which are here delivered, and they know far better, and do plainly contemn these things of mine.

Glauber) This Preface is of it self perspicuous, and needs not any singular Interpretation or Explication, but indeed the Process which he mentions requires a more accurate Observation.

Take Antimony, melt it with Tartar and Nitre, of this take one lot; of Gold one Lot; of Tin three drams; of Schlich one dram; of Sulphur two lots; of Vitriol two lots; let them flow with Silver in a Crucible with Arsenick.

This is the Process of making Gold and Silver, which PARACELSUS will not have to be accounted like unto other Processes, of much labour and long time, but is confident, that by the help hereof he can get Gold and Silver with little labour, time, and costs.

'Tis not to be doubted, but that this hath been tryed by thousands, and frustrated the hope of such as laboured thereabouts; and that not without cause, they imagining that these are foolish ingredients to be taken for such work; my self have heard many of those that have made trial, to be very much displeased: By what means can gold and silver be made by volatile and preying ravenous things, such as Antimony, Vitriol, Sulphur, & Arsenick are, which do not only yield from themselves no Gold or Silver, but even corrupt them, and bring them to fume, or at the least turn them to SCORIA; my self trying this when I had blown them together, I found that these metalline species, as Schlich, Vitriol, Sulphur, and Arsenick did, corrupt the Sun and Moon, spoiling of its metalline form, and transmuting it into SCORIA or dross. But now this is the thing which PARACELSUS requires and aims at, and therefore should not by any means hinder or deter us; he presently, for the better

explication of his meaning, adds, Something ought to be made a Nothing: and again, the Nothing to be made Something; which thing the unskillful doth not heed or believe, that Metals being corrupted and made SCORIA, when by the benefit of Art they are reduced, are by this means meliorated; which albeit it be most true, yet are they but a very few (as he saith) who believe it to be true: and he confirms the whole process throughout the Chapter, even to the Chapter of Mercury, and explains it, saying, Corruption makes a good thing perfect.

The Good cannot appear by reason of its covering. The hider or veil must be taken away, that the Good may be freed and become conspicuous; that also the first covering, under which metals are hidden, and wherein they are generated, is a Mountain, Sand, Stone, or Earth, all which are to be separated by fusion, that the metals may become pure.

Here the Metallurgist desists, and is clearly ignorant of any other covering. But PARACELSUS addeth, That each metal is a hider of the other metals, which thing the seven Rules do largely demonstrate, and adviseth the Chymist not to rest satisfied, when he hath gotten from the Mines a vendible metal, as Iron, Copper, Tin, Lead, melted from the dross, but to consult further with natural Philosophy, and to examin whether or no these are pure enough, without any adhering and deteriorating veil.

How great the difference is betwixt a rude and a vile Mineral (where the metal is largely dispersed and commixt with much stony matter and other impurities) and a tractable metal faithfully separated, is well known . So much, and more, is the difference betwixt a vulgar and

imperfect metal, and the Gold and Silver which it contains shut up in its bowels. But because the melting of metals out of their mines is, by reason of its long use, grown vile, and not esteemed an Art, but a Trade, and every where exercised, without any ones admiration; yet in its begenning, before it became so commonly known, it was worthily accompted a deep Secret, although now disrespected. We may not doubt, but that even yet another veil adheres to metals, and may with as much facility be removed; and its inward, pure, and fixt centre, Gold and Silver be melted out and separated, if the way were but known. But because men do not bestow any further Labour and Industry in searching, and the use of vulgar metals is highly necessary, we rest contented, in that metals once melted from their mines becomes malleable, and fitted for the use of man: Nor is this unadvisedly done, for the life of man can as little want Iron, Tin, Copper, and Lead, as it can gold and silver.

PARACELSUS teacheth, That imperfect metals are corrupted and brought into a nothing, by the force of fire; which they cannot sustain or bear; but their good parts, Gold and Silver, cannot be destroyed, but in the great strait and force of fire do come together out of the imperfect metals, and mutually defend each other, the impure portion being burnt up and removed.

Now then, that the species and ingredients of this process may be understood, something must be mentioned by us thereabouts.

Thus then 'tis written; Rx. Antimony melt it with Nitre and Tartar, of this take one lot; 'tis to be noted that you are not to take the lot of the whole molten mass, but of one of the two, either the upper

part being the SCORIA, or inferiour or lower being the REGULUS, which this flowing mixture sends downward.

But which it is, it cannot be perceived by the words; yet because PARACELSUS'S intention here is to destroy gold and silver by the admixtion of the aforesaid ingredients, and to bring them to nothing, out of which nothing the destroyed augmentation of the sun may be afterwards by some additament, obtained, in reducing it, it seems probable to think that the SCORIA of the mixture is not to be taken, but the REGULUS, which hath Ingress into Tin, Arsenick, and Schlich, and unites them with gold and silver, for it is the Property of the REGULUS, to unite & conjoin contrary Metals and Minerals.

Tin is joined with malleable metals, and melted and suffers the fire with them, brings them into SCORIA, the which thing Sulphur, Vitriol, and Schlich also performs, and are here used by PARACELSUS for no other end than to corrupt the sun and moon, and bring them into SCORIA. But what schlich this is, because no proper name of Gold, Silver, Iron, Copper, Lead, or Tin, is added, no body can easily tell, for this is called schlecht by Chymists and Metallurgists when they take a Mineral excellently well ground, and washed with water, thereby separating the mineral or the rubbish and stone, the heavier, and more noble part of the metal remaining in the bottom of the vessel, which examining they thereby Conjecture the value of the metal or mineral: this labour they call a bringing into SCHLICH, or also SECHER, and because all metals may be reduced into schlichs or calx, this word Schlich or Calx may suit with all metals, or else it may be that most small dust or powder

in polishing mills, where various Iron Instruments, Swords, Breast-plates, and other Arms are Polished, and which is wont to be under the grinding stone in deep gutters destinated to that purpose, or gathered in wooden vessels, and sold to such as dye black cloaths, and is called calx or Schlich. But now whether or no, he means this or the calx of any other metal; it is uncertain, nor doth it much concern; for the Sun and Moon may be reduced into a nothing without any of these Calces, and may be again augmented, and brought into something, as you shall see in the following Chapters of the Transmutation of metals.

Vain was their expectation who thought to turn all these species, thus blown together, into Gold and Silver, but yet could not get any other thing than a yellow, or spadiceous SCORIA contrary to their hopes but the Corruscation in most blessed and gladsome, if any one can get by reduction from a destroyed metal brought into Scoria, a most noble one and better than heretofore it was. But this destruction and reduction is not uniform, but is perfected many several ways as the following Chapters teach.

The First Rule.
Of the Nature and Property of Mercury.

All things are absconded and hidden in all things, but of all things there is one which is a coverer or hider of the rest, and is a Corporeal Body, External, Visible, Moveable: all fluxes are manifest in this vessel, for this vessel is a Corporeal Spirit, and therefore all Coagulations,

and Consistences are captivated and shut up therein being overcome by its flux compassed about and strengthened thereby, what this flux is, its cause and name what it is called, cannot be found, because there is no heat which may be therewith compared. The burning of the GEHENNAL Fire may be likened thereunto, on which account this Flux hath nothing at all of Community or Affinity with other fluxes, which are melted by the heat of common fire, and become hard and coagulated by natural cold. These fluxings or meltings cannot thus operate with Mercury, they are too weak, he values them not; hence 'tis to be observed, that the mortal Virtues of the four Elements have no ingressive Operations upon the Celestial Virtues, which Virtues we also call Quintessence, because Elements cannot either give unto, or take any thing from this Quintessence; the Celestial or Infernal Virtue cares not for the four Elements.

Hence note, That none of the Elements, nor any Elementary thing, be it dry or moist, hot or cold, none of these can do any thing against that Quintessential Virtue, but each hath its operation and efficacy for it self apart.

Glauber) In this Chapter or first Rule of Mercury, PARACELSUS useth succinct but yet perspicuous words, saying, that the fluidity of Mercury ariseth not from the four corruptible Elements, but from the Quintessence, and therefore hath not any affinity with these Elementary fluxings and meltings. Now, what this Quintessence properly is, which PARACELSUS here mentions, much might be spoken, but 'tis not so convenient

at this time, my self and other Philosophers have largely treated thereof, and therefore speak not of it now.

This only I add over and above, That PARACELSUS will have the Quintessence to be a thing not subject to the four Elements, but permanent and incorruptible, whereby he gives to understand, That seeing 'tis so, that the fluidity of Mercury hath its originality from the Quintessence, and not elementary Fire, so its coagulation is in like manner to be made by the Quintessence and not by the elementary Fires, be they hot or cold.

But now, what that Quintessence is, that coagulates Mercury, and transmutes him into Gold or Silver, it may be easily conjectured, that it is not to be sought for out of Vegetables and Animals, but to be extracted out of Metals, and ought to be much more pure, fixt, and meltable than they are.

Many are the things which PARACELSUS hath written of this Quintessence, attributing great Virtues thereunto; he that desires it, may read thereof in his Writings. Likewise many Philosophers affirm it to be a thing reduced by the benefit of Art into the purest and highest substance. Which name of Quintessence, some there are that attribute unto that Tincture, wherewith perfections are wont to be made. By which it is evident, That by the name of Quintessence is always understood the most pure, the best, and the most powerful part of a thing. But be it what it will be, 'tis clear, That Mercury is a wonderful subject, nor is to be coagulated and fixed so easily, as many have falsly believed, and tried the contrary to their great loss.

Many are the Coals which have been vainly consumed about his fixation, and are consumed, although always in vain; my self have also, though not often, handled him with a great deal of tediousness, which although not permanently fixt, yet observing therein many singular things, of which I count it expedient to relate something. In him is a most great power and virtue, most friendly to Metals; he is easily mixed with the purest Metals, and most difficultly with the impure; which denotes him to be of a most pure nature: And now, if he come to be fixed, I could demonstrate, if need were, by indubitable reasons, that a thing more pure than Gold would flow therefrom. It always produceth something as often as it is added to Metals, and constrained to undergo some fire, helping them evidently, even whilst it is in its Volatility; what then would it do, if being therewith fixed, it were along while melted with them in the Fire?

This I add for the better Lights sake.

When I was in my youthful days, and saw many attempting to fix Mercury with Gold and Silver, by Amalgamation, Sublimation, Coagulation, Precipitation, and other Labours of that kind, to transmute it into Gold and Silver; my self also attempting somewhat about him, by the advice of PARACELSUS'S Sayings, That in Saturn its Coagulation is to be found. On this account I melted in a little Crucible 6 or 7 parts of Lead, and added one part of Mercury; this I put into another Crucible where Nitre did flow, that it might be covered over thereby; in the mean while I melted the glass of SATURN, (being made of 4 parts of MINIUM, and one part of Flints) in a greater Crucible, whereto I put the

two former Crucibles heated to be covered by the glass. These three I again sunk into a new Crucible flowing with the glass of Saturn, thinking that I should this way keep in the volatile Guest, having now shut up Mercury in so many walls, I put him to the fire, intending to fix him, and then indeed he sustained it, not being able to break through; but increasing my fire, and the Glass melting with Nitre, away he goes leaving an empty nest, and left Saturn's weight whole and perfect, which having examined, it yielded a grain of Silver heavier than the common Silver which I believed to be Mercury fixt and coagulated, but reiterating that labour, I found it to be otherways, viz. that the Mercury was not it self fixed, but flown away, but yet by his occult power penetrated and meliorated the lead, that it afforded a little silver; also the whole mass of lead was hereby made black, and hardened like tin, whereby I perceived, that Mercury being a pure, meer fiery spirit, is most impatient of the Fire, and cannot be fixed without a Quintessence.

But thus much indeed it can do, if being joined with other metals, it can be so long held, as to endure the Fire; although it presently vanished away, it doth in a manner change them, not by bettering them, but stirring them up by its penetration, that they may mutually act each upon the other, and receive a meliorating faculty, although without any great profit, as far as I know, but I only intend to discover its possibility, its miraculous and almost unsearchable power, for it may deservedly be esteemed a Miracle of Nature. It is a meer invisible Fire; albeit such as are ignorant account it cold, and by Art it may be made far more fiery and volatile; which I sometimes have tried, where

being often injected into a vehement fire, again and again, and received in glasses, it hath elevated it self without any fire, and gone away into its own CHAOS. In a word, many men have accomplished prodigious things with Mercury, but all of them without any fruit; of which more shall be spoken in its place.

The Second Rule.
Of Jupiter and his Nature.

Whatsoever thing is manifest, (as the Body of Jupiter for example) the six other Corporeal Metals are therein hidden spiritually, and one more profound and remote than another. Jupiter partakes not of the quintessence, but of the nature of the four Elements, therefore his fluidity is manifested by a little heat of the Fire, and his coagulation in like sort perfected by a little cold, and hath communion with the rest of the metalline Fluxes.

Wherefore by how much one thing is in nature like to another, by so much the readier is it united thereunto, if they mutually touch one another; that also which is nigh, is more efficacious and sensible; for that which is afar off, doth not enforce, nor is that which is remote, how great soever it be, much feared. Hence 'tis that heaven is not desired, because 'tis far distant, nor seen by any one; neither is hell feared, because it is far off, whose form none hath known and seen, nor felt the Torment, and therefore 'tis valued as nothing. Those things then that are absent, are little regarded, or plainly rejected, being

constituted in a thick place, for by the property of the place every thing is deteriorated or meliorated; which thing may be proved by many Examples.

By how much therefore JUPITER is farther off from Iron and Copper, and nigher to the Sun and Moon, by so much the more Golden or Silver-like it be in his own body, and seems more great, potent, pellucid, sensible, more fair, pleasant, notable, palpable, more true and more certain than elongated, or at a distance. On the contrary, by how much the more he is elongated, by so much the more vile and abject he is in the matters aforesaid: for things present are always more notable than those which are absent; by how much any thing visible is nearer, by so much a thing invisible is more remote. Therefore it behoves the Alchymist to study how he may place JUPITER in a spiritual ARCANUM and remote place, in which are SOL and LUNA; and that he may take SOL and LUNA from far, and bring them near, into a place where JUPITER existeth corporally, so that the SOL and LUNA may also be corporeal and truly present before his eyes in the EXAMEN. For there are various Labours and modes of transmuting metals from their imperfection, into a perfect state.

To mix one with another, and again to separate the one from the other pure and sincere, is nothing else but a genuine permutation made by the labour of Alchemy. Note, that JUPITER hath much Gold, and not a little Silver. Put to him SATURN and LUNA, and the LUNA will be augmented by the rest.

Glauber.) Although I do not certainly know the reason why PARACELSUS beginning with Mercury, passeth next to Jupiter, nevertheless it is very probable that he would thereby point at some singular Mystery. Here he represents the former sentence, saying, Every visible metal hideth in it self the rest invisibly, from which if we would reap any good, their Invisible and spiritual Gold is to be taken and brought near, or to be visible; and on the contrary, the visible to be removed afar off and made invisible. But how this ought to be done he doth not teach, but leaves the Reader to search it out in his seven Canons or Rules, which are very difficult to be understood not only by a rude Tyro, but even by one well exercised: And seeing that not one in a thousand understands them, it is no wonder that his Writings have been had in Contempt.

Without doubt he aimed at our good, supposing he had written very clearly, and directed his speech in such a manner, as if he had to do with one that is skillful in the metalline nature, without having any respect to the common blindness and Ignorance, whereby he received great thanks, and was highly esteemed of by all.

But what shall we say or do? 'Tis bad meeting with wicked proud men, as thou most clearly writest; yet because the unexercised, if they have even once erred, they wrack and abuse the Writer with meer slanders: Hence it comes to pass, that many desire rather to be silent, and leave unto fools their own toys and vanities: But the Case being with more accurate examination considered, it seemeth evil to be revenged on the Innocent as well as the Guility.

As for Tin, if thou searcheth into its nature and property, it is a pure (compared with the other metals) unripe metal, abounding with very much combustible Sulphur, whereby it obtains its liquifaction and corruption in the fire: which being removed (and it may be done with a gentle fire) it loseth its metalline fluidity, and very much resembles unmelted ashes, whereto if you add another sulphur, whereby that ashes may turn into a metal; and again convertest it into ashes, repeating this labour until all its combustible sulphur being burnt up, it refuseth to go into ashes, by Calcination, and then melt it, 'twill easily give forth its gold and silver in the trial. Now, in the being mixt with Lead, it causeth a strife in a strong Fire, and getting uppermost, turns into ashes, that is to be imputed to the combustible sulphur, whereby it so being melted with Gold, Silver, Copper and Iron, it makes them brittle like to Glass, but being dispelled of that Sulphur, by roasting or calcining by Inceneration or Cementation, or any other way, it doth not any more make them brittle (which thing to do is full of difficulty) but is melted with them, and most easily separated with Venus, she knowing how by her kind and flattering words to perswade the two old men Saturn and Jupiter, mutually to abide each other in the fire; Gold and Silver will also do the same thing; but because they are precious and easily flow out of the Crucible, and the Work may perish, it is sufficient to use Venus, which also will give from it self its own hidden Gold and Silver, and not to take these metals which are purified with great labour, and drown them afresh in impure metals, and destroy them.

There are also other ways of purging JUPITER, from his superfluous sulphur, viz. a Nitrous fire. If filed JUPITER, being mixt with Nitre, Sulphur, & Sawdust, be kindled, part of the tin is elevated up into flores, and a part remains reducible in a strong fire, which is to be so often handled the aforesaid way, till all the substance be reduced into flores and ashes, the metallick form and nature being most plainly destroyed; after this, let the flores be gathered out of the Receivers, and the ashes elixiviated or washed, and by the help of a good Flux be reduced into a metal, which is to be again filed, sublimed, and burnt, as before, until all the Tin remains like Scoria, and will not sublime; which being melted with Lead and separated, thou shalt find gold and silver shut up in its bowels.

Likewise pour fixed Nitre (the liquor of it) on the filings of Tin, digest it its time, supply the evaporating moisture with new Liquor, that it may be always moist, but yet let it not be too wet, but like thick water. This Liquor dissolves and takes away the combustible sulphur of the Tin, and fixeth that which is incombustible, and makes it capable of enduring the fire; so that being melted with Lead, and purged it yields its gold and silver.

Another separation is thus instituted: Reduce Tin with common SATURN or REGULUS, Antimony 1 part (ounce?) into Glass or Amansa, which keep a good while in Flux in a strong fire, (forget not the inceration of Nitre or salt of Tartar) by which labour the purer parts of the Tin being gathered together, do give a REGULUS, the impurer parts separating themselves with the Lead and Salt into Scoria, the REGULUS being purged

thou shalt have the fixed gold and silver in the Cupel.

But 'tis to be known, that these Operations may be done without Copper, but yet will yield more Gold and Silver if Copper be added; not only for that the Copper it self gives forth its Gold and Silver, but because Tin of it self, without the admixtion of Copper, doth not willingly let go its own Gold and Silver. But in seeking of shelter amongst its own Copper, and withdrawing it self to the SCORIA, is there hidden (the Labour being finished) the SCORIA can no more attract it into it self.

Copper therefore is as it were a Receptacle, wherein the Sun and Moon collected and separated out of the mass, can defend and hide it self, and is by Chymists called a Bath or BALNEUM.

In the 4th. Chapter, which treats of Copper, a more large account is given of this labour of metalline Glass. Moreover gold and silver may be separated out of tin in this wise.

Melt common Lead in a Test under a Mussle and being throughly hot, cast in a little Tin, and it will incontinently have Ingress, but will forthwith ascend and kindle like burning sparks and go into ashes; which must be taken off with a crooked Instrument, and more new Tin put in; which being burnt, let it be taken out. Repeat this labour so long, till all the Lead be devoured as it were by the Tin.

Put these ashes on a Test, under a Muffle, and let them be yet well heated by the fire for an hour; so that if any grains of Lead remain, they may be made ashes, and the calcined ashes of the tin may be the better fixed. Reduce these ashes, and 'twill become a metal, which let

be again made ashes upon the Test; repeat this labour, until in reduction it refuseth to go into a metal, but remains a SCORIA and a metal destroyed, which put into an excellent Crucible, and by a Flux made of Tartar and Nitre, let it melt its due time, and the fixed Tin, together with part of the Lead, will go to the bottom into a REGULUS; which being washed makes manifest the gold and silver hid in the Tin on the Test. This Labour is neat, easie, and but of small charge, especially where wood and coals are cheap, the SCORIA, from which the REGULUS is separated, is not to be trown away, but kept for other uses, of which we shall presently speak.

Now he that promiseth Gain unto himself from this small work on a Test, is deceived, because hereby is only found how much Gold and Silver is contained in an hundred weight of Tin, and what costs are expended in its melting, whereby may be computedwhat gains may be expected every day, nor indeed is this work (thus done under a muffle) so profitably accomplished, as 'tis in greater Furnaces, where being a greater heat of fire, a more plentiful gain is promised. And although because of many various Imployments my self never tried, yet I will briefly delineate and describe how a large Return may be made, according to Calculation, computed by a smaller quantity.

An hundred of Tin requires 10 or 12 C. of Lead; (the work being wisely handled) the price of the Lead, Tin, Coals and Labour, being summed up, and being substracted from the Gold, there seems to remain but a very little to defray the charges. But if you look thereinto a little more narrowly, you will find a recompence and benefit arising

thence, not to be despised, especially if you use Lead impregnated with Silver, which by reason of not considering the benefit and gain, remains unseparated therefrom. Likewise you may use a golden Tin, such being often found as contains as much Gold as the Tin costs; and you may also meet with Lead, which contains as much Silver as the Lead is worth, but not separated by the Refiners, because they are ignorant of this separation, which by the usual way cannot be separated with profit: and that your Labour may be the more beneficial, you may add to your Tin some golden or silver stones, and minerals, as Marcasites, Antimony, Arsenick, Auripigment, Cobalt, and various Pyrites or Kisij (which because of the small quantity of their included Gold, are never wont to be melted) & let them be SCORIFIED, which yielding also their gold and silver, do bring in a greater profit; but especially if these Minerals having been first melted with Copper, are by the benefit of Iron (or melted with Iron) brought into REGULUS, and their Gold reduced to a narrow compass, which REGULUS being thrown into the Lead, together with the Tin, let it be made into SCORIA, and then their Gold is gotten without much charge, and is depurated by the Tin. But now, if you would have this separation profitable, it is not to be done in Crucibles, but in well compact Furnaces or Hearths, whereon the bright flames running, let your metals be throughly heated or calcined, and your Calcination, Incineration, or Annihilation being accomplished, let Reduction be made, in an acute Furnace, of which thing my time permits me not to give any larger account; its sufficient to have experienced the truth thereof in a lesser quantity;

any one may try his fortune in Metallick Operations.

Now, although there are more ways of separating Gold and Silver from Tin, yet what I have already declared seems sufficient for this time; the following Chapters, wherein the nature of the other metals is treated of, will manifestly open what I have decreed to discover concerning them.

The Third Rule.
Of Mars and his Property.

The six hid Metals have thrust out, or expelled the seventh from them, and made him Corporeal, leaving unto him lowest Dignity, and imposing on him the most thick hardness and labour. In this body have they manifested their whole strength, and hardness of Coagulation to be, shutting up, or keeping inward, their Colours and Nobility, with their Fluidity. 'Tis hard and full of Labour, to make a Prince or King of a Peasant, or common Fellow: But Mars by his Virtues, obtains Honour, and gets up into the high Throne of the King: But 'tis expedient, that care be used, least hastly posting forward, he be taken. It is to be considered what Art Mars may be promoted to the Throne; but the Gold and Silver put in the place of Iron with Lead.

Glauber) We are come now to MARS in order, it being the 3rd. according to the Compute also of the Astronomers, descending from above. Now PARACELSUS doth not attribute the first place to SATURN, as the Astronomers do, but to MERCURY; and haply, not without great cause,

hinting hereby some singular thing. He goes on, and says MARS is rude, sharp, and thick, because the other Metals have cast out their most ignoble, and basest part upon him, which thing experience testifies: He is composed of hard knotty Timber, and hath in him but little good; he is sharp and churlish, and not at all to be compared to gentle, tender, and noble JUPITER; but if he be once freed from his knottiness, which is hard to do, and rendered tractable, he shews his Virtue, and discovers himself also to be a partaker of the Royal Blood. PARACELSUS adds, that SATURN can take away his knots, and elevate him to an higher degree, although the Astronomers are very much displeased with the Conjunction of these two, as being the Author of all evil, and have therefore inserted peace-making, and benign JUPITER in the middle. Now that Lame SATURN may polish and make crabbed Iron smooth, PARACELSUS tells you that there's need of Caution, lest by over hastiness, he bring loss upon himself. He stoutly resists, nor doth he easily yield, but rather busily contrives how to captivate and destroy others; yet PARACELSUS mentions its possibility; whose Reasons, Way, or Manner, we will briefly illustrate. SATURN indeed is by Birth, fated to wash the other imperfect Metals, and to purge them from their superfluous Sulphur, if any good doth accidently adhere unto them, but knows not how to remove their radical, and innate Impurity; and that it is not alone sufficient for this thing, the trial of the Test witnesseth; for although you add Iron to SATURN, to be separated upon the Cupel: yet hath it no sincere ingress into SATURN, but if it be so far brought by great labour, it doth not remain, but speedily separates to the Superficies, like SCORIA, and

leaves nothing with the Lead, but what was accidentally in it, himself withdrawing with his whole power, and native goodness; Tin also doth the same; but Copper albeit it swims not upon the Lead, nor goes away, yet it is not therewith radically joined, but being reduced with the Lead, into Liquable SCORIA, descends into the porous Ashes, of which we have accurately treated in the Fourth Part of our Furnaces, and in the Appendix.

Lead is not therefore the true washing of Metals , but that it may so become, 'tis clear that it must be aptly prepared; and if you do more exactly contemplate on the thing, you'll find it very rational; for by what means can SATURN the (most liquable of all metals, freely copulate with MARS, which is the hardest; Indeed 'tis true, that they enter each into the other by mutual fusion; but 'tis forcedly and superficially, not radically; as if one boils Water mixt with Meal, into a Pulse; the Water thickens, the Flour moistens; yet neither entering into the other, radically; but the Water getting into the Pores of the Meal, or Flour, makes it Pap: In the same manner is it with SATURN and IRON, they are indeed mixt; but cannot equally sustain the violence of the Fire. MARS doth not alter his breeding or wit; both in the melting together, remain an hard, and not easily melted Metal; nor is the humidity liquability of the Lead hereby corrected; for although they are become one Mass, yet each keeps his old Condition: but if they are so ordered, that both of them may undergo the same Fire; then the Iron will yield, and deliver his Gold unto the Lead, and his warm Volatile Sulphur maturates the Silver, lying hid in the Lead; exalts it, and makes it corporeal,

that each bestows on the other, his Goodness and Virtue; each supplies the others defects, and both are perfected: for although hard crabbed MARS be made to flow with liquid and combustible Sulphur, or a Sulphureous Mineral, as Antimony, Arsenick, or Auripigment; yet is not any transmutation made, each remaining in his own Nature, without alteration; like as Mercury being reduced into an AMALGAMA, with Gold or Silver, makes no solution, only adheres unto the Gold, and easily separates therefrom, leaving the Gold to himself: But if any one know how to conjoin, Gold and Silver with MERCURY radically, they would not forsake one the other; but would perfect themselves mutually in a strong Fire; so would the other Metals too, were they but radically commixt. Some one may ask, what is this radical or spiritual Commixtion of the Metals, and what I understand thereby? For Answer, They are to be so united with an Implanted Love, that they freely join together, and so remain equally, enduring prosperity and adversity; and neither of them discernible from the other, that they penetrate the shut Gates, and thick Walls, without any obstacle; that the Volatile exhales not in the Fire: that which is liquable, separates not from what is illiquable; thereby penetrating the Vessel, leaving behind it, the more fixt, or rougher part, in the form of SCORIA, But thou mayst demand by what means I spiritualize the Metals, and radically conjoin them; what, must they first be dissolved in AQUA FORTIS, or other corrosive Spirits, and be distilled by an ALEMBICK, that they may become Volatile? No, I mean not any of this; this kind of spiritualization is a meer deceitful, and cheating Labour, hindering many thousands, which otherwise would be nigher to the Truth:

All the Philosophers diswade you therefrom, that you do not torment the Metals with sharp spirits, whereby instead of being perfected, they are corrupted and mortifyed radically. 'Tis madness to pour more Water into any one that is suffocated with Water, thereby to restore him to Life; this is to put the Bridle on the Horse's Tail. Now 'tis evident, that the superfluity in imperfect Metals, is their combustible and corrosive Sulphur, and by how much, the more imperfect and base they are, so much the more of a combustible Sulphur do they possess: an evident Testimony, of which we have in Iron or MARS: 'Tis only his acid Sulphur that depraves him of every degree of dignity, which gross, acid, and vitriolated Sulphur, did he not so much abound withal, he would not contract Rust so easily; and by the attractive Moisture be so soon corrupted: and were he not so quickly rusty, he would be put to better uses, than now he is. But you may object, that you cannot conceive, how he can have such a corrosive Sulphur, whence should it happen to him, for the Mineral, and Stones, whence he is extracted, do not appear to be impregnated with such a Sulphur; whence comes it therefore to be in him? Besides, if the Mineral did partake of such a Sulphur, surely it would never abide a Fire so violent, but it would be driven away.

My Friend, thou dost not at all understand the Nature of Metals, and for what end it was, that Nature left such a Sulphur in Iron, and the other imperfect Metals; for it is a Nutriment unto their better Parts, being like an EMBRYO, and as it were, a Covering or a Matrix, in which a noble Child is maturated, and is (after the ripeness of the pure Metal) thence excluded. For Natures intention was not, that Iron should be

but Iron, but rather Gold; but the digger not willing to wait so long, and knowing the manifold uses of Iron, allows not time for it to become Gold, just like the Fisher-man (who catching a very small Fish, and the Fish desiring to return into the Water, until being grown bigger, he might the better fill the Platter) said, nay, but I will hold thee, as thou art, for 'tis uncertain, whether or no, being grown bigger, thou mayst then be found. Just thus doth the Miner do, he waits not the Irons becoming Gold, but puts it to its present use.

'Tis commonly known, that there is abundance of corrosive Salt therein, which is not combustible in melting Fire, neither needs it any further demonstration; it having been also treated of in the Annotation of my Appendix: and that thou mayst see that a Metal can preserve, and keep its volatile combustible Sulphur in a melting Furnace, I will expound it somewhat clearer; Gold having already obtained its perfection (it being a mature product) Nature hath separated this combustible Sulphur, or acid volatile Salt therefrom; because it needs it not for any further nutriment: neither would it hold it, if it should be put unto it, but thrusts it from it in the Fire, and hath no affinity therewith, as the other imperfect Metals have.

Now LUNA although it be not so completely perfect as SOL; yet, 'tis more perfect than the others, and hath notwithstanding, a Commerce with this sulphureous Salt; yea, so as to hold common Sulphur a very long while in a great heat, which we shall declare anon in the separation of Metals; and if LUNA (which is almost a ripe Metal) doth thus, questionless the other more imperfect ones will do it more willingly; which

thing, that you may be the more assured of, incorporate a sulphureous Salt with any Metal, and continue it in a great heat; and after a few hours you shall see that your Metal will hold that Sulphur, and defend it against the force of Fire; but if a Metal be in some sort freed from this sulphureous Salt by a melting Fire, it doth again receive and hold it; Will it not therefore hold its own, wherein it was born and from whence it came forth. MARS excells them all as to this, being not only a friend to sulphureous and corrosive Salts, but also to Urinous which (when it cannot have acid salts) it doth by a magnetick power attract and defend these in the fire. For example; mix the filings of IRON with Nitre and salt of Tartar, and these salts, in a melting Fire, will be fixed with MARS, and resists the Fire. Which thing is most worthy observation, and by no means to be neglected.

But to return to my former purpose of demonstrating, that Imperfect Metals are not only, not bettered by corrosive salts and spirits, but are rather corrupted: Daily experience doth prove it before the eyes, that all such as have used corrosive spirits in their bettering of metals, have done no good at all therewith, but have, to their hurt, lost both their time and labour: whereas those that have used other MENSTRUUMS that are not corrosive, have profited more therefrom, and have seen more than they have sought; such as those are in a way tending to dissolve metals without corrosives; to make them spiritual, and radically to unite them, that they may mutually act in, and sustain or undergo the Fire alike, and may co-operate to purity and perfection, and may ennoble themselves. Of which SPIRITUALIZATION more shall be spoken in the Sixth

Chapter, where PARACELSUS also treats thereof. This therefore do I affirm of MARS, that he must be handled with such MENSTRUUMS as are not only not corrosive, but contrary to Corrosives, and such as mollify and separate those Corrosives which the Metals hold in fusion, that so for the time to come they may attract no more any moisture, and thereby contract Rust, and be corrupted; but may be rather able to preserve and defend themselves against Corrosives and combustible Sulphur. But let none think, that MARS being by this Antidote freed from its thick, earthy, and combustible, and corrosive sulphur, will be wholly turned into Gold, for 'tis the smallest part of MARS that is good: by how much the Gold is more noble than common IRON, by so much is the IRON, from whence the Sol is separated more vild than other Iron, and the remainder is nothing else but a most vild Earth or SCORIA, void of all metallick fusion. The milk of a Cow or another Animal, if unmixt with water, is good milk; but yet 'tis far inferiour in goodness to pure, good, well wrought Butter; and by how much milk is more vild than butter, by so much is the whey and acid milk from whence the Cream is separated, more vild than that which is sweet and abounds with Cream. If generous wine be spoiled of its spirit most sweet and most excellent, by the benefit of Distillation, one part of that is better than 12 parts of wine out of which it was extracted; the remainder cannot be wine any more, but is much inferiour to good wine, as wine is to the spirit.

The like it is with Metals, which being deprived of their soul, whereby they obtained a metallick form, they can no more be malleable Metals. Therefore 'tis good to consider whether or no in the separation

of Gold out of the Imperfect metals, it will be answerable (in value) to the metal, and other Expenses necessary about extracting it; but now, if you know how to apply the residue of the Metal to other uses, you may with the more confidence attempt the separation. But to return to the words of PARACELSUS, I will shew how MARS may, through SATURN'S help, arrive to a Kingly dignity. I have before said, that there is no familiarity between the most fusile and most hard metal, but the one will be gone away in fume before the other will melt, and that we cannot want SATURN in the separation of MARS; but how it is to be handled, I will briefly explain.

Saturn of himself is liquable and volatile, but yet can be made illliquable and fixt without detriment of the Radical Moisture or Metallick Nature; so as to undergo the same Fire with MARS, and being brought to this pass, it is then fit for the separation of MARS. 'Tis many ways made illiquable but the best way is by fixt Salts, of a contrary nature to the superfluous Sulphur in MARS, and excellently well separated from the REGULUS made of MARS; for Nitre and Salt of Tartar do not only harden SATURN, but unite other metals with him, making them spiritual, and most like to transparent, soluble Glass, the which having sustained the Fire their proper time, the Agent being taken away, and the Patient sufficiently purged, the purest part of the Metals, thus spiritually mixt together, doth by the force of SATURN separate from the other unprofitable part. The REGULUS is purged easily, so that there's no need of separating the whole Mass by precipitation and reducing it into REGULI; but SATURN, by his innate force, doth in its due time finish the

separation or precipitation of the pure from the impure, of metals thus spiritually commixt and united. This is enough spoken concerning the way of separating gold out of MARS by SATURN, viz. SATURN being first fixt by salts, and made hard to melt, so as to endure the same force of Fire with MARS, or otherwise 'twill be impossible to have any thing from MARS by the usual way of the Refiners, by the help of scorifying with SATURN and separation which even as JUPITER also doth not stay with common Lead in a strong fire, but separate themselves and go into SCORIA; the which we have also hinted in the First Part of this little Book, whereto we refer the Reader. This separation of Gold out of MARS, may be done with REGULUS of Antimony and Nitre, and in some manner better than with common Lead, but that I do not deliver the whole Process from top to bottom, let no body wonder thereat, for then the Book would grow to too great a bulk, and I should not receive any reward the more from the Unthankful: Let it suffice, that I have declared the manner and the Species wherewith 'tis to be done; for 'tis for the sake of such Chymists as are most expert in the Fire and Metalline Works that I write, and not for the common Distillers of Waters. And as touching what may tend to illustrate what is said, it shall be supplyed with some Processes at the end of the seven Rules.

Whereas I have attributed to MARS in the First Part of this Treatise and elsewhere, that he doth not only unwillingly deliver his own gold, but also if any be either accidently, or of set purpose, added thereto, he swallows it up and hides it, and will not restore it without detriment and loss. Some body may admire how it's possible for to be done so

easily by SATURN and Salts; let him know that this Extraction of Gold out of MARS is not any the common Examen or Trial, but a true and Philosophical separation wherewith MARS being well dissolved, is most throughly separated from his thick and hard body, concerning which, I never met with any full pregnant Processes any where. And albeit that I am not ignorant that many, yea most that read, will not have any higher thought or consideration, yet I say that there is something else hereunder; and do believe, that it is to be esteemed far more excellent than Sol it self; which that thou maist not over-much trouble thy head about, I will not be shy in communicating it also unto thee, viz. Out of Iron is prepared a Salt without any corrosive, which is able to extract the soul from Gold, that it will remain half dead. But MARS will be impregnated as it were divinely, so as to be able to give forth a golden Child: the debilitated Gold will recover its lost Colour and Virtue by VENUS and ANTIMONY. Other Philosophers have likewise made mention hereof, viz. that MARS will not spare even the King, out of whose bowels he will steal Treasures, and will not blush to adorn himself with the same. Concerning which Secret the most famous SENDIVOGOUS wrote on this wise. "The Chymists know how to change Iron into Copper or VENUS without the Sun: They likewise know how to make MERCURY out of JUPITER: Others the there are that can make LUNA out of SATURN; but if they knew how to administer the Solar Nature to these mutations, questionless they would find a thing more precious than any Treasure. On which account I say, that we must not be ignorant of what metals are to be conjoined one with the other, and whose nature of them

corresponds to Nature. There is therefore given one metal, which hath a power to consume the other metals, for it is as it were almost their water and their mother, one thing there is that only resists it, and is bettered thereby, viz. the HUMIDUM RADICALE of the Sun and Moon; but that I may descover it, 'tis called CHALYBS."

Thus you see, that from MARS also some good is to be gotten, although all speak ill of him; and indeed he is wicked if he gets possession: Nor will he spare the highest Powers, from whom he will forcibly wrest their hidden Treasures, but yet by Commerce with VENUS he will again repay it in time to be distributed amongst the subjects; although the king being robbed of his goods, looks pale upon it, yet he lays not down his life, and he remaining alive, there is no cause of complaining, for as long as the Riches are not exported, but remain in the Kingdom, distributed amongst the subjects, he is able to receive his former majesty and splendor from his Revenues, and to gather new Riches, and preserve his kingly dignity whole and sound.

Here I foresee that our common Know-littles, in the light of Nature, will traduce me, as if I enterpret SENDIVOGIOUS'S CHALYBS to be common MARS, and say that 'tis not to be understood according to the Letter, but the Author would hint somewhat else thereby; but 'tis no matter, what I have written, I have written, and that not without cause. I am not ignorant, that he means not common Iron no more than I, but his immost Magnetick force and power, or essence, prepared without corrosive, and known to few, which doth most greedily extract and transmute the soul of Gold above all other things. and herewith we will rest and cease.

The Fourth Rule.

Of the Nature of VENUS.

The other Six Metals have in VENUS framed all their colours, and the MEDIUM of their Flux (with inconstancy) into an External body. It would be therefore profitable to hint to the understanding by some examples, by what means the visible may be by the benefit of Fire be made invisible, and this again made visible and material. All combustible things may naturally be changed in the Fire, out of one form into another, as into a Coal, Soot, Ashes, Glass, Colours, Stones, Earth, but the Earth is reduced into sundry metallick bodies; and if a metal combust or corrupted with old age, is thereby become unmalleable, sharp, and brittle, let it well flow, and 'twill again become malleable.

Glauber) Although that VENUS being malleable more than all the metals, in and out of the Fire, is fit for all Operations, yet even this is not void of a combustible sulphur, but is radically polluted therewith, so that it will most easily, of it self, without addition of any other sulphur, be reduced into SCORIA, and be corrupted, which corruption is occasioned by the muchness of its combustible sulphur; Gold and Silver being void of that Sulphur, are not subject to destruction. So that, although they undergo the Fire a most long season, yet go they not into SCORIA like the other imperfect bodies; and for the reducing of them into ashes, combustible sulphur must be added; whereas the imperfect metals too much abounding with the same, are changed by

a most light heat into Ashes, Powder, or SCORIA, which SCORIA'S are melted into either transparent or darkish tincted Glass, according to the nature of the metal; which Glasses may be melted into malleable Metal, and again into Ashes and Glass, as you please, but always with some loss, by reason of some combust parts irreducible into metal, the metal also remaining, as it was at first, without being any thing bettered.

He who knows how to melt Metals into pellucid Glass, by the addition not of metallick things, but of such things as have affinity with the metals, as Salts, Sand, or Stones, shall in reducing them, always find his metal better than it was in the beginning: And that the Reader, for whose sake I have written these things, may the more throughly understand my mind, I will explain it somewhat more clearly. PARACELSUS hath above affirmed, That every visible metal is an hider of the other metals lying hid invisibly therein, and that the hider is to be removed, if you would that those visible metals become visible and corporeal, which being most truly spoken, I know not what light it may be illustrated withal. The words also are succinct and easie to be understood, yet no body believes them; There's scarce one amongst an hundred that conceives what they tend unto. MATALS CANNOT BE CHANGED WITHOUT PUTTING OFF THEIR METALLINE FORM; for if you keep them a long time in Flux, by themselves, or joined with others, if they remain in their Corporality, they cannot help each the other, but being destroyed either by themselves, or joined with other Metals, and nourished in the fire their due time, it cannot otherwise be, but that they should be bettered, for so long

as it retains its metalline form, it cannot be holpen. 'Tis necessary that a hard body be broken and annihilated, before there can be made a separation of the pure from the impure.

But this is to be done by a genuine Chymical manner, and they are to be dissolved and throughly opened, with things of affinity with them, whereby the purer parts may be united, and the more gross may be separated. If a metal be forced with a most vehement Fire, its parts do firmly hold together, for if it be fixt, then the parts abide in the Fire; but if volatile, then the parts thereof fly away together, their natural bond holds them together, defending them against the Fires power, but dissolve their bond, and then they are compelled to submit to VULCAN'S Force and Empire, and will let you make of them what you please. It may well shame the Chymists to work so disagreeably with Nature, and may well learn by the Husbandman's labours to send for Nature's help. The Husbandman, therefore, when he sows his seed, to have a good Crop therefrom, he casts not his grain upon any sort of earth, without consideration, but chuseth such earth for each proper seed, as being well dunged, may suit best therewith, and in a convenient season sows his grain, that it, being putrified and annihalated, may be multiplied, he leaves it to the warmth of the Sun, and to the vivifying Rain to concoct and maturate it; well knowing, that without precident putrifaction and loss of its form, it cannot be multiplied. He likewise knows, that when it hath arrived to its maturity, it must not be left in the Field, but must be reaped, and then the better and more heavy part is to be fanned and separated from the lighter and worser part, viz. the Chaff; the which

operation is, by experience and long Use, known to be good and needful. This Process must a Chymist observe, for one Metal may be made the field of another, wherein putrefying, it may get it self a new body, which being done, he must likewise know how to separate the new body from the FECES, from which 'tis gathered and made; and how to fan VULCAN like the best and most ponderous, from the lightest, for both of them will be made better by the foregoing preparation, and the annihilation of the bodies. When a Country-woman intends to separate the better part of the Milk from the more gross and cheesy part, she puts it in a quiet warm place, that the best part may rise up, and the worst part go down, the which being as yet not sufficiently purified, she adds her art, and puts it into a Churn, and doth so long stir or agitate it until another separation be made of the pure from the impure, which we call BUTTER; which notwithstanding, had it lain never so long by it self, had never come to have been Butter, without the Hand and Art of the Country-woman. Who would believe that in Milk there lies Butter, if he did not daily see it? This separation of the Butter from the waterishness, proceeds from the quick shaking and agitation, whereby the Milk heats; and if it doth not fadge, then do they put thereto some warm moisture, which uniting it self with the moisture of the Milk promotes a separation, for heat alone is the meer cause of hastening the separation. This now may seem gross as an Example to the Ignorant, but let none imagine that this separation of the Butter from the Milk is alledged in vain, but rather to shew the way how out of imperfect Minerals the golden and silver milk or part, is to be separated by the access or addition of a warm

Mineral water, and by the Fires agitation: Even as warm Water helps the moisture of the Milk, that so it doth the easier separate its own hetrogeneous Butter (and yet the way of separating the Butter from the Milk, without agitation, by the affusion of a warm thing and coction, is not unknown;) so also the Metals are separated, if they are a long time boiled with their own Water.

Now, because of themselves they are compact bodies, if you keep them in Flux a long season, they remain compact, and are not able by their own power to shew forth their Good or Evil, nor make it appear, whether or no they contain Gold or Silver: They are to be a long time boiled with Water, that being dispersed, they may be translated out of their metalline nature, and the pure (by the agitation of the Fire) may be separated from the impure; which purer part of the metal doth not swim at the top, like Butter, but settles to the bottom like a REGULUS, after the metallick manner, and all being cool, it must be separated from the SCORIA, and in a Cupel be washed to the utmost purity.

But now 'tis worth the while to know what Water this is which is fit for this Work, and makes a separation of metals; for seeing that it must have power to dissolve metals, it's expedient that it be a friend unto them, and of the same kin, or (that I may speak clearer) 'tis fit that it be their dissolver and examinator; and this old SATURN hath power to do, out of which it may with small costs and labour be prepared; but the common SATURN, although it be called the Water of Metals by all the Philosophers (but in the usual washing in the Cupels 'tis not found so to be) yet as long as it remains in a compact metalline form, 'tis

unfit for this thing; let him first be made Water himself before he reduceth the metals into water; which work is easie, of small cost, and of a few hours labour, and it goes into Water, and the Metals are thereby washed. Of which more shall be said in the following Chapter of SATURN, and elsewhere. This also is to be noted, That Copper being dissolved with the Water of Lead, be digested its proper time, the moisture dries, and the metal is hardened, and returns into a metallick body; therefore the Solution is to be kept always liquid by the affusion or pouring on of new water, lest the mutual action be hindered, which the Philosophers call INCENERATION: Which being neglected, all the Work doth not presently perish, but there remains most elegant AMAUSA, and tinged Glass, which shines among the Copper, giving out from it self a Blood-red Colour, wherewith not only wooden Vessels may be adorned, but also Glass-Painters may use it; of which red Glass there hath been some found in old Churches; but 'twas believed that the Art was throughly lost; but this came not by chance without doubt, but was purposely concealed by those whose practising hereabouts did perceive a better thing to lie under it; for the red AMAUSUM or Glass, being burnt its proper time with a strong fire, gives a REGULUS yielding in the Leaden washing good Silver. But if you seek for LUNA out of VENUS, its better not to make the red AMAUSUM or Glass at all, but to keep on with Inceration, that it may not come to be red, but may remain a pellucid and green Glass, even until VENUS be well washed.

Moreover this is to be noted, That VENUS and the other metals are not only reducible into soluble and insoluble Glass, by this SATURNINE

Water, but the same is to be done by the addition of clean Flints and Salts, by which they are made much fairer than those done with SATURN; but in the separation they are vilder, because the Dissolvent is not so metalline, and after pergation, they do not so easily give their REGULUS as those that are done with the Water of SATURN. There's also another way, by which the superfluous burning sulphur of VENUS may be washed, and be cleansed without the water of SATURN or of the Flints, viz. with SALT-PETER. If VENUS or any other imperfect metal be often mixt therewith and burnt, the purer parts come together, and the combustible parts come together, and the combustible sulphur separates in the form of SCORIA. To conclude, This separation and washing may be done by the help of other fixed Salts, but none so good as the Water of SATURN. Now let the Reader know, that those things spoken in a rude style, concerning VENUS, want not their weight, even as the following Chapters will openly declare.

The Fifth Rule.

Of the Nature and Virtues of SATURN.

Thus speaks SATURN of himself: The other Six Planets have excluded and thrust me out, who am their Examinator, from the Spiritual City, assigning me an habitation with a corruptible body; for what they neither are, nor will be, I am constrained to be: My six Brethren are Spiritual, wherefore as often as I am in the fire, they pass through my body, and both I and they perish together in the Fire, the two best excepted, Gold and Silver, who are most neatly and purely washt in my waters, and wax proud. My Spirit is Water, softening the hard bodies of my Breathren; but my body is addicted to the Earth, whatsoever I lay hold on, is also made like the Earth; and is converted into one body. It would not be good that the World should know what is in me, or what I could do; it would be better did they but know how to get that thing which is mine, and is in my faculty, they would lay aside all other Arts of ALCHEMY, and handle this thing only, which I am able to perfect. The Stone of Coldness is in me; this is the Water by which I cause the Spirits of the six other Metals to congeal into the Corporiety of the Seventh, that is to promote Gold with Silver. ANTIMONY is twofold, the one sort is the common black Antimony, wherewith Gold being mixt and melted, is purged; this is of nearest kin to Lead; the other is white MAGNESIA, BISMUTH, and nearest to Tin, being mixt with the other Antimony, it encreaseth LUNA.

Glauber.) Here we have mention made of SATURN, from whence the Bath (spoken of afore) for VENUS and the other metals is prepared, and that twofold, the common and Antimony, both which I have mentioned in my former Tracts, as profitable for this washing, but one is fitter for some metals than the other. VENUS willingly enters into SATURN, and may most rightly be washed and separated with the common Saturnine water, MARS and JUPITER will not, but Antimony receives them most greedily, holds and washeth them, which is impossible for the common SATURN to do. Yet notwithstanding PARACELSUS seems to hint at some other thing here, speaking of the transmutation of SATURN with other metals, aiming (as I conjecture) as well at an universal as a particular transmutation of Metals by Saturn. Now Saturn also, as he is the water and washing of other metals, so may he himself be washed with Salts, which is, as I shall anon declare, are his water.

But let no body wonder that I speak no larger of the nature and virtue of Saturn, whom I set so high an esteem upon; for it hath been most frequently mentioned, and after this will be; so 'tis not fit so often to repeat the same thing, one Chapter illustrates another. See such other small Tracts as I have written of Saturn, and compare them well together, and without doubt you will perceive my meaning. That which PARACELSUS adds concerning the defference of Antimony is plain enough, and wants no illustration; for common Lead and Antimony (although much differing in the diversity of Sulphurs) was by the Philosophers called Black Lead. Bismuth, ashy Lead, and Tin, among the ancient Metallurgists, is white Lead; which appellations we shall leave to the ancients, and say no more thereof.

The Sixth Rule.

Of the Moon, and her Nature and Property.

If any one goes about to reduce LUNA into SATURN or MARS, it will be as difficult as to make LUNA (with great profit) out of MERCURY, JUPITER, MARS, VENUS or SATURN. But 'tis not expedient to make vile things out of good, but to make precious things out of base and abject things.

'Tis also fit to know of what matter the Moon is, and whence 'tis risen; he that is ignorant of this, will find it impossible to make LUNA.

Question. What therefore is LUNA?

Answer. It is the seventh external, corporeal, material, of the Six metals therein hidden; for always (as it hath been very often said) the Seventh hath the other Six spiritually hidden within it self; neither also can these six be without an external, material metal; nor can any corporeal Metal be without the six spiritual ones and their Essence. If you melt the seven Corporeal Metals, it doth nothing as to make Gold: after mixtion, each as its nature is, remains fixt in the fire, or volatile. For example, mix as well as you can MERCURY, JUPITER, SATURN, MARS, VENUS, GOLD, SILVER, it will not therefore follow, that the Gold and Silver will transmute the other five, that they become Gold and Silver: Although they are blown together into one mass, yet each remains in its own state, viz. if you take of the corporeal mixtion; for transmutation consists in the spiritual mixtion and union of Metals, because Spirits admit of no separation and mortification.

Although you kill the Body an hundred times, yet will they always have another Body more noble than the former. And this is the promotion of Metals from one mortification into another; that is, from a more ignoble degree to a higher, that is LUNA, and from a better to the best, that is SOL; a most illustrious and royal Metal; 'tis also true, and always will be, which hath been often spoken of before, that always the six metals generate the seventh, and deliver it from themselves into a palpable and visible substance.

Question. Now, then if it be so, that the LUNA, or any other metal, is always caused and produced from the other six, What therefore is its Property and Nature? I answer, Out of MERCURY, JUPITER, MARS VENUS, and SOL, no other metal can be made, but LUNA; the reason is, because as to the other six metals, each are indued with two good virtues, which in all make Twelve: these virtues are the Silverish or Lunar Spirit, which in brief understand thus; Silver is compounded into a corporeal Metal, out of the six Spiritual Metals, and their Properties, in number twelve, and is likened to the seven Planets, and the twelve Celestial Signs; for the LUNA hath from MERCURY the Planet, and Aquarius and Pisces, a bright white flux and splendor, MERCURY, Aquarius, Pisces; also LUNA hath from JUPITER, MARS, and TAURUS, a white colour, a great constancy against the fire and fixation, JUPITER, MARS, TAURUS; from MARS, CANCER, and ARIES, it hath hardness, and a good clangour or sound, MARS, CANCER, ARIES; from VENUS, GEMINI, LIBRA, it hath the means of Coagulation and Malleability, VENUS, GEMINI, LIBRA; from SATURN, CAPRACORN, SCORPIO, it hath a fixt body with heaviness and gravity, SATURN CAPRACORN, SCORPIO;

from SOL, LEO, VIRGO, it hath a sincere purity, and a great constancy, against the violency of the fire, SOL, LEO, VIRGO.

Thus is briefly explained what is the exaltation and cause of the spirit and body of Silver, with its own compound Nature and Essence.

It must also be known what matter the metallick spirits do take in their first Nativity, when they are carried down into the Earth from the Celestial Influences, viz. a vile Dirt or Stone, which the Mine-digger by breaking the body of the metal, destroys and burns in the fire, in which mortification the metalline spirit assumes another body, not fryable, but pure and malleable. Then the Alchymist coming, destroys this metalline body, kills and prepares it by Art, but that metallick corporeal Spirit makes apparently conspicuous, another more noble and much more perfect body, whether it be the Sun or Moon; then both the metallick Spirit and Body being perfectly united, are free and safe from Corruption by the Elements of Fire.

Glauber) PARACELSUS in this Sixth Chapter repeats the words which have been oftentimes afore mentioned, viz. That every visible metal is an hider of the other metals which lie spiritually hid within it; withal teaching, that it is impossible for corporeal metals, although melted together never so long, to be meliorated, unless they are first made spiritual; which I have oftentimes demonstrated and shewed to be the very Truth. and the right way to Transmutation.

But he doth not in express words teach the way by which they may be made and rendered Spiritual; nor is it convenient to chew a Morsel,

and thrust it into the mouths of the Ignorant.

Now I say, that as touching the spiritualizing of Metals, PARACELSUS doth not advise that Metals be dissolved in corrosive Spirits, & digested & distilled over the Helm with it, by often Cohobations. The Spiritualization which he mentions here, is not to be done with Corrosives, for they are rather corrupted by them than perfected, neither in Glasses, but in Crucibles, and that in a few hours, without Corrosives, whereby they are so depurated, and as it were poudered, that they are transparent in and out of the fire, and dissolvable in any water. This is a true spiritualization of metals, and gainful if it hath the said Properties: 'Tis otherwise called by the Philosophers, the first matter of Metals, and at this time known but to few.

Our Laborators now adays know not any metallick spirits, but such as by the help of peregrine and noxious things, they drive over by an Alembick or Retort; but Experience testifies, that these are wholly useless and unprofitable for Melloration. And although the ancient Philosophers write, Make the fixt volatile, and the volatile fixt, yet they mean not that the metals should be distilled. Which sublimation or distillation they did not meddle with, but all their metallick labours, as SOLUTION, PUTREFACTION, DISTILLATION, SUBLIMATION, CALCINATION, INCERATION, COHOBATION, and FIXATION, were done in one earthen vessel, without Corrosives; nor did they weary themselves with those ridiculous labours that are done by the means of Glasses. But of this more in another place.

Now read diligently over and over again what PARACELSUS writes at

the end of the Chapter, and it will appear, that he speaks of fusion, and not distillation in Glasses; where he shews, that a metallick spirit at its first descending from the stars into the earth, hath a most vile form, like a stone, or dirt, which the digger of it melts with a strong fire, whereby it gets a better form, and becomes a malleable metal. And here he is at a stand, and cannot proceed any further. Now, saith PARACELSUS, the Alchymist comes and takes this metal, and by his Art destroys the metallick body, killing and preparing it; and by his labour it assumes a more noble and fixt body, called (because of its maturity) Gold or Silver. The LUNA, although it be more pure and excellent than VENUS, IRON, JUPITER, and SATURN, yet having not arrived to maturity, it is (in comparision of the Gold) like a flower, which is more excellent than the herb, but inferiour to the seed, which is the most perfect part of the same. And as in Vegetables the flowers are indued with a more elegant colour than either the seed or fruit: So also is the LUNA more abounding with Tincture than the SOL; which I have often tried, and could demonstrate by many Examples; contrariwise, although the flower be, as to the form, colour and odour, above the seed, yet in goodness and durability it is much inferiour; for the flower at an approaching cold falls away; but the seed endures, and if it be helped, it produceth a new herb, flowers, and seed, by which its species are conserved and propagated. And as in Vegetables the herb is the greatest part, the flowers less, and the seeds least, so in Minerals is the like order most fitly observed: for should Nature produce, only Flowers and Seeds with the Herb, whence would there be Grass for Beasts, whereby

they might fill their Bellies, and so yield dung for the Country-man to dung his ground withal, that it might produce a new Crop of Herbs. Without doubt there's more Tincture hidden in LUNA than in SOL, the inmost part of which is a meer redness; but the centre of SOL is a most fixt and splendid Sky-colour, which is to be well observed. As for the other Properties of LUNA, which are most frequently known, 'tis needless to mention them; as to purity and fixation, 'tis nearest to SOL, and therefore in metallick things 'tis to be likened to a Flower: 'Tis plainly void of combustible and preying Sulphur; but being not as yet arrived and concocted to perfection, it is a most suitable Vehicle to extract SOL out of volatile and unripe Marcasites, and other auriferous Minerals, and to make it corporeal. Concerning which I have formerly written, and will write more hereafter.

The Seventh Rule.

Of the Sun, its Nature and Property.

Corporeal SOL is the seventh Metal of the six spiritual ones; in it self it is a meer Fire; but the Reason of its being outwardly of an elegant, yellow, visible, sensible, ponderous, cold and malleable body, is, because it hath in it the coagulation of the other six metals, whereby 'tis compelled into a visible body. And as to its being melted with Elemental fire, 'tis from hence, because it hath a fluidity of Mercury, PISCES and AQUARIUS, spiritually hidden in it self; the which is also outwardly evident, because it is most easily mixt with the SOL, and detained by him.

And whereas after melting, it grows hard by the Cold, viz. is coagulated, and grows stiff, that comes from the other five metals, JUPITER, SATURN, MARS, VENUS, and LUNA; in these five metals the Cold dwells and bears sway, and therefore SOL cannot be fluid out of the fire, because of Cold. Nor can MERCURY with his heat, mature, and fluidity help him against the five cold metals, for its heat sufficeth not to keep the SOL in perpetual flux, so that it is enforced to obey the other metals rather than one only, MERCURY, who (as to coagulation of metals) hath nothing to do, its Property being to make liquid, and not hard: It is the work of heat and life to make liquid, but cold is the cause of hardness, stiffness, and unmoveable, being therefore likened to Death.

For Example. If you would reduce the six cold metals to fluidity, whether it be JUPITER, VENUS, SATURN, MARS LUNA, SOL, it is to be done

by the heat of the fire, for metals are not melted with cold Snow or Ice, but are hardened thereby. Now, as soon as they are melted by the fire, and that the heat ceaseth, the cold rusheth in, whereby the metal stands still, grows stiff, dies, and remains immoveable. And because that MERCURY is always fluid and living, tell me, I pray, whether or no such a thing proceeds from heat or cold? Some or other may say, it is because of its cold and moist nature, and that it is living because of Cold; but whoever saith thus, and beleives that, is ignorant of Nature, and deceived and seduced with the vulgar, whose belief of any thing is out of the right way, & are therefore to be avoided and shunned by him that would truly know; for MERCURY is not living, by reason of cold, but because of its heat and fiery nature, as all things else live because of heat, for heat is the cause of life, and cold the cause of death.

But that SOL is in it self a meer Fire, not alive indeed, but hard, showing its fiery heat only outwardly, as yellow mixt with red, and the other five metals, are cold, viz. JUPITER, MARS, SATURN, VENUS, and LUNA, giving their virtues to the SOL, viz. according to their frigidity a body, by their fire colours, by their siccity hardness, by their moisture weight, or heaviness, by their resplendancy sound; and thus it is not combustible, and to be destroyed by the Elements of Terrestrial Fire, that is by reason of its fixedness. Fire doth not burn Fire, nor destroy it, but Fire joined to Fire becomes the greater and more powerful in strength. The Celestial fire descending from the SOL upon Terrestrials, is not such a fire as it is in Heaven, nor such as our

fire is on Earth; but with us the Celestial fire is cold, a rigid and congeled fire; and this is the body of Gold, and therefore we cannot tame or master SOL with our fire, we can only divide it and melt it, as the sun dissolves and melts snow, congealed ice and water. Wherefore it is not permitted for one fire to destroy another, because SOL it self is fire, and in Heaven it is resolved, but with us it is coagulated.

Gold is in a threefold state with its Essence.

1. The Celestial is Resolved.
2. The Elemential is Liquid.
3. The Metallick is Corporeal.

The End of the Seven Rules.

Glauber.) We are now come to SOL, a kingly and most excellent Metal, the which PARACELSUS compares to a meer absolute Fire, and so 'tis found to be, if it be separated into parts, 'tis likewise endued with a seed-like nature, more hot than the Herb it self or the Flower. But to what end should we write of bettering it, when as it needs it not, being already constituted in the highest degree of perfection, and Nature not being able to promote it to an higher degree: Now then if it be to be made better, 'tis behoveful to make it Medicine, for never was a more excellent metal than it seen. An Herb planted in a fruitful soil, and brought to its perfection by the heat of the Sun, the seed being ripe,

it remains not in the same form, but withers, and the seed falls away; but if it be seasonably gathered, it lasts a long while, and may, at your pleasure, be put into the Earth, for the production of new Herbs of its kind; or else it may be used for the health of Mankind, having no other notable Use besides. In like manner, Gold having arrived to its perfection, if it be to be farther advanced, it must be made Medicine, or be put upon the Metallick Earth, as Seed is on the Common Earth; where putrefying or augmenting, or growing, it may exhibit and produce a metalline Off-spring. Every body knows that a good Medicine may be thence made, and that various ways, but few know the manner how; but that 'tis able (like the Vegetable seed) to make Encrease out of the imperfect metals (being its own Earth) PARACELSUS teacheth in this place, and many Philosophers witness the same, which is not only true in a particular melioration, where by attracting its like out of the imperfect metals, it is encreased; but 'tis also to be believed as true, that from it may be separated, by the industry of a skillful metallick Philosopher, its inmost Vegetable power and purest portion (all its husks, or outside, wherewith 'tis cloathed, being laid aside) and may thereby be exalted to a more than perfect estate, although 'tis incredible to many, yet 'tis not in the least to be doubted of, except we would make all the Philosophers to be Lyers.

As for my self, although I never set my hand to so hard a Task, yet I believe and affirm it to be in the nature of things, as having evidently observed by my other metallick Labours, that this Medicine is in the possibility of Art; the which I will also in due time set upon, if

God give Life and Leisure. What the other properties of SOL are, and by what means good Medicines may be prepared therefrom, I have spoken thereof in many places of my writings, and in its proper place more also shall be spoken. And here we rest and conclude this little Book of the Rules of the Seven Metals.

God and Nature make nothing in vain.

The Eternal City of all things (there's an Eternal place in all things) without time, without beginning, and without end, is every where essentially. It operates in that wherein is no hopes, and that which is accounted impossible, unexpected, incredible, and plainly deplorable, will be true even to admiration.

Glauber.) PARACELSUS having finished his Seven Rules of the Properties of Metals, begins after a sort, to repeat and illustrate his sentiment or opinion, comforting the Operator, lest happily he should be discouraged, if his affairs do not presently meet with good success; but let him ingeniously proceed, because NATURE MAKES NOTHING IN VAIN; that which is least of all believed, comes most of all to pass; his words are clear enough of themselves.

ITEM. Note now some things on ARGENT VIVE

Whatsoever whitens is of the Nature of Life, and of the Property

and Virtue of Light, which causeth and makes Life. The Fire with its heat gives birth to this motion. And whatsoever blackens, is of the Nature of Death, of the Property and Virtue of Darkness, (having the efficacy and force thereof) which causeth Death; to the which hardening or induration the Earth with its Cold is the coagulation and fixation. The House is always dead, but the Inhabitant is a living Fire: If thou hast found out the true Use of Examples, thou hast overcome.

Glauber.) PARACELSUS speaking here of Mercury, mentions Fire, which by its heat is the cause of Light and Life, but that which blackens, is the cause of Death; where making as it were a pause or stand, he adds these pregnant words.

Sacrifice the fat Vervein (or Sulphur) Rx. eight lots of Salt Nitre, four lots of Sulphur, two lots of Tartar, mix them, and let them flow.

Glauber.) Here begin the Complaints of the Alchymists, because PARACELSUS writing of so good a matter, doth so suddenly break off, adding such a Receipt, as in their judgement hath no affinity with Mercury, but is to him as a thorn in a man's eye. This powder indeed is a good fusile powder, for the reduction of such metals as are otherwise hard to melt; but in this place 'tis meerly vain and needless, because MERCURY by his innate fiery power and heat, doth always flow; wherefore we want not this Flux for him. Had he written in this place, how he (viz. MERCURY) is to be coagulated and fixed, we would most willingly have heard him, and as willingly have been content that he had kept his fluxing powder to him self.

Such as these ought to blame themselves and not PARACELSUS, that wished well unto them. The words which went just before, may excuse him; for he said, that GOD AND NATURE MAKE NOTHING IN VAIN; whereby he intimates, that this powder is not so strangely to be looked on, as if it did not pertain to MERCURY, who is more than enough fusile already, and wants it not. Nor was this mentioned to vex the Alchymist; no, PARACELSUS knew this nimble fusile powder, and its operations upon the metals, better than he that complains thereof, ('tis of incredible benefit in the metals, did any know how to use it) and he placed it here, that we might perfectly learn its highest force and efficacy upon the metals; the which thing his foregoing words do also admonish us of; It operates beyond hope, that which is judged impossible is unexpected, incredible, and desperate, will prove true to admiration. Wherefore, think you, would he have added this fire had it not been needful in this place? Doubtless he knew how to burn the wings of MERCURY, and thereby to stay his flight. And although I know not how to fix MERCURY herewith, yet have I experienced wonderous things as well in the metals as MERCURY, for if the metals, especially MERCURY, be Philosophically joined herewith, sublimed and distilled, they afford wonderful MENSTRUUMS.

It's also here said, SACRIFICE THE FAT VERVAIN (or Sulphur). 'Tis full well known, that the superfluous Sulphur in metals that are imperfect, is the cause of their baseness, and this fire is able to burn it up, but 'tis impossible that all should know it; there's need of use and diligence, if you desire ICARUS flying with his Father DADALUS, and approaching too nigh the Sun (whereby his wings being burnt, he

tumbled down into the Sea) should be drowned in the waters. The which let suffice, for there's enough spoken unto a wise man; let us therefore proceed.

What is to be determined concerning the Coagulation of MERCURY.

Tis not at all expedient to kill MERCURY, to coagulate him, and then reduce him into LUNA, and to weary him with many sublimations and other things, for this is but the destruction of the Sun and Moon that is in him. There's another more compendious way, whereby MERCURY is made LUNA, of small cost and charge, without any labour of coagulation: Every man reads in the Writings of the Alchymists, such Arts as are mean and vile, and easily preparable, whereby in a short time he might make abundance of SOL and LUNA, and are tired and vexed with the Writings of such as do not teach them clearly and plainly, and would willingly hear this, viz. Do so and so, and thou shalt have good LUNA and SOL to inrich thee.

But good Sir stay a while, and wait till the Secret be plainly opened to thee in positive words without any labour; so as to enable thee (in as 'twere a moment of time) to take SATURN, MERCURY, and JUPITER, and make SOL and LUNA thereof. The Art will never be so easily known, how short and facile soever it be in it self.

Glauber.) PARACELSUS goes on, and saith, That 'tis not needful to coagulate MERCURY, that SOL and LUNA may be thence made, and that it is

to be done with a most easie labour, and therefore few words are best. And here PARACELSUS is to be compared to that Rich man, who having heard that many perished with famine, 'tis said that he should answer, That before he would be tormented with hunger, he would rather feed on rusty Bacon and Peas, believing that all abounded with this fare; the which they despising by reason of their daintiness, deservedly perished. In like manner the good PARACELSUS believed, that all Chymists were his equils, as to the knowledge of Metals, not dreaming of the many poor Colliers that torment MERCURY by their solutions, precipitations, sublimations, resuscitations, fixations, and other labours; when as they are ignorant of what it is, what abounds or is wanting therein, and so for want of knowledge, toil and labour to no purpose: MERCURY is a subject of wonder, and is frequently wont to deceive the Alchymists, whom (viz. MERCURY) if you would on the other side deceive, when you pursue him, give him a little breathing (because by force he's not to be compelled) that he may a little wonder about, but trust him not too much, lest flying away, he leaves behind him an empty Nest. For which Work the first Furnace, with its many Glasses, very well fitted and united, will serve excellently well. But in few words, 'Tis a subject of an inexhaustible wonder, the which I always found the most stubborn of all the metals, that I have bestowed grievious pains about; but yet do believe, that he that knows rightly to deal with him, will reap a benefit from him not to be contemned. But who is there that discovers the way? Wonders must always remain unknown unto us, and albeit we know not all things, yet let us acknowledge the great Mercy of GOD,

and give Thanks to Him for that which we do know.

The Receipts of Alchemy.

What shall we say of the many Receipts and the various Vessels, such as are the Furnaces, Glasses, Tests, Waters, Oils, Salts, Sulphurs, Antimonia, Magnesia, Salt Nitre, Allome, Vitriol, Tartar, Borax, Attramentum, or Copperas, Orpiment, Spume of Glass, Arsenick, Calaminaris, Bole-Armoniack, Vermillion, Calx, Pitch, Wax, Lute of Wisdom, Powdered Glass, Verdigrease, Salt Armoniack, Soot, Rosin of the Pitch-tree, Chalk, Mans-fat, Hairs, Egg-shells, Lac Virginis, Ceruse, Minium, Cinnabar, Vinegar, Aqua-fortis, Crocus Martis, Elixir, Lazure, (ultro-Marine) Soap, Tutia, Crystals. What likewise shall we say to their preparations, putrefactions, digestions, probations, sublimations, calcinations, solutions, cementations, fixations, reverberations, coagulations, graduations, rectifications, amalgamations, and purgations. Most Books are fully stuffed with these Alchymical things, as also what things are to be done by the benefit of Herbs, Roots, Seeds, Woods, Stones, Animals, Worms, Bone-Ashes, Cockle-shells, Muscles, & etc.

All these things are the Labyrinths of Alchymy, and are great and but vain Labours. Moreover, although SOL and LUNA might be made by the means of these things, yet by reason of the multitudes of them, the Work is rather hindered than advanced; and therefore it cannot be truly learned from the aforesaid things, how to make SOL and LUNA. But all such things are to be omitted, as operate not with the five imperfect Metals, for the production of SOL and LUNA.

What therefore is the true Way, and the short Path void of all difficulties, that leads to the speedy making of good SOL and LUNA? How long will it be ere thou revealest it? I believe that thou understandest nothing of this matter, may somebody say, but dost only mock us with these Riddles. For answer: It hath been already spoken of, and is evidently enough discovered, in the Seven Rules; He that understands not, let him blame himself. Besides, let no body be so mad, as to perswade himself, that the Art is most easie to be understood, and to be perfectly known by the vulgar; that is neither so, nor must it so be; but it will be better understood in an occult and hidden Sense.

This is the Art, viz. If you make the Heaven or Sphere of SATURN to flow with life in the Earth, put in all the Planets, or which you please of them, but let there be of LUNA least of all; let it flow so long, until the Heaven of SATURN doth wholly disappear, and the Planets remain alone dead with their own corruptible Bodies, and have assumed a new, perfect, uncorruptible body, that body is the Spirit of Heaven, by which the Planets become again corporeal and alive; as afore, Take out that new Body from the Life, and out of the Earth, and keep it, for it is SOL and LUNA. And thus hast thou the Art plainly uncovered and entire; if thou dost not yet understand and apprehend it, 'tis well, for so it must be; nor must it be publickly divulged.

Glauber.) In this Chapter PARACELSUS teacheth, That there's no need of so many ridiculous species, for the transmutation of Metals, but that there's virtue enough in the metals to operate upon, and to better

one another, if they are rightly conjoined amongst themselves; yet in some Labours we cannot be without Salts and Minerals, because they are useful to mollifie hard Metals, and to dispose them to assume a melioration. But 'tis to be observed, that Corrosives are to be omitted, and such Salts only to be used as are friendly to Metals. Likewise other Minerals and Fossiles may be fruitfully used in fusion, separation and other metalline Operations, as additaments. The which thing PARACELSUS denies not, but only rejects, and that deservedly, those rediculous Compositions of the unskillful Alchymists, which they making in their use SOL. He dehorts the studious Artist, and endeavours to bring him into the right way.

Furthermore, he teacheth but in an occult sense, how good SOL and LUNA, such as will endure all trials, is to be extracted out of imperfect Metals; but 'tis so obscurely done, that no body can thereby understand the thing; and such only as aforehand know somewhat, and have had the like Labours under their hands, are able to understand his meaning.

Doubtless this Process hath found many an one work enough, who have at last attained to nothing; but yet some have by chance lighted thereon, and so perceived the Truth of his Words, most of which Inventions do casually happen; and whilst that one thing is sought after, and by accident lost, something is oftentimes found more excellent than that which was intended.

In like manner, most things unsought after have happened to me; and also my Labours have manifested to me the greatest part of PARACELSUS'S Arts, and not his Writings. And who will certainly and plainly teach

what lies under that Covering? Many Archers there are, but few hit the mark. Neither seems it so necessary to take nothing else but the aforesaid Metals; the which thing PARACELSUS also in his forementioned Process doth hint at, saying, When thou makest the Heaven, or Sphere of SATURN, to flow with Life in the Earth, sow in all the Planets, or such as you please of them; but let not the Moons part be biggest, but let it be the least of all. By which words 'tis easily conjectured, that the greatest part must be of Saturn, whereby the other metals are to be washed and purified, and the least part of the Moon. But some body may ask, What reason is there for the Moon being here, she being already pure, for the washing of whom there's no need? Why this hath been already elsewhere answered thus, viz. That she may attract, defend, and make corporeal, the washed, purified, and tender Sun, which would otherwise remain in the SCORIA: Notwithstanding this separation may be made without the LUNA, but then 'tis not so gainful. Neither also is it necessary to conjoin the Metals, and so make but one work, in washing them with Saturn; each of them may be taken apart, and so cleansed, unless a man knew how to contrive the composition, then indeed the Work would be facilitated, and more Sol gotten; the which is to be well observed, if either none, or very little Luna be taken. But if you take not LUNA, then VENUS is to be added, as being of nearest affinity to SOL and LUNA, in its malleability, and so that will attract the volatile and immature SOL out of the imperfect Metals, and defend it in the fire, but much weaker than LUNA. Tin and Iron being most impure and sharp metals, may be washed with Lead, but with much difficulty, and may be deprived

of their spiritual and occult SOL, but with far greater charges and cost, than if you took in LUNA, or at least wise VENUS. Now knowing this, Why do we not give to every one its proper additament, for the expedition and enriching of the Operation? 'Tis worth the while to be able to make a good mixtion of Metals, and with profit to wash them with SATURN, in which mixture none believes how much there's placed, nor my self neither, had I not with Loss learned the same. For, when in former years I sought after somewhat in this kind of operation, as washing and separation, and had sometimes found out a good PROBA; I have gone to repeat the same labour again, and have egregiously erred. And although I have for many years wrought hard in this kind of labour, and spent much (which I repent not of) yet I dare not boast of catching the best prey, but am content with a piece of Bread, but yet I do not dispair, GOOD THINGS COME SLOWLY ON, and the thorny prickly Budds spring forth before the Roses come. Now, if thou learnest the weights the Work will be safe, and thou needest not to doubt of doing the same in a great quantity. PARACELSUS goes on, and bids you to let the Planets which you have put in, to flow so long with the Heaven of SATURN, until the Heaven of SATURN vanish, the Planets will remain, having received a new body, which is to be taken out of the Life and the Earth, which will be SOL and LUNA. And these words are variously interpretated by sundry men, especially what the Heaven of SATURN is, and are perswaded, that if that were known, the residue of the Process they could state well enough. Many understand hereby the common separation made by a peculiar SATURN, taking the REGULUS Stellate of ANTIMONY, which is stampt with

a Celestial Star, the which they blow on and melt with the Life, (which they interpret to be the fire) in the Earth (a Cupel or Test) the bodies being left upon the Test, like mortified Metals, the which reducing by a fusing addition, and melting with Lead, and promising themselves Gold and Silver, they find themselves to be in an error, and accuse PARACELSUS of Sophistry and Deceit, because they can't make good quantities of SOL and LUNA, by means of his Writings.

And now, what this Sphere of Saturn is, may be variously explained: It may not unfitly be taken for common SATURN, because being fused, it shines, and is turned round: or it may be taken for its Glass, which being melted in the fire, shines like the Sun: or it may be the Stellar REGULUS of Antimony, because its STRIA represents Stars when 'tis broken. But what benefit is it to know the Heaven of SATURN and to be ignorant of the true requisite Life, and the reduction of the dead and reducible bodies. Common Fire is not the Life that PARACELSUS mentions, but it may be stirred up thereby, and so he saith; The fire with its heat, is the Nativity to this motion: If by the Elemental Fire he should mean the Life, and by the separation of SATURN, or blowing of the REGULUS of Antimony, (the flowing which PARACELSUS mentions) then it must necessarily follow, that the destroyed bodies which remain, should be made more perfect, and the Spirit of Heaven should yet remain with them: for thus he writes, viz. The Planets by it do become corporeal and living, as they were before, but in these kind of separations, scorification, or blowing off, it is not found to be; but in these Operations their Bodies remain like SCORIA, in which is neither spirit or life, much

less SOL and LUNA to be found, though never so diligently sought after. PARACELSUS saith expressly, viz. That Body (viz. of the slain or killed bodies) is the Spirit of Heaven, by which the Planets do again become corporeal and alive as before; from whence 'tis to be understood, that those bodies are spiritual & not only corporeal and resuscitated, but such as may give life even to slain or destroyed bodies, the which can't be said of them, for a spirit must be penetrative and vivifying, and they are not such. For if (according to PARACELSUS'S mind) the dead bodies ought to be reduced to Corporality and Life, 'tis necessary that they have some hidden power; (which every one knows not) whereby they may demonstrate most speedily their embodying and vivification in a spiritual manner, without the addition of any peregrine Flux, or else they are deservedly to be rejected. But if any one should now imagine, that metals being by the red fire deprived of life, made spiritual and again corporeal and living, should forthwith be all SOL and LUNA; he promiseth more to himself than is right, and is deceived (for PARACELSUS saith, that That new body is to be taken out of the Life and Earth and kept, for 'tis SOL and LUNA) for 'tis impossible even for the Philosophers Stone, to convert the whole bodies of Metals into SOL and LUNA, for out of nothing, nothing can be made, as the Philosophers say; and Experience testifies, none but God only made any thing out of nothing; but the thing which is, may by Art be reduced into nothing, and that again reduced into something. Seeing therefore that the greatest part of metal is an unprofitable, combustible noxious Sulphur, which never was a metal, but adhering only outwardly unto them, and being combust, reduceth their

HUMIDIUM RADICALE into SCORIA; which HUMIDIUM RADICALE only (after its destruction) and not the whole mass of Metal or superfluous Sulphur, is reduced by the spirit of the Saturnine Heaven, out of nothing into something, viz. a Body and Life; the Sulphur which before the corruption was nothing, remains still a Nothing; and if thou throughly observe the thing, the Case stands clearly thus, viz. if in this operation there must be a separation of the imperfect metals, and a gathering together of the more pure, and a dispersing of the more impure parts; these separated parts must therefore necessarily be much unlike one another; and by how much SOL and LUNA is more pure, if compared with imperfect metals, from which 'tis separated: And these separated parts are not of the same Goodness and Nature; as if ten duckets were divided into two parts, each part would have 5 of the same goodness and weight. Now, if from one of these halfs you take two or three parts, and put them to the other half, it only makes the one bigger, and the other less: And if there be nine parts on the one side, and but one left on the other side, yet cannot the major part boast of its exceeding the other in quality, but only in quantity: As to Goodness, they are both equil. But now, if you take a Mineral or Metal commixt with stones, and by measure divide it into two equil parts, and then pound them, and by pouring water thereon, separate the lighter parts after the accustomed manner, and the heavy Metal will settle to the bottom: Now the dross and metal will fill the former measure, but will very much differ in their goodness.

Or if any one take two measures of Wine, and by the heat of Fire,

separate the more excellent Spirit by distilling in a Glass Alembick, and leave the other measure in the Cucurbit: These two parts, though equil in quantity, yet they do much differ in goodness; the one part will be more noble than Wine, and the other worser, and as the other residence is no more Wine, being deprived of Spirit, Life, Soul, and Strength, and is thereby unable to defend it self from death, but tends to putrefaction; so on the other hand, the Spirit is not subject to putrefaction, but preserves other things therefrom.

The like is to be understood of this metalline separation, for the remainder, from which SOL is separated, can no more be made Tin, Copper, or Iron, but is a gross earthy Sulphur, by the reason of the SOL taken thence; whereas before it was JUPITER, VENUS, MARS, or SATURN. And by how much the Spirit of Wine is more excellent than common Wine, and SOL than an imperfect Metal, by so much also will the Spirit of Wine and SOL excel, if they are again separated, and new faeces segregated therefrom. But this is not so necessary in this place; 'tis sufficient to have declared the way and reason of this metalline separation, about which we have even now treated, viz. That the whole metal; nor the 1/2 or 1/4 part thereof, will become SOL, and the rest remain a metal; but the separation of the pure is very small in quantity, in comparison of the much impurity whence 'tis separated. Nor let any one think he hath not attained the Art, and so will not rest here, if all things become not SOL; 'tis sufficient if there be some gotten, and that all the Labour is not bestowed in vain.

By what means Crystals are to be Conjured, and all things to be seen in them.

To Conjure is no other thing, than well to observe a thing, to know and understand what it is: Crystal is a Figure of the Air, in which is to be seen whatsoever is moveable in the air or unmoveable. The like appears in a Looking-glass, in Crystal, and in the Waters, for the Air, Water, and Crystals, are all one to Sight; like a Glass wherein an Object is to be seen, as it were, reverted.

Glauber.) I do not fully know what PARACELSUS intends by this Conjuration of Crystals, because it appertains not to the metalline Arts; but yet it seems not to be here added without good reason, somewhat he would intimate hereby. We read of the Ancient PAGAN Philosophers, that they conjured Crystals, and beheld in them many wonderful things; the which, whether it be true or no, I leave as I find it, because in my Judgement, such an Art seems not natural, but belongs to Diabolical Magick, which I have nothing to do with.

PARACELSUS also hath elsewhere written of wondrous Looking-glasses of the same, and hath taught how to compose them of Metals, melted together in a certain Time and Constellation; the which many have attempted to do, but not one (as far as I know) hath attained the Mystery. It seems very probable, that he intends by this Conjuration of Crystals, that the Metals are to be made like to pellucid Crystals, Air, or Water, wherein the soul of the Metal may shine, if you would spiritualize them,

and make them yield their SOL and LUNA. And in this Sense it agrees with the aforesaid Chapters.

It likewise seems, that the mentioning of this thing is necessary for the sake of those, who practising on a separation with SATURN, have experienced, the Metals are to be first reduced into Transparent Crystals, before they part with their occult SOL: Which I have elsewhere spoken more largely of, about AMAUSA, and therefore will here end.

Of the Heat of Mercury.

They that believe that Mercury is of a moist and cold nature, must lay down the Bucklers, for 'tis not so, but it abounds with a great heat and moisture, which being naturally planted therein, keeps it always fluid: For, were it of a cold and moist Nature, it would always remain rigid and hard, like to congealed Water, and were to be melted like other metals, by the heat of the fire, which it (viz.) hath no need of, because it hath already a fluidity from heat, whereby it flows, and is always constrained to live, and not to die, grow stiff, congeal, or be fixed. But this is singularly to be noted, that the Spirits of the Seven Metals, or of as many of them as are conjoined in the Fire, are wonderfully provoked and stirred up, and Mercury chiefly, and they emit, and send out their forces amongst each other, for a mutual Victory and Transmutation; the one takes away the Virtue, Life, and Form from the other, communicating a new Nature and Form; so the Spirits or Vapours of Metals are stirred up by heat and mutual action and passion, and are

transmuted from one Virtue to another, and at last to Perfection and Purity. But what else is to be done with MERCURY, that so his heat and moisture being taken away, he may catch a great Cold, and be coagulated, stand still, and die; do as you hear in the following Figment.

Rx. a most pure Silver Vessel, in which shut up Mercury, then fill a pot with molten Lead, in the midst of which put in the Vessel with the Mercury; let it flow a whole day, and the hidden heat will be taken away from Mercury, and the external heat will communicate to it the internal cold of the Lead and LUNA, being both of a cold nature, by which Mercury will grow stiff, rigid, and become hard.

Note, The Cold which Mercury hath need of for its hardening and death, is not outwardly perceptible, like Snow or Ice, but is rather hot. Nor is the heat by which MERCURY flows, felt by the hands, but 'tis rather cold. Hence Sophisters (that is men speaking without knowledge) pronounce him cold and moist, and study how to coagulate him with hot things, and thereby rather liquifie than harden him. Which thing Experience it self testifieth. True ALCHEMY, which by one only Art teacheth to make SOL and LUNA out of the five Imperfect Metals, useth no other Receipts, than only from Metals, out of Metals, by Metals, and with Metals, are Perfect Metals made; for with other things it is LUNA; for in Metals it is SOL.

Glauber.) Here PARACELSUS demonstrates their Judgement to be false, who say that Mercury (in it self a meer Fire) is by nature Cold, and returns to speaking of Spiritual Metals, the which being stirred up

by great heat of Fire, do operate upon one another, meliorate, change, and advance to perfection, as hath been taught in the foregoing Chapters. Then he adds a Fable or Story, how to coagulate or fix Mercury; but it must not be taken in the literal sense, but of the spiritual LUNA, whereby Mercury is to be promoted to Coagulation, in a moist way, and not in a dry, as the other Metals are, which Process I never yet attempted. Then he finisheth with an universal Rule of Transmutation, saying, Perfect metals are made from metals, out of metals by metals, and with metals, and that out of some LUNA, out of others SOL is made. He adviseth to take no strange thing, and only metalline subjects are to be taken for this Work out of some LUNA only; out of others SOL only, or SOL and LUNA, both are to be extracted, which I have often tried; as in SATURN, which of it self gives only LUNA, Tin, VENUS, and MARS, by themselves gives only LUNA, and pure SOL; but commixt with other Metals in a due proportion, they give only SOL, and very little or no LUNA: Which maturation is to be ascribed only to the labour and mixtion, which is deservedly to be admired.

What Matter and Instruments are needful in ALCHEMY.

There is no special need of any thing, excepting a Fire-place, Coals, Bellows, Tongs, Hammer, Crucibles, Tests, and Cupels made of good Beech-ashes. Then put in SATURN, JUPITER, MARS, SOL, VENUS, MERCURY, and LUNA. Proceed to the end of SATURN. 'Tis very difficult and uncertain to find out Metals and Minerals in the Earth and Stones; yet because

all metals are to be first sought after and digged out of the Earth, this Labour is not to be contemned, but is Praise-worthy. Nor will this lust and desire in digging in Mines sooner cease, than the love of young Men to Maids will fail; and as the Bees are greedy of extracting Honey and Wax out of the Rose, so prone and forward should a Man be, to find out the Minerals in the bowels of the Earth, but without Covetousness; he that is overmuch greedy, receives least, for God doth not fill all men with gold and silver, but with want, dung, misery, and scarcity. Some men also God bestows a peculiar Intellect upon, and a piercing knowledge of Minerals and Metals; so that they know a far more compendious way of making SOL and LUNA without digging in the Mine-pits, and without the Examen or Trying, and Fusion of Minerals. So that 'tis not so altogether necessary to dig in the Earth for native SOL and LUNA, but by a certain knowledge it might be made of five Species, (but of Minerals become Metals, which are Imperfect Metals, and are so called) viz. MERCURY, JUPITER, SATURN, MARS, and COPPER: Of some more easily, of othersome more difficulty is SOL and LUNA to be had.

Note also, That out of Argent-vive, Lead, JUPITER, Gold and Silver is easily made; out of MARS and VENUS difficulty. Nevertheless 'tis possible, but in the beginning and access of SOL and LUNA.

Out of Magnesia and Lead comes LUNA.

Out of MERCURY and Cinnabar ariseth pure SOL.

Likewise an Ingenious man (as I well remember) is able by due attention and preparation so to handle a Metal, as to be able by his ingenuity to do more in the Transmutation of Metals to perfection, and to

guide the same better than all the Signs and Planets of Heaven can do. 'Tis also needless to observe the Twelve Signs, and to calculate the motions and Regiment of the Planets, and to observe a time, a day, the hour of this or that lucky or unlucky Planet; such things neither promote or hinder any thing; they neither hurt nor profit ought in the natural Art of Alchemy: But if thou rightly understand the art and possibility thereof, then go to work, and labour when thou seest most convenient; but if thou want'st the knowledge and practise thereof, then all the Planets, Stars, and Signs will wholly fail thee. It also comes to pass, that metals lying long in the Earth, are not only changed into Rust, but by a longer staying in the Earth, they return into their Native Stone, of which sort are many found, albeit they are not observed, for there are found stony pieces of Money, of the GENTILES, which were Metal heretofore, and by Corruption were transformed into Stone.

Glauber.) Here we are, in the first place, taught, that for the making of SOL and LUNA there needs not many Instruments nor Species, but the metals are only to be conjoined, but not by the common separation or washing: For if you should wash all the metals with Lead, yet would there remain no more SOL and LUNA than was taken at the beginning; the rest will descend with the Lead into the Cupel, and will lie at the top thereof like SCORIA; therefore he doth again direct to a spiritual Commixtion and Philosophical Separation. Also he adds, That 'tis an honest, good, and necessary thing to dig up Metals, but that the other is the more excellent, and that deservedly, for it separates Gold

and Silver by Art from the more vile metals; for all such as apply their minds to metals, do well know with what dangers, costs, labours, and Cares, they are to be gotton out; but yet 'tis not therefore to be abstained from, especially since we labour by this Rule, of having a foreknown and certain end of our pains and work; the which cannot indeed be done in metallick Mineings, for we are frequently drawn by vain hopes to bestow all our Estates on the Mines; and having spent all in vain labour, we are at last compelled to desist from the Work; but yet if it succeeds well, they yield the more plentiful Returns; and many Chronicles of Metals do testifie, That many Poor men have, by the Benefit of a rich Mine-pit, grown most Rich and Wealthy in a few years space. The finding out of Mines therefore doth wholly consist in Chance and Casualty, where Profit and Loss are equilly and alike to be expected: The Work is likewise very chargeable, and can't be set upon by every body, and therefore 'tis not for ordinary People, who have but little to lose, but for rich Men, who, though they lose much, are notwithstanding able to live, unless happily a Poor man lights upon some Earth or Sand that is very rich in SOL and LUNA, and other Metals, by the washing whereof he may get a livelihood; or else finding a rich Mine, and so betakes himself to a Rich man for his Copartner, such a one as is able to bear the Charges of digging it forth; and this is often done. But yet be it as it will, the thing is full of uncertainty. Whereas this Metallurgy, or Work on Metal, which PARACELSUS makes mention of, is to be preferred far before the other, if any one (by the Grace of GOD) attaineth the Art, whereby he may with profit extract the SOL or LUNA

out of the already digged-up Imperfect metals, which are every where to be sold.

But to return to the business in hand, viz. To illustrate the Writings of PARACELSUS, who deserved much of his Country. He names some metals, out of which Gold and Silver may easily be extracted, and others out of which 'tis difficult to get it, but in both SOL and LUNA is to be added; for 'tis profitable, yea, necessary (the which I have frequently exhorted to) in the extraction of Gold and Silver out of imperfect metals, and is volatile, and may the more commodiously make it corporeal and fixt. Then he adds, That Metals, by a longer stay in the Earth, do die, and return into stones and earth, from whence they had their original. The like happens to Man, and all Creatures; nor is there any thing in the World, how glorious soever it be, but is vain, empty, and perishing, but the Knowledge, Love, and Fear of GOD alone.

What thing Alchemy is.

Alchemy is an intention, imagination, and studying, or considering how or whereby the Species of Metals are transmuted from one degree and nature into another. Let therefore every ingenious and understanding man throughly consider the good Art of Alchemy, for he that speculates and well studies, will the sooner attain the Art and find out the Truth.

Note, That very much is to be attributed to the Stars and Stones, for the Stars are the framers of all Stones. And all the Coelestial Constellations, the Sun and Moon, are in themselves nothing but stones,

from which the Terrestrial do arise, being as it were their burnt part, Coal, Ashes, Outcast, Excrement, Expurgation, from which the Celestial Stones separating themselves, become clear and transparent by their proper brightness: And the whole Globe of the Earth is noting else but a dejected, commixt, broken, rejected Rubbish, and blown as 'twere into one Mass, having obtained Rest and Constancy in the middle Circle of the Firmament. 'Tis also to be noted, that GEMMS (the names whereof I shall presently mention) together with the other Stones, came down into the Earth from the Celestial Stones or Stars, to which they are nearest in all perfection of Purity, Fairness, Brightness, Virtue, and Constancy, or Fixity, and Incorruptibility in the Fire, and are in a manner like to the Celestial Stones and constellations, being parts of them, and of the Nature derived from them, and are found by men in an impure gross vessel, and are supposed by the vulgar (who judge rashly of all things) to have been there born or generated; such as are found are polished, and are carried throughout the World to be sold, and are accounted as great Riches, because of their form, colour, and other Virtues, of which I am now going to Treat.

Of Gemms.

The EMERALD is a green Transparent stone; it helps the Eyes, succours the Memory, defends Chastity: the which being violated, it self, viz. the stone, is hurt.

The ADAMENT or DIAMOND is a black Crystal; 'tis called EVAX, because

it produceth Joy: 'Tis obscure, and of an Iron colour, most hard, is dissolved with Goats blood, and exceeds not the bigness of a Filberd Nut.

The MAGNET is a stone of Iron, because it attracts Iron.

The MARGARITE is a Pearl, and not a Stone, 'tis generated in shells, and is white; for whatsoever is generated in Animals, in a Man or Fish, is not properly a Stone, but only in the opinion of the vulgar: It is properly a depraved (or a transmuted) Nature on a Perfect Work.

The JACYNTH is a yellow pellucid stone; 'tis also a Flower, the which the Poets fain to have been a Man.

The SAPPHIRE is a Skie-coloured stone, of a Celestial nature.

The RUBY is a stone deeply red.

The CARBUNCLE is a stone of the Sun, emits light and splendor, like to the Sun in his own nature.

CORAL also is like a stone, all red, it grows in the Sea, on wood or a shrub, of the nature of the Water and Air; 'tis presently changed by the Air, and turns to a stone, grows red, is incombustible in the Fire, and therefore may be esteemed a stone.

The CHALCEDONY is a stone with bright and obscure colours, with mixt and cloudy fluidities and colours, ruddy, like to a Liver, the vilest of all the GEMMS, shining with every colour.

The TOPAS is a stone, shining also in the night, 'tis found in either rocks or stones.

The AMETHYIST is a stone of a red and yellow; it shines.

The CRYSOPASSUS is a stone fiery in the Night, and in the day it appears Golden coloured.

The CRYSTAL is a white transparent stone, like to Water congealed by the Air, and cold, (or of the Air and Cold) it is sublimated, extracted, or (as they say) washed out of other Rocks.

And now, for a Conclusion, I will give you this most true farewel. If any one will use a right reason, Sense and cogitation towards Metals, what they art, and whence they come, let him know, that our metals are nothing else but the best portion of common stones; they are the Spirit of the stones, that is, the Marrow, Oil, Pitch, and Fat of the Stones; but it is not sincere, pure, and perfect, as long as 'tis mixt and hid in the stones; this therefore is to be sought for and found in stones, and to be known in them and extracted from them; and then it is no more a stone, but a well-wrought and perfect Metal, assimilated to the Celestial Stars, the which also are peculiar stones, distinct from these stones. Whoever therefore is willing to find out metals, let him firmly believe this, and thus account, That he must not be only intent on the common Metals, nor have his hope placed in the bowels of the Earth, that so he might get good Minerals from thence, for often times there is above, or without the Earth in sight, which is not in the profundity and depth thereof, and oftentimes is better, and more rich.

Therefore all such stones as you meet with, whether great or small, as great whole stones or flints, are to be most accurately searched or looked into, and to be considered of what Nature and Property they are; for oftentimes a most vile Flint is found to be more excellent than a Cow. For the Matrix or Rock, whence they are gotten, from whence such a Stone did arise, is not always to be earnestly sought after, that

you may have more from thence, for these stones have no Rock, the Heaven is their Rock; oftentimes also the Abject Earth, Powder, and Sand, hath much gold and silver Dust, which observe.

Glauber.) Here PARACELSUS declares what ALCHEMY is, whose words being perspicuous enough, need no illustration: Then he leads us to the birth of metals, the which are generated in the Earth, out of the Stars above: He attributes to Gemms the nearest place of Perfection, but does not intend that we should earnestly seek after them, to have gold and silver from thence, but that the metals should be made like them, as to their outward Aspect, and then afterwards the SOL and LUNA is to be extracted, to which all the scope of the foregoing Chapters tend, which is to be observed and enquired into, what his meaning is: Nor are the bare Letters always to be trusted to, here is nothing mentioned by him in vain. What affinity have Gems with the metals? None at all: And although sometimes the hidden SOL and LUNA may be extracted, yet, he doth not at all intend here that we should make that, but repeating the former Doctrine, he hints unto us, That the metals out of which the SOL and LUNA is to be extracted with profit, are to be first reduced into soluble or insoluble Glass, most like to Gemms; a good Company of them he here reckons up, and adds to what use they serve; not that we might learn their Nature, Colour, and Properties, (as I suppose) but to teach us, that they are found different in Colours and Virtues, even so may the metals be prepared into Colours like unto them. He that neither understands nor will believe, let him seek better things, and

get help and assistance elsewhere.

Then at length, by way of addition, he concludes what Metals are, and that they are not always to be gotten out of the profundity of the Earth, but are sometimes to be found most plentiful in most vile powder, sand, and stones; neither is it necessary to be earnest in seeking their rock or original, whereby more may be gotten, because the Heaven by its operation generates them every where: he reproves men for their blindness, because they always gape after great Mines, lying deep, dangerous to be found, and chargeable to dig out. That which is laid before their feet, as it were, they disdain to acknowledge, peevishly affecting the dark, and stubbornly contemning the light exhibited to them by honest men, and by an innate malice they study to extinguish it. And thus is this Book ended, the which PARACELSUS, a most experienced man, hath left behind him, written of Metallick things, and is most full of abstruse wisdom, although few beleive it, to the Elucidation and explaining whereof, I have heretofore uttered my mind, nothing doubting, but that hereafter it will be in better esteem with All.

Indeed I could have written more openly, and explained his words more largely, and more exactly have discovered his occult sense, but time and want of leisure permits it not at present. But if I seem to any body to have written more obscurely, let him consult with my other Writings, for they illustrate one another.

Now follows the Praxis of the aforesaid Theory.

The afore-written Explanation of the Book (OF VEXATIONS) of PARACELSUS, hath taught a most certain and undoubted Transmutation of Metals, and hath sufficiently advised by what means they are to be handled. But because this action requires a great experience in metallick affairs, I am willing to add some special ways of Proceeding, and that in perspicuous words; but 'tis impossible to write so plainly that none may err; it would be too prolix, tedious, and unfit, and as if many Elements of the Physicks, and other subtile things, were read to a Child that is not capable of understanding them; the labour thus bestowed, would be wholly in vain: Nor do I undertake to instruct the Tyroes or Novices in ALCHEMY, but such as are skilled in the metallick labour of fusion, washing, separation, and the like, of a subtile Intellect and experienced Judgement.

I would verily have written more clearly, did I not fear that the Art would become a Trade; some will think that I have written too openly, and will be angry that such Secrets are made known to the World: Who can satisfie all People? But be it as it will, 'twill be always good to have done a profitable Work for my Neighbour.

This is the Art.

When thou hast put in the Heaven of SATURN, and hast made it to flow with its Life in the Earth, then add the imperfect Metals in a due

weight, viz. SATURN, JUPITER, MARS, VENUS and a little LUNA; let them flow so long with the Heaven, until with it they disappear, and having lost their nature and metalline form, are reduced into earth. This metallick earth being yet joined to the heaven of SATURN, and compassed wholly round therewith, raise up the spirit of Heaven, and make it corporeal, and it will receive its former metalline form; but although it be bettered, yet it be killed three, or four, or five times, and raised up, that the melioration may be greater, and produce in the separation more SOL and LUNA. There needs no Tyle, Cupel, Test, Cucurbit, AQUA-FORTIS, and such like Vessels and Instruments necessary in other Metalline Labours, but 'tis perfectly finished in one only Crucible, in one Furnace, with one only Fire, and in the space of a few hours, from the beginning to the end. And to speak more plainly in this Process, the Sphere of SATURN is the REGULUS of Antimony, the Life is a whitening Salt, having its operation and motion from the Fire; the Earth is the Crucible. And thus hast thou the whole Process of the Work laid open, the which I have tried above an hundred times in a small quantity; but let the studious Artist, above all things, observe the Fire, of what original, nature, and virtue it is, and the other things will be the more easily understood; for the Wood, the Coals, and such like burning things, are not the Fire properly, but only its habitation, in which the Fire being occultly dispersed in the Air, is made manifest, visible, and perceptible. Even as the Man is not the Life or Soul, but only the receptacle wherein the Life or Soul, being infused from above, doth lodge: Nor is the man any more a man, but a meer carcass when the soul expires.

In like manner Gold ceaseth to be Gold when deprived of its soul, but is volatile, and a Mineral without colour. Whence 'tis evident, that the Goodness of metals consists not in their bodies, but in their souls: On this account LUNA is added to the Imperfect Metals, that it may receive that invisible soul which lies largely diffused throughout their bodies, that it may collect it, make it visible, perceptible, and corporeal, whereby the mixtion of both (viz. of the LUNA and the Soul of the Imperfect Metals) being made, it gets the name of SOL. Some body may ask, WHETHER OR NO GOLD WILL BE PRODUCED, IF NO LUNA BE ADDED TO THE METALLINE MIXTURE? For answer, There will be SOL produced, but less in quantity than if LUNA were added, because the most tender (and as it were incorporeal) golden soul of the imperfect bodies is not able to quit it self and get out by its own proper force, from so many impurities as 'tis invironed with, without some other help, nor make a new body; 'tis needful and good to administer and lead to it a body wherein it may be contracted, and thereto betake it self, for which the LUNA is most fit; the which being by a vivifying Fire radically united with the unclean metals, and well subdued or exercised in the mutual ascension and descension, the purer particles of the Imperfect bodies do come together in this Circulation of the LUNA, adhere thereto, are mixed, and become corporeal, the impure corruptible body being left, and a separation made of the good from the bad.

So then, I have now taught perspicuously the Art of extracting SOL and LUNA out of all the Imperfect Metals either apart, or conjoined with or without the addition of the LUNA. If therefore thou attainest to

the Art, I am glad; if not, thou hast no cause to complain of me, for I have candidly imparted unto thee the meer and naked Truth.

Another Separation of SOL and LUNA out of the Imperfect Metals by SATURN.

First of all, melt SATURN well in a melting Vessel, add JUPITER, MARS, and VENUS, mixt in due weight, melt them together, and forthwith the JUPITER and MARS will corrupt the Lead, being reduced into SCORIA, like to yellow Earth, and being reduced, they will in part restore their own Lead and Copper, but the JUPITER and MARS remain like black SCORIA, which are to be kept: Let the Coppery Lead flow well again, and again add JUPITER and MARS, and there will be again made SCORIA, which are presently to be reduced. Let this Labour of Scorification and Reduction be repeated, until there remain scarce one or two pound of Lead out of an hundred to be washed, and you shall find SOL and LUNA in part, which the Metals give out from themselves in this operation: But the SCORIA which can't be reduced, let lie well heated red hot, in a peculiar Furnace, for some days, and be fixed; and they will give in the reduction a golden and silvery SATURN or Lead to be washed, that so the remaining SOL and LUNA which the SCORIA drank up, being extracted, may be of use unto us. This labour (which I never tried in great quantity, will doubtlessly (in my opinion) succeed in quantities; any one may try the thing, and exactly compute how much profit may be thence had every year.

Also the most Imperfect Metals may (by the benefit of Salts not corrosive) be truly and infallibly fixt and washed by a particular way, that they may give much SOL and LUNA, concerning which none need to doubt; the which, I having oftentimes mentioned in my Writings, will not repeat it again.

Metals also being first reduced into a Calx, may be purged and washed by the glass of Lead, made by the addition of Flints, so as to yield much SOL, concerning which I have written heretofore: But there's required much SATURN, whereby the metals may be largely diffused, otherwise it will not let fall the faeces; nor can its more pure parts be gathered together into a body, and concentrated; I take in the Flints, that they may receive into themselves the faeces of the unclean Metals, and so make a separation of the pure from the impure. And like as we are wont to mix the whites of Eggs to Honey, Sugar, and other Vegetable Juices, in the purification of them by Water, that thereby the viscousness of the Juices may be attracted, and so be clarified. In like manner, the Flints do in this operation occupy the place of the whites of Eggs, and SATURN of the Water wherein MARS, VENUS, or JUPITER is to be dissolved; the Labour is most pleasant and speedy, exceeding gainful, if the Crucibles (perforated by the Litharge) would but hold the mixture, and not let it pass through so soon.

But whosoever shall be so happy as to find Vessels which can keep in the Glass of Lead for ten or twelve hours, he need not be solicitous or careful of other Arts to inrich himself by. For my own part, I could never be so happy hitherto, albeit I have carefully sought it for so

many years. One only pound of Iron, VENUS, or JUPITER, doth sometimes yield half, yea a whole lot of SOL, if the Work be rightly managed. And if you add a fixt Salt, as of Tartar or bare Pot-ashes, it will yield more, but the Crucibles will be the sooner perforated to our grief. I do believe that one or other will be a curious Searcher after this, and may in due time find how to make this Work succeed very well, both in Crucibles and in great Fires, or melting places; and will be thankful to GOD the Giver, and to me the Writer hereof. Heretofore I did set by this Labour very highly; and although I would not then communicate it to any body for a great price, yet now (being not permitted to make any further Progress therein) I freely bestow it, that others also may try their fortune.

Also imperfect metals are purged from their combustible and noxious sulphur, by the sudden fire of Nitre, of which we have formerly spoken about Mercury, the which is to be lookt on as the most speedy, and as it were a momentary Melioration of metals N. B. especially if they are reduced into a soluble salt without a Corrosive, for which thing MARS and VENUS are most fit, exhibiting a Philosophical Vitriol, the which may be most commodiously purifyed to perfection. There's a great secret lies here under, and haply greater than a particular work may require; let the Poetical fable of VENUS and her son CUPID be considered of; what is there meant by CUPID, whether or no it be not SOL. Verily I could discover more good ways of producing SOL and LUNA out of the more vile metals, but because there's enough already spoken in the explication of the seven Canons or Rules, it seems good to me to forbear. He that

doth not understand that nor can apprehend its drift or scope, will not be profited by the addition of more things. If the fundamentals are laid open, any one will conveniently administer his intent and labours: But yet I will add over and above, a most pleasant work, Parabolically, being the foundation and Basis of the whole Alchymical Art, under which is comprehended the radical solution of metals, CONJUNCTION, DISTILLATION, SUBLIMATION, ASCENSION, DESCENSION, COHOBATION, CEMENTATION, CALCINATION, INCERATION, and FIXATION, and so I will end the work of TRANSMUTATION.

There was a man (SATURN) who had two sons, (BISMUTH or TINGLASS, and JUPITER) the younger (JUPITER) said to his Father (SATURN) give me my portion, (Note well, BISMUTH and JUPITER were always accounted Lead, as well by the Philosophers, as by the ancient workers on metals, the one viz. BISMUTH, they called an ashy coloured Lead, the other (JUPITER) a white Lead, and this a black Lead,) and behaved himself stubbornly and unmannerly, that is, ascending or getting up; his Father gives it him, and he goes a wandering therewith, (Note well, when JUPITER and BISMUTH together with SATURN do feel the fire, the JUPITER is separated from the SATURN and BISMUTH, and ascending, takes some-what from SATURN with it, and becomes a Contumacious SCORIA, and this is to go a wandering) and he enters into an Inn, WHERE MARS THE HOST, AND VENUS THE HOSTESS, had the sign of the World (♁) in a hanging Table, who having entertained him, dispoiled him of all his Fathers goods, (Solution) Then there grew such a great scarcity of Corn (with drought) that all men were even deformed by reason of the Famine (corruption) to prevent

which he is enforced to keep hogs, (that is to dwell with fetid Nitre) and to feed on huskes, (that is TARTAR) (inceration, inbibitation) by which being humbled (Digestion, Circulation, Edulcoration, Putrefaction) he returns to his Father, (Incorporation) as a lost Son, (some thing is made nothing, and nothing is made something again) he brings forth a new Garment, (ARGENTEOUS) he puts a Gold Ring on his finger, (LUNA impregnated with SOL) after which he remains constant with his Father, and becomes a good and thrifty Householder, that is, a fixt metal. And now that I thus compare this Transmutation of imperfect bodies, especially of JUPITER to the parable of the lost Son; let no body be therewith displeased, for I did it for the easier knowledge thereof. There lies under it a great secret, I never observed the like changes in my whole Labours; for first of all, in the Solution appears a blackness, which haveing remained his time, there follows the tail of the Peacock, greenness and then whiteness; but whether or no a redness would follow, if it be detained longer in digestion, I am not certain, for I never arrived beyond the whiteness. It is a most pleasant Labour, greatly exhilerating the Artificers mind, of small charges and little difficulty; if they, find the weight and good vessels, it shews the way and opens the Door to higher Secrets, happy is he who attains the things, he'll never be satisfyed with the sight thereof, nor admiration, how rich, generous, fair and glorious Nature is in her retirements. Note well, that every Metal may be washed apart with SATURN and SALTS, so that being exalted, it may yield SOL and LUNA in separation, and pass through all colours, but it will not be so profitable as if they were all joined

together, for then one operates spiritually upon the other, changeth and perfects him. And now having abundantly discovered, how SOL and LUNA is to be extracted out of the imperfect metals, and because in that labour SOL and LUNA is most an end jointly together, 'tis very necessary to know, by what Art they may be separated each from the other, that so each may be had by it self, which is to be done thus; If this mixture hath more SOL than LUNA, 'tis most profitably to be melted by Antimony and precipitated into a Regulus with Iron washed with Nitre and purifyed. This work you may find described in my former Books. N.B. If the Nitre in the separation of purification of the Reguli, prey upon some of the SOL and LUNA, and attract it to it self, let none grieve thereat and account his labour lost, but let him remember the saying of PARACELSUS, Destruction or Corruption makes the good perfect; The Nitrous Scoria, in which the cleansed Reguli are, let be carefully kept and fixt, then by a strong flux let them be reduced and you shall receive the lost Son, much more elegant than he was before it's being lost, so that hereby you lose not, but rather become a gainer. Here would be a fit place to speak of a certain profitable work if the drift of the thing would permit. Enough is spoken to a wise man, Fools will not profit by any thing: But if it contain more LUNA than SOL, let the mixture be at first of all granulated, and burnt with Sulphur, let it be precipitated, either with Antimony alone or without it, with lead and Salts; thus separating the SOL from the LUNA into a Reguli; then wash it with Nitre or with Lead, and let it be purifyed, the work being to be done in like manner. You are to note that if the precipitation be done

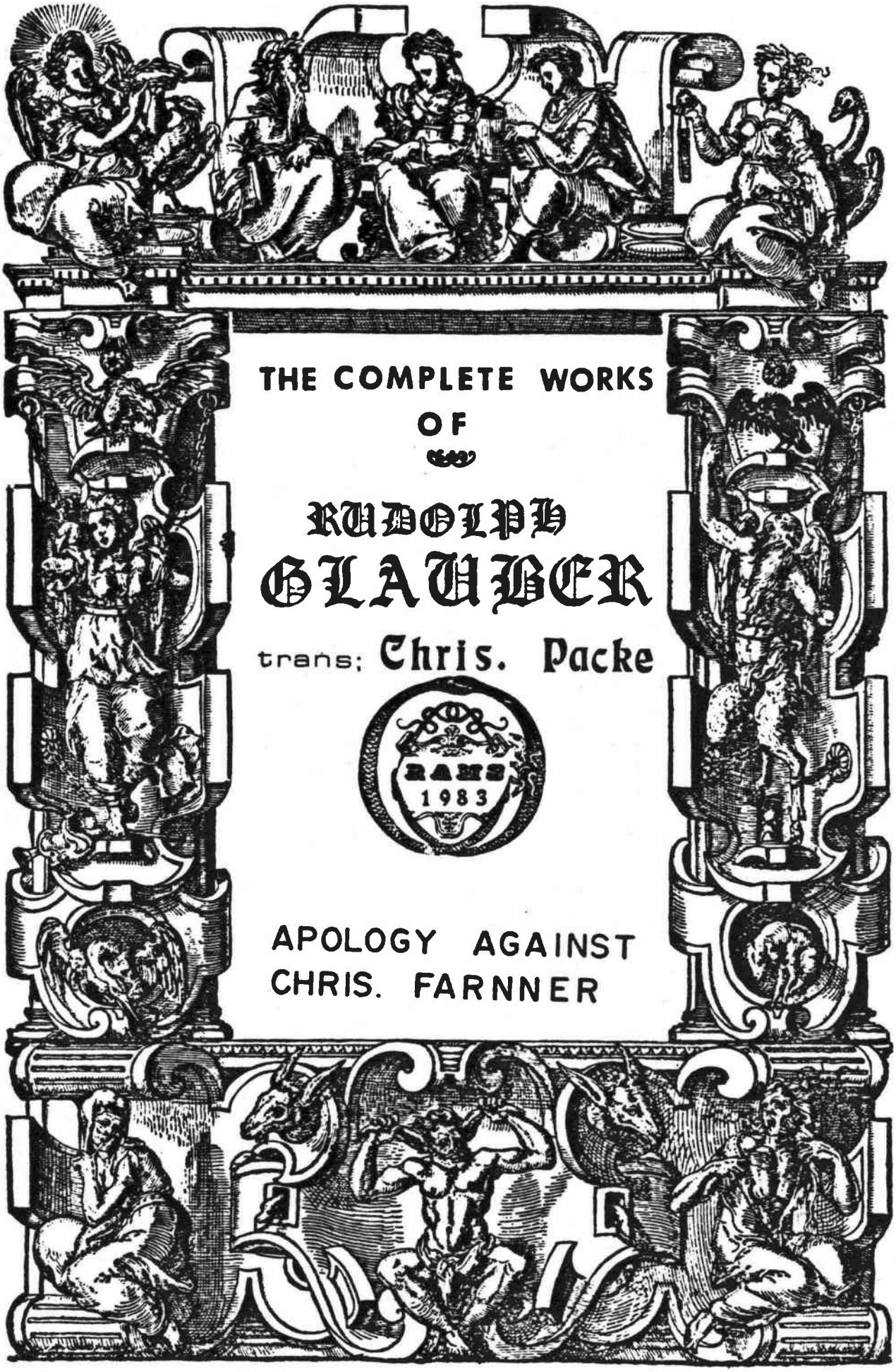
with SATURN, then the CAPUT MORTUUM is to be added, whereby the work will be apparently hastened and bettered. N. B. If the Reguli of the maturated or fixt Metals be coppery or pale, they need not to be washed, but twill suffice if being granualated, they are precipitated with Salts, and the CAPUT MORTUUM all the SOL and LUNA will come forth in peculiar Reguli, the Copper and the Lead will be scorifyed, and may in acute Furnaces be reduced, and be applyed to other uses according to the rule of Art. I judge it expedient to heap up more things concerning Extraction, washing, and the separation of metals, being every where mentioned in my other writings. Also it will be needless to explain, by what manner metals may be more commodiously melted so as to yield more and better metals, as also how the poor and rough Minerals that abound with a preying and devouring Sulphur, whereby the metal in its fusion, is turned into SCORIA, and affords so little profit, that being not able to quit cost, they remain unmanaged, the which Sulphur especially in the Minerals of Copper and Lead, may by a singular Cement or Gradatory fire, be inverted and changed, so that afterwards in their fusion, it's so far from swallowing up the metal, and turning of it into SCORIA, that it rather exalts it so as to give SOL in the separation, the which could never have been done without this burning or roasting. No body doth throughly search after any help for this or that metal, either before the melting or in the melting of it, if the gross fire is not able to melt it down, but most frequently the best part remains in the SCORIA without profit or use. 'Tis possible for an experienced Chymist, profitably to extract that SOL and LUNA which the SCORIA have swallowed up,

what by fusion and by adnibiting suitable MENSTRUUMS. A work of this nature hath been hinted in my discourse of the Extraction of Flints, and more shall be likewise mentioned when I come to write of the felicity and hidden Treasures of GERMANY, which time let the Reader with patience expect. Another benefit would arise to such as work on metals, if they had the perfect way of separating LUNA and separating the SOL by precipitation, that lies therein, that it may not be so unworthily wasted with the LUNA by the Artificers.

And thus I conclude this Appendix or addition to the Mineral Work, the which I have brought forth to light with a good will for my Neighbours sake, that so, being accepted with a serene mind, the Glory of God may be thereby advanced; for which end I wish with all my heart a divine benediction on the Labours of every honest and active searcher into the metalline affairs.

Amen.

The Contents.



THE COMPLETE WORKS
OF

RUDOLPH GLAUBER

trans: Chris. Packe

RAMS
1983

APOLOGY AGAINST
CHRIS. FARNNER

The Apology of

J O H N R U D O L P H G L A U B E R ,

Against the Lying Calumnies of

C H R I S T O P H E R F A R N N E R :

'Tis an ancient Proverb, HE THAT TOUCHETH DUNG IS DEFILED, AND WILL ALWAYS SAVOUR OF A DUNGHILL. Experience makes it evident.

I ever hated Quarreling, as more agreeable to the Pevishness of Women, than the more Generous Temper of Christian Men; and have, as much as I might, always declined it, being rather desirous to suffer injuries, to bear losses, by silence to forgo those things I might lawfully lay claim to, to undergo any thing, so that I might enjoy my beloved Peace (with which GOD has blest me hitherto). Neither have I ever, so long as I have lived in the World, (and I am pretty ancient) been taken, by the worst of men, for a contentious Person: But perfidious FARNNER, unprovoked, urges me to this vindication of my self, by going about not only to hurt my Person, but also by a Pride no less than his Envy, to explode and defame all my Writings, and by infamous Letters dispersed abroad, to render me odious to all good men. Which wicked Enterprize, though I heard of it by many, I durst not believe, till a printed Epistle of his came to my hands, which having perused, I thought I could not enough admire his detestable Impiety, and the many scandalous names he had for me.

Art thou not ashamed FARNNER, to expose my Works to the contempt

of others, when thou neither dost, or ever canst understand 'em, and before now hast praised 'em, as may be proved from your own hand? I'm sure I never merited that you should cavil at me where-e'er you come, and proclaim my Writings unprofitable. You ought rather all your Life, in consideration of the many benefits you have received at my hands, to have behaved your self as a Man grateful to me; but instead of that, notwithstanding the Obligation that lies upon you to the contrary, you have despightfully recompensed all my kindness with the basest Ingratitude, which is directly opposite to goodness.

To what end do you deny that you had your greatest knowledge from me, and in the mean time expose it as your own, and upbraid me from whom you had it?

I never before believed you unfaithful, but always thought you candid, and have communicated so great things to no man as to your self. I believe you will not deny your coming twice from LOCHGOVIA to me at KITZINGA, and entreating me to communicate some Secret to you, whereby you might get a livlihood. Have you not been forced twice, being repulsed, to return home with this Excuse, That I wanted time to instruct you? And when you came the third time, I suffered my self to be perswaded, and did communicate some Secrets to you GRATIS, on this consideration, That you should impart those things wherewith I trusted you, to no man without my leave; which you promised by an Obligation, (viz. That you would keep all things secret) under the penalty of Disgrace, and the forfeiture of all your Goods. Why hast thou falsified thy Word, and contrary to thy Promises, so wickedly ridiculed me among all men,

when with thy whole Family thou didst promise to be faithful to me? Not only Obligations, but also thine own Letters are Witnesses: Neither do I question, that if I had lost or wanted them to convince thee, thou wouldst have denied, and that with an Oath, that thou wast ever beholden to me for any thing, as thou hast already begun, and as thou in thy spightful Writings despiseth all my Secrets and proclaimest thine (which yet are mine) with praise. You doubt whether or no the reading this will make me repent that I ever trusted you with so many things, which I had never done, had not you obliged your self to labour diligently with me in my Labratory, to produce those things for the profit of us both. But what can I do with them? They are perished and gone which yet might sufficiently have sustained both you and me, had not you made 'em publick.

I pray, What gain can you hope for from them, now they are every where known? Wherefore when I see those things taken from me, and by you imparted to all men, in spight of me, for your own advantage, I think fit (for I cannot hope for any further profit from them privetely) to make 'em known to the World; and by the Grace of GOD, I may live without them: But if I also should buy all thy goods which thou unjustly possesset and sellest to every man, of thee, and distribute them about the world, thou wilt see thou canst not easily recover them, or others in their room. I indeed will give you nothing for the future, neither can my unfaithful Servant, whom you have made as good as your self, give you any thing, for whatsoever he hath learned of me these two years, he has given you, which you also have laid up among your own wares and

exposed to sale. Who will hereafter trust you, you have so wickedly deceived me? Every man will abominate you, and shun your Partership and Company, neither undeservedly, for the Laws of your own Obligation make this your Fate: So the merit of the Crime shall return upon the Author, and you can be more sure of nothing, than that Divine Vengence will pursue you. I confess indeed some others, as well as you, have injured me, but none by so wicked an act; whom nevertheless GOD (to whom I refered my Cause) hath so severly punished, that each of them, by one cause or other, has brought upon himself his deserved Reward of Punishment. But I had yet further tolerated you to exercise your Trade at your pleasure; neither had I followed you to LOCHGOVIA, to urge your Obligation to you, but had committed Vengence to GOD; only for that you were not content to sell those things publickly for your filthy lucre, which you had of me, and which you obliged your self to keep secret, and to take that profit to your self which was due to me, but also you have rendered me, and the things you had from me, odious; which has been so much to my disadvantage, that I can no longer bear, but am now resolved to the utmost to refute those impious and lying Calumnies, which you by your Letters have sent into the world concerning me, and to defend my self and my Works, against which you have so wickedly inveighed, that all the world may see how great your perfidiousness has been towards me, and that your Heart acted by Hellish wickedness, has raged against me with horrid Lyes, Taunts and Reproaches, contrary to all manner of Equity: You must needs know, that nothing can be more troublesome to me, than to spend that time in reproving your Lyes, which

I could otherways employ to greater profit; wherefore I shall answer your trifling stories as briefly as is possible. Every wise man will easily see how frivolous your Excuse is. Do you think that any honest man will believe you, if you say you don't owe the greatest of your Knowledge to me? No surely, for no man is ignorant of it: About two years since, you did not know how to bring a Crucible to the Fire, much less to make a trial of Brass; which you did not learn of me, but my unfaithful Servant taught it to you, whom you for that cause esteem; yet seeing you know so much, how lawfully may I complain of him, what a Rascal he has been to me, and that you for that very reason have taken him to your self, that you may fish from him whatever he had learned in those two years he served me; although he did not shun you, because he was unwilling to communicate those things he had learned of me to any man else.

And so you make your self Master of my Secrets, and Covenant with him to undo me and mine: Is this the part of a good man? You do not only expose those things you had of me, but those also which my perfidious Servent has since given you, to be sold at a price, when you have no right to sell another mans goods, to which you have no title. We'll come to the point and expose all your wickedness, as well your impious speeches, as perfidious actions, to the view of the world: But first of all, I will lay before you the obligations you gave me, as most sure pledges of your truth, that by the review of them, you may judge your self how honest you have been, and how faithfully you have kept your promises; and every man shall thence see, (especially those among whom

you have so wickedly riduculed me) with what base ingratitude you have recompensed all my Favours.

The first Obligation which FARNNER gave me, runs thus;

Forasmuch as the most excellent and learned Mr. John Rudolph Glauber, moved by a singular affection towards me, has communicated, shewn and demonstrated to me undernamed, some of those secrets whereof he is Master, and hath enjoined me to silence; I therefore bind my self, and promise upon my Credit and Reputation, and call God and my christian profession to witness, that I will dilvudge none of those things to any man living: but if it be so (which God forbid) that I do at any time communicate any of those things to any man, then I shall most willingly renounce all my right in those Goods, moveables or immoveables, which I shall possess, and give him absolute power to take them to himself, and convert them to his own use and advantage: and not that only, but I give him further power to proclaim me perfidious and wicked, to defame me and make me abominable to all men, for which reason, the laws of Silence shall be observed by me most strictly. Nay farther, in consideration of the many benefits he has bestowed on me, I give up my self, my beloved wife, and my children to serve him in all things lawful and honest, to go when and where he pleases, and to ease his labours; and if he die first, (which God avert) to be alike serviceable to his whole Family, which care he also has promised to me and mine: I promise then, (if my Fates grant me life) that I will be to my utmost, serviceable to him

so long as he lives: In witness whereof, I have hereto set my hand and seal, Given at Kitzinga, the 15th day of June, 1652.

Testis, Spirensis Canonicatus, Lochgovia & Horrbemi.

Christopherus Farnnerus.

The second Obligation.

I Christopher Farnner, for the time being Cannoniate of Quastor of Spire, Lochgovia and Horrheme, in the Dukedom of Wirtemberg, to all by whom these presents shall be read, make known, that the most excellent and learned Mr. John Rudolph Glauber for little or no reward, has communicated some of his secrets to me, and with me made a covenant after this manner, That I must oblidge my self for what he hath already done, or hereafter shall do for me, to be all my life thankful, not only to him, but to his Children also. But for as much as 'tis most certain, this life will have an end, but we know not the time when, the first Obligation is not full and clear enough, and for that cause I bind my self and promise, (so help me God) and swear by the King of Heaven who always bears witness to the Truth; and further, upon my Credit and Reputation, for the preservation whereof every Christian man should be induced to keep his promise, if (which that God would in mercy avert, I shall not cease to put up my daily Prayers) the above named Mr. Glauber and his beloved wife shall die, and leave their Children unmarried, I do oblige my self by this most solemn Oath, to observe faithfully, and

as a Christian man ought, these following things: viz. I will forthwith take his Children to an inheritance with mine, and to my utmost skill, instruct them in the secrets of their dead Father, and shew them all things requisite and necessary, as fully as to my own Children, and that after this manner, That what ever of their Parents heritage belongs to them, they shall wholly possess, and they shall lawfully demand it as their proper due; and if any thing goes from him, I will redeem it, so that my Childred shall lay no claim to it: on the contrary, (for those secrets communicated to me, which hereafter may redound to my profit) I make the aforesaid Mr. Glaubers Children Heirs with mine, that they may be admitted equally to my Estate, and alike enjoy the Goods of me living: But if I Farnner, contrary to my expectation, shall depart this World before Mr. Glauber, he is bound to instruct my Children in his Art, according as they are qualifyed, only so far, as that thereby they may get their living, and that they may not be burdensome to him. He may at his pleasure instruct him that he shall esteem most fit in some secrets, with which he shall afterwards teach his Breathren to get themselves maintence. And for the same cause, I call my little Son Alexander, and surrender him to Mr. Glauber and his service, so that he may keep him as long as he shall be willing, and it shall not be in my power to take him from him according to the agreement we have both made with him: all which things are restrained to this on either side, That if the Parents of either part die before their Children are provided for, which God forbid, and our Children shall be free by the early death of their Parents, then each shall to his utmost, provide for his own Children.

That all these things may be observed the more firmly, I affix my Seal and name, and by my own hand writing, oblidge my self so, that if at any time, I falsify my word, my Children may be called to witness my perjury. Given at Kitzinga the 10th of September, in the year 1652.

Christopher Farnner.

N. B. I did not require this obligation of Farnner, neither would I have taken it, but admonished him to be true to the first, with which I was content; for he gave me this for no other reason, but to get more out of me: But, because I had found but his cheats, and he would not be advised for his own profit, he at last makes mention of this new obligation, in a certain epistle of his, thinking thereby I was obliged to a farther communication of my Art to him, tho I have often told him, that I valued not this last obligation but would give it him again: But when he refused to take it, I cancelled it, and kept it by me, for this reason, that it might be seen how he had bound himself by this new Obligation, which certainly he would never have done, without very good cause.

Expressions gathered out of certain of Farnner's Epistles sent to me; from which is evident how greatly he is beholden to me.

Therefore I faithfully assure you, that I will shortly leave my house, and take a Journey farther off, to provide for my Family; my Wife too is very willing to go with me, and to be interested in our

agreement, but I can't see what should oblidge her to it, when it can't be effected very commodiously: Yet I resolve, if nothing extraordinary hinder me, after eight days, that is, on the 14th day of April, to depart hence, and then answer your most friendly Letters, together with my beloved Wife, and all my Family, to take part with you in all your Labours, and help you with the greatest diligence. But because I intend to be so suddenly with you, I shall write no more at this time. March 26th. 1653.

Out of another Epistle, July 17th. 1653.

I Hope you will excuse me, that I did not come to you, because hindered by my Wife's faultiness, who telling me she would come with me, privily laid Obstacles in my way; this offence would not destroy a Knave: Wherefore I again intreat you not to cast me off, but continue your wonted favour to me; and I shall endeavour in my place to give you ample satisfaction; neither shall any thing hinder my speedy performance of what I have promised.

Out of another Epistle, July 29th. 1653.

Forasmuch therefore as I have by the wicked deceit of my Wife, broken the many Promises I made of coming to you, unless I would have taken her wicked AMASIUS or galant, as Companion in the Journey; it has at length pleased God to take her away, and so put me in a capacity, WORTHY

SIR, of serving you without the least impediment, wherefore I give my self wholly to your Commands: And altho' I have been perswaded by Persons of principal Authority to marry again, I will not, but commit my self to be managed by your Counsel, as you were my Father. Therefore, since we are parted, if my Fates grant me Life and Prosperity, I will come to you, and commit my self to your guidence and protection, Worthy Patron; for which reason I shall forbear to write any thing at this time of your Labratory, more than what I see in your Letters, that all things may proceed the more regularly. Wherefore, though I have been solicited by many, yet shall reject all as much as I may commodiously, in hopes of this, that when I have first gotten your consent, I may communicate my labour to some, whereby I may get a good Sum of Money: But these things shall be deferred till our happy meeting.

In another Epistle he saith;

That he was confident he could find out all my Art by my Writings, except that the Vessels do not always abide the Fire, and that the Apothecaries refused to buy his Medicines, unless he would teach them the way to prepare them: Again, he would give me Fifty R. Dollars for each month, for my part, as may be shewn from himself; these are his words: And if he was not obliged to me, why would he give me Fifty R. Dollers each Month?

From all which (and much more I might add, which for brevities sake

I omit) it evidently appears, that Farnner was obliged to me, which he would never have been, had not he received some benefit from me, which rendered him bound to me: But if he is obliged to me, why was he so wicked, as in his lying Epistles so malapertly to despise, and dispurage me and my Secrets, which he had from me? Hence then every man may perceive what they ought to judge of him, that he has both behaved himself most perfidiously wicked toward me, and also, that he has sufficiently declared himself the most ungrateful in the World.

But that no man may suspect that I wrest any word of Farnner's in his obligations given to me, to his disadvantage, or my own ends, I have taken care to have his own hand-writing viewed by Notaries and Witnesses, who will attest, that what I have printed is word for word the same with what I have in writing under his own hand.

A Specification of those CHYMICAL SECRETS which FARNNER learned of GLAUBER, and in the trial found true, and of those which yet are found and brought to trial; where it must be known, that those, of which there is no mention made here, if GLAUBER should relate them, they would not answer his expectation in Practise, according to his information: Also the Charge which he must be at who will make trial of those Secrets after a right manner, is here added.

1. Glauber's Panacea, for 30 R. Dollers.

About which these things are to be considered: It is made chiefly

of ANTIMONY; to which, according to his common way, Sulphur is added; which done, another Separation is made, in which, from a whole pound of Sulphur and Antimony, no man shall receive more than three ounces of the purest Sulphur. There are indeed two other Subjects, which produce a golden Sulphur better than Antimony; but I have found a way to extract a thick and pure Sulphur from all sorts of Metals (except LUNA and SOL) and Minerals, and after GLAUBER'S manner to make Tinctures. All these Secrets annexed will be taught for the price named.

2. To reduce Minerals and Metals into Dross, after GLAUBERS way, to reduce them to nothing, and then without Charge to bring them to their own Species again, or to turn them into fluid Oil, or Powder, or Tinctures; which things bear an affinity to those above: For Twenty R. Dollers.

3. GLAUBER'S ALKAHEST, and a way to prepare it, perhaps unknown to GLAUBER, and built upon a more firm foundation; Fifty R. Dollers.

4. The Trial of all sorts of Brass, but not of every sort at once, for every one must have a particular Practise.

5. To make store of Flowers of Coral for a little Costs; ten R. Dollers.

6. To make melted Tin hard, that it shall shine and sound like (Silver); Ten R. Dollers.

7. To make white Vitrifications upon Vessels; for Ten R. Dollers.

8. Plenty of Spirit of Salt.

This is not prepared after GLAUBER'S way, and though GLAUBER was so great a Lyer as to affirm, that in a clear Fire fifty pound of this

Spirit might be prepared in one day, yet he cannot produce above one or two pound: Wherefore my invention is much better, and my Spirit is pure, but GLAUBER'S has VITRIOL mixed in it.

And though I gave GLAUBER a great sum of Money to communicate these Secrets to me, yet I have not found any of them true, according to his Information, but was fain, with great industry, to seek other ways of working those abovementioned.

And for those that follow, though they may seem to be derived to me from GLAUBER, yet they have not succeeded by his Information, but I was forced to go another way to work, which will hardly be found by GLAUBER.

9. To prepare good store of the SPIRITS OF VITRIOL, Nitre, Salt, AQUA FORTIS, AQUA REGIS, also Sulphur, after a manner not yet known, and which will scarce be known to GLAUBER; forty R. Dollers.

10. To produce plenty of volatile Mineral Spirits, which Spirits ascend the Still before the Phlegm; but the abovenamed after the Phlegm.

N. B. These Spirits have the same taste that Spirit of wine hath, and evaporate like it, and are void of corroding: neither do I doubt, but I can produce such Spirits from Metals also, though in metallicks I have made no trial yet.

11. Flowers of Minerals and Metals, almost without diminution, compendiously under a refrigeratory cover, which GLAUBER never saw; Ten R. Dollers.

12. The Quintessence of all Vegetables: Although GLAUBER, in his Tract, promised to bring that also to light, yet he never performed it

from all Vegetables, but only from hot, which give Oil, which is of no moment; but that from cold, to wit, Herbs, is artifical. Thirty R. Dollers.

13. To give men strength to dead and eager Wines, and make them as good as ever, or better; Two Hundred R. Dollers.

N. B. Note here, That I very much run against GLAUBER'S Tract of VINARY SECRETS; and if my own Industry had not taught me more than that, I might indeed, according to his instruction, encrease the strength of Wine, but with an ungrateful relish, so as I could never hope to try eager Wines according to Art. But now I cannot only bring to maturity all sorts of Liquors from both sweet and sowre Grapes, and other sorts of Fruits, and give them new strength in the Hogs-head, but also render them pallatable to all men. Whoever hath tasted GLAUBER'S Wines, and shall afterwards taste mine, will easily discern a difference.

14. To give any Wines what relish I please.

15. To prepare a burning Spirit of all sorts of Bread-Corn in abundance, with great ease and profit, very much like that which is made of the Dregge of Wine, and sustaining all Trials: There are already eight pounds of it in trial, whether they will bear a Voyage, by Sea, or not; they are sent beyond Sea, which if they will undergo; Two Hundred R. Dollers.

N. B. Further, I know how to reduce all burning Spirits into one form; as, the Spirit of JUNIPER, or Bread-Corn, like to Brandy, or to make spirit of Wine like spirit of Bread-Corn or JUNIPER, so that it shall not be discerned of what subject 'tis made.

Neither do I doubt, but that I know also how it comes to pass, that some Liquors carryed beyond Sea, are corrupted: Which therefore, if by the benefit of this trial, the Certainty is made known to me, a good reason, and after what manner it may be helped, may be learned of me for a trifle.

16. To encrease the strength of all sorts of Beer, that they shall have equil Virtue with RHENISH-Wine, and yet the Beer lose nothing of its relish, but be both more pleasant and durable; for when thus ordered, it will not so soon sowre; but if it be decayed, which will happen to Wine in time, the Vinegar which will arise from it, will be as good as Wine-Vinegar: fifty R. Dollers.

17. To give sowre Beer its natural sweetness, and in fourteen days to make it sell for fresh; and so, though turned three or four times, to make it sweet in fourteen days time without fail.

18. To produce Vinegar of Bread-Corn, and such other things, very like Wine-Vinegar in all things, without fail; fifty R. Dollers.

19. To prepare Vinegar of green woods, an Hundred measures daily, together with Oil of Wood, without Charge; but if any man will have this like other Vinegar, it requires rectifying, which will ask some time and cost: Ten R. Dollers.

20. Although GLAUBER delivered in a little Tract, a way to make Tartar of the burnt Lees of Wine, yet I have always committed many Errours, by following his very Oral instructions, till bethinking my self, I at last made it with fruit, and plainly reduced it to Crystals.

N. B. Whoever will follow the Directions of that Tract; may.

21. To separate every Ore of Copper with profit, and from thence to produce Gain.

22. Of that sort of Copper Ore, if by chance they have any LUNA from thence, to separate it with fruit, without loss of the Copper and Lead.

23. To separate Lead from Tests and Cupels, for small Cost, and as little Labour.

24. To separate Gold and Silver by melting.

25. To build a Furnace, in which one may both torrifie; melt, and try Metals in the Probations of CINERITIUM; containing the small Trials of an hundred Crucibles, or more, only heat with Wood.

26. Further, a Furnace, in which, without Bellows, one may try a good quantity by the Probations of CINERITIUM.

And Lastly, Forasmuch as the lesser Trials have deceived me, if I went to work on a greater quantity, I will teach wherein my chief skill consists.

1. In the lesser trial I have found, that with the Spirit of Wine, as 'tis generally prepared, I can make an Anatomy of all Vegetables, Animals, Minerals, and Metallick Subjects, separate their three Principles, make the volatile fixed, and fixed volatile, and force them through a Limbeck.

2. To force the Anima and Salt of Gold through the Limbeck, and to reduce it, well mixed with its Spirit and volatile Salt, into a potable body like Vegetable Essences.

But because Gold may be reduced into such a sort of Essence, it will

not be very hard to render the imperfect Metals and Minerals, with their Three Principles, potable: and these Principles are inseparable in their volatility; wherefore I doubt not but they may be fixed.

3. Furthermore, I have found by small trials the way of taking all Corrosive Spirits, by this general Spirit, and of reducing them (by the help of Divine Providence) into sweet Oils or MENSTRUUMS; which if it answer the desire in large quantities, (and I don't doubt it) GLAUBER with his ALKAHEST, which indeed is not wholly to be dispised, must be forced to hide: for I have hopes, that by the assistance of Divine Providence, whatsoever subject I shall propose to my self, I can separate and purge its three Principles; Lastly, join them, and so produce a better subject and more pure: But 'tis true, seeing I was so often deceived in the lesser trial, I did not interpret it as Truth, but Speculation. However, I can effect very well whatever I have here said, as well in the great as lesser.

4. But forasmuch as so many excellent, as well as new, Secrets, offer themselves, that I can't chuse but clearly know them, and therefore 'tis impossible that I should make all those Secrets abovenamed profitable to my self: And although I am now about many things, that hereafter a great quantity of them may be exposed by me to be sold in pounds and hundreds; yet I shall not be so envious to refuse a Communication of them to any man for the named Reward; nor keep from him any knowledge I can give him.

Yet he must know, that it is very troublesome to instruct any man that is altogether ignorant and void of skill in Chymistry; Therefore

whoever will learn any of these things of me, let him either come to me, or signifie his mind by his Letters, thus: To CHRISTOPHER FARNNER, Canonicate Questor of Spire, & etc.

These are the words of the perfidious FARNNER, which he hath used in his most false and wicked Writing.

A Specification of those Chymical things.

This, good Reader, is the Beginning or Preface of that Lying Writing, in which he hath exposed to Sale those Secrets he had of me, and found good: Besides, he adds, That those Secrets which he had of me, which do not succeed according to his desire, are not added; but those only whose Truth he has found in the trial.

Now we'll open this PEDDLER'S-STALL, and look through all its parts, to see what is in it.

These words follow:

1. Glauber's PANACEA;
About which these things come to be considered.

Here FARNNER says my PANACEA, for the greatest part, is prepared of ANTIMONY; besides, there are yet two other subjects, from which a purer Sulphur may be extracted, than that which is drawn from Antimony:

Which vain fancies he may vend, or what else he will, I can't hinder him, seeing I have taught him to extract nothing but a pure Medicinal Sulphur from Antimony, by the benefit of a singular Liquor, which I call ALKAHEST. He adds also, That he can extract the same Sulphur from all sorts of Metals and Minerals (except SOL and LUNA) and after GLAUBER'S way convert them into Tinctures.

I declare against this his first Position: FARNNER here saith, That PANACEA may be prepared from Antimony for the most part, and promises to communicate it to any man that desires it, for a certain price, to wit, thirty R. Dollers. But thou hast seen, gentle Reader, how strongly he bound himself, by his Obligation given to me, to keep secret those things I had taught him, and communicate them to no man, under the Penalty of Disgrace, and the forfeiture of all his Goods. I confess indeed, being cajoled by his frequent solicitations, I taught him the way of preparing the PANACEA, but from no subject but Antimony. This PANACEA of Antimony FARNNER exposes to sale, for thirty R. Dollers; and moreover has taught that Preparation to many, from whence great profit hath redounded to him; when yet this was not lawful for him to do: But he shall be forced e're long to give his Reasons for so doing, and I will one day see if I can have a remedy for this evil. I will now only shew how wicked he has been to me: Wherefore I am compelled to expose those secrets he had of me and every where makes common, to the view of the whole World, that no man shall need to give Money to FARNNER for 'em, or any other reward, but may come to the knowledge of them for nothing: for if that knowledge is divulged by FARNNER, who unjustly, by the

publication of it, endeavours to heap up to himself Fame and Riches, I may well communicate them to all men faithfully, that every man may save his money: But because this PANACEA is prepared by the benefit of a hot and Saline Liquor, which I call ALKAHEST, therefore 'tis necessary that he who desires this PANACEA should first know the Preparation of the Liquor it self, without which he can effect nothing. Indeed it grieves me, and I am very hardly brought to discover and divulge to the World so excellent a MENSTRUUM, by which so many rare Medicaments may be prepared; and I had never done it, had not this perfidious FARNNER changed and adulterated it and its use in the Preparation of the above-named PANACEA of Antimony and others, from Minerals, Animals, and Vegetables, and by prostituting and communicating it to all men. I think him, indeed, a Boar out of the Forest, broke into my Garden of Flowers, that has, with his snout routed up all the many Fruits, which with much sweat and labour I have planted; but the deed will once be rewarded.

Now follows a very short Description of the Preparation and use of that Liquor, needfully requisite in Vegetables, Animals, and Mineral Medicaments: And though I might teach another and far better way of preparing it, yet there's no necessity for throwing all my Pearls before Swine. It is sufficient, to my sorrow, that I cannot recall those which this unfaithful FARNNER has sent abroad, and am forced to behold their destruction with the greatest trouble.

Of the Preparation and Use of a certain Secret Universal MENSTRUUM, with which one may institute an Anatomy of all Vegetables, Animals, and Metals; correct them, and from thence prepare good Medicaments.

Of this MENSTRUUM the Modern Philosopher HELMONT makes mention in some places of his Writings, and attributes wonderful Effects to it, which he exhibits in the Preparation of Medicaments, and gives it the name of ALKAHEST; which name PARACELSUS also remembers; but in few words, it is the same as if we should say ALKALI EST; for when the Letters L and i are joined with a dash, it produces the word ALKAHEST. But what moved HELMONT to call it ALKAHEST, we shall not here dispute: I indeed believe he did it, thereby to demonstrate its Nature and Essence; for in German ALKAHEST is as AL GAT HEIS, or AL ZU HEES; but in the BRAHANTICK Idiotism, which was the Mother Tongue of the Author, it sounds ALTHOHAESS, that is, very hot; and so the name answers to the Essence; for this Liquor is nothing but a meer fiery Water, by whose immense and secret heat Vegetables, Animals, and Minerals, if they are put into it a certain time, are forthwith purged, ripened, and made better, so that they become excellent and wholesome Medicaments, which without this fiery water could not be done. This MENSTRUUM then, is nothing but an igneous Liquor, prepared of urinous Salts, which is endowed with those Virtues which are attributed to it in my Treatise of Flints.

An Admonition.

Here it is to be noted, that this MENSTRUUM may be prepared of more than one subject; for Nature is Copious, and sets before our eyes many various Ingredients, from which, by the help of Art, divers things may be effected; as may be evidenced in this admirable Liquor, which may

be made not only of the common SAL TERRA, or SALT PETER, but also of the fixed Salt of all Vegetables, and especially of Tartar; 'tis no matter of what subject it is prepared, for it has still the same Virtues that are ascribed to it, forasmuch as, if a right Preparation be made, the common SAL TERRA and the fixed Salt of Vegetables are of one and the same Nature and Essence: For the genuine SAL TERRA, or SALT-PETER, may be made of Salt of Tartar; and of SAL TERRA, or Nitre, a fixed Salt, like Salt of Tartar; of Spirit of Wine, Salt of Tartar; and of Salt of Tartar, spirit of Wine: of Wine-Vinegar, Nitre; and of Nitre, corrosive Vinegar. So those Salts partake of either nature, and will be managed at pleasure; neither are they undeservedly by the ancient Philosophers, called Hermaphroditick Salts. Wherefore it is not for any one to be offended at its base original, and accordingly undervalue it; 'tis no matter wherein the good consists, 'tis sufficient to say it is good, and may be converted to good uses: Good things ought to be so much the more esteemed, by how much the more mean and base their original may have been, for Nature and true Art use both base and abject things in their Works, and nevertheless, their desires are accomplished: But on the contrary, the vain reason of Man in his labour aims at nothing but Sublimity and specious Notions, and therefore brings nothing to a good end, but destitute of a happy success, finishes his fruitless labours with great damage.

To conclude then, take this advice; Be not offended at this wonderful Liquor, because of its mean original, but let the Work praise the Work-man.

Now follows the Preparation.

If any man will prepare this Menstruum of Salt-Petre, he must extract and coagulate that Salt from the earth with common water, and adding coals or some other vegetable Sulphur, fix or calcine it so long, till it be resolved in the Air into a fiery liquor, then the preparation is finished. But because that sort of earth, from which this salt is extracted, cannot be found every where, in its stead, you may take Nitre well cleansed, which must be melted in a Crucible, upon which you must cast a small quantity of coals and that so long, till the coals upon the flowing Nitre will take fire no more, but remain dead upon it, for then your Nitre is fixed and prepared, so as from it, this so admirable water may be made, which is made after this manner; While the fixed Nitre flows yet in the Crucible, pour it into a brass morter that in that it may cool, then beat it to powder, and spread it on a Glass table placed in the Cellar, or some other moist place, that there it may flow; so you have that fiery water which is endowed with so many wonderful virtues in the preparation of medicaments of vegetables, Animals and Minerals, of which I made mention before. But if you would make such a liquor of TARTAR, which will be best for preparation of Medicaments of vegetables and Animals, then you must bring common TARTAR made pure by Calcination, Filtration, Solution and Coagulation, and by flints purged from all impurity, into a fair and bright Salt, mixing six or eight parts of the purest TARTAR with one part of flints well pulverated, which mixture you must melt in a covered Crucible, and pour it into a brass

Morter to cool: This bright and white fiery mass you must reduce into powder and put it into a Glass body, and pouring rain water thereon, boil it upon hot Ashes, for then the rain water will dissolve the TAR-TAR only, and leave the Flints at the bottom, like a Muclaginous matter which draws to it self all the impurity of the TARTAR, which before, by the common solution and filtration could not be taken away, and so keeps it, that the Salt of TARTAR, is by this means freed and purged from all impurity: then you must filtrate this solution, and draw the water from it by a limbeck, that so that Chrystalline fiery liquor may remain in the Glass: And this is that preparation by which vegetables and animals are reduced into the best medicaments; but to prepare metallick Medicaments, and especially for the making them better, liquor of TARTAR is not to be added, but only liquor of the Salt of fixed Nitre, which is not prepared by coals, but by the Regulus of Antimony, and that after this manner.

Put three parts of clean and pulverised Nitre to one part of Regulus Martis, put this mixture into a Glass washed clean, and by a prudent increase of fire, make it boil a little in a Fixatory Furnace, and in this degree of fire, leave it five or six hours, then take it out that it may cool, then very finely pulverize it, and pour upon it rain water, and the Nitre, which by the Regulus of Antimony comes out fixed, wash out; and lastly abstract the water, so you will produce a fiery liquor fit for use in metallick operations.

N. B. This fixation may be as well made in covered Crucibles, as in Glasses, and is good enough, only the management of the fire must be

observed, neither let the heat from the beginning be too intense, least your evaporate before it be brought to a fixation, but keep a gentle fire, and it will effect the fixation in conjunction with the Antimony.

The Praxis. How by the mediation of this liquor Vegetables, Animals, and Minerals may be converted into good Medicaments.

Take an herb, root, or seed, beat it very small in a stone Morter, then put it into a glass, and pour upon it so much of this fiery Menstruum, as that the herb may be sufficieltly imbrued in it, afterwards set it upon sand some days, or boil it, that of the herb and Menstruum may be made a thick liquor, which done put to it as much spirit of Wine, well dephlegmated, as there was of Alkahestick Liquor, and well mix them, in a small heat, lest the spirit of Wine evaporate; so long digest till the separation shall be made, and your Alkahest, with the faeces, will go to the bottom, but the spirit of Wine, with the Essence and Virtue of the Herb, will stay at the top, which afterward, though never so much stirred, will not mix, but each remains still in his own place; pour all that whole matter into a wide-mouthed Glass, and there let it settle; then separate the Medicine which the spirit of Wine has extracted from the Herb, with a gentle inclination from the Alkahestick Liquor, which retains with it self the faeces of the Herb, so you will have the Virtue and Essence well corrected and perfectly ripened in the spirit of Wine, which abstract from the Essence of the herb in a Bath, and the Medicine which remains like a red juice, and endowed with great Virtues,

keep and use it as it is ordained by God and Nature. But the Alkahestick Liquor, mixed with the faeces of the Herb, Calcine in an earthen Vessel, that all the relish and scent of the Herb, which remains in it, may be exhaled from it, and afterwards dissolve it in Water, and filtrate it, and draw it to a fiery Liquor, so it will be as good as it was before, and you may put it to the same uses as often as you please.

Animals are to be bruised after the same manner in a Stone Morter, and with the Alkahestick Liquor digested, and by spirit of Wine separated, and in Vegetables the labour is the same.

But Metals in their proper Corrosive Menstruums must be dissolved, precipitated, washed, edulcorated, exsiccated, and then lastly with the Alkahestick Liquor poured on, digested, dissolved, and with spirit of wine separated and reduced into a potability.

But Minerals which may be pulverized need not be dissolved and brought to a calx, but 'tis sufficient, that after pulverisation with the Alkahestick Liquor poured on, they be digested, and by spirit of Wine separated.

Nevertheless, you may also at your pleasure render metals brittle and frangible, viz. By the help of the Regulus of Antimony, so that they may be pulverized, then pouring your Menstruum upon them, dissolve, digest and convert them into Medicine: Which method is certainly good; You may also proceed another way with metals prepared by Antimony, viz. Mix them with three parts of pure Nitre, and in a Glass or earthen vessel, by the dry way dissolve, digest, fix, and by spirit of wine prepare into Medicine, which also will be good, for it is more profitable to

operate by the dry than by the moist way, as it is customary to be done in vegetables and Animals.

And this is the shortest method of reducing Animals, Vegetables and Minerals by the Alkahestick liquor to the best Medicaments.

But how imperfect metals or Minerals, which otherwise in a Cupel or Cineritium trial, leave no gold or silver behind them, are to be brought to maturity and fixed, that afterwards in the Cineritious trial, they may give a perfect gold and silver is done another way, whose process is this.

Mingle and melt so much (Regulus) of Antimony with the imperfect metals or minerals as may render them friable, that they may be pulverized, with these mix three parts of the purest Nitre, and this mixture close stopt up, put upon a fire in glass or earthen vessels to fix for some hours, afterwards take it off, and as they are melted pour them out, that they may give the regulus which is to be taken away, and with lead put into the Cupel and reduced to dross, then that gold and silver which the imperfect metal or Mineral got in the fixation, stays in the Cupel which may be examined by the lesser weights of probation, whence it will appear how great a fixation so little time will produce.

This is the plenary and fundamental instruction of the use of TARTAR purged by flints, to extract the essence of vegetables and animals and of Nitre fixed by coals and Regulus of Antimony, which begets a penetrating, correcting, bettering or ripening and purifying fiery, but not corrosive, virtue, which goes beyond all things, penetrates and corrects as above written; I have attributed to it. But least the

ignorant of natural things should esteem and proclaim this a corrosive liquor, we will prevent them, and shall endeavour to demonstrate, that this liquor is no way a corrosive, but an enemy to and destroyer of all corrosives.

Like loves its like, with it is mingled, and immuteably stays with it, as may be seen in spirit of Salt, Vitriol, Alum, Nitre, Vinegar and other corrosive spirits when they are mixed. But unlike things if they are joined, are contrary to themselves, and fight against each other, and forcibly withstand one another so long, till the strong o'er comes the weak and kills and destroys it or produceth another substance from it: that may be seen if this fiery liquor of TARTAR or Nitre be mixed with a corrosive Spirit, for it can not consist with it, because contrary to it, then which of these is the stronger, destroys the weaker and takes its nature to it self.

And this difference arises from the unlikeness of the nature of either liquor, for one corrosive does not destroy another, as also one fixed urinous liquor does not destroy another urinious liquor; because one contrary fights against another contrary, but not against his like, so 'tis true, as hence may be fully demonstrated, that this fixed liquor of TARTAR or Nitre is not corrosive, but only a fiery water and a perpetual enemy to all corrosives, and both kills and takes away their corrosive faculty from them. But some will say that the corrosive spirits of Salt, Alum, Nitre, Vitriol and such like are fiery waters: I confess it, but yet with this distinction, those spirits are indeed hot waters, but not vivifying, but rather cold and killing fiery waters, which no

way ripen, purge or correct Vetetables, Animals and Metals, but destroy and kill all things they are mixed with. But the fixed liquor of Nitre or TARTAR is contrary, and ripens, purifies and brings to perfection all it is mixed with, which is impossible to all corrosives, whence it is clear as the Sun, that it is no destroying corrosive, but a correcting fire.

Now follows another Clause of FARNNER'S Epistle.

2. All Mineral's and Metals.

I much wonder that FARNNER was not afraid to offer this process to others at a price, which is plainly and clearly described im many of my Books and is done only by Nitre, by which sulphureous metals (but not all metals and minerals, as he vainly boasteth) are reduced to dross, from which by spirit of wine, a metallick tincture may be extracted, as we have shewn above in the tract of the Alkahest: that dross is truly fiery, and therefore easily attracts air and is turned into oil, of which I have largely treated in the second and fourth parts of (Furn.) and in the MINERAL WORK especially in the explication of the wonder of the world, as also in my Hermetic Colloquies.

3. Glauber's Alkahest.

In this Paragraph FARNNER openly betrays his vanity, bragging, and hellish calumny, in reprehending the industry and labour of good men,

and boasteth of a more firm foundation than perhaps I know of; whence it will appear to any man of Understanding, what this most ungrateful of men would be at, namely, which is the only thing he can do, he would do what he could to bring those Secrets I intrusted him with into contempt with all men, and introduce his own foolish trifles.

First,he says; GLAUBER'S ALKAHEST, and presently subjoins another and better foundation or way of preparing it: which if he points at any thing but my Alkahest, why then does not he forbear mentioning and contemning my Alkahest? For he does contemn it, and endeavours to prove, that that way or fundamental is unknown to me. Now he exposes it to sale at fifty R. Dollers.

4. The Trial of all sorts of Coins.

'Tis true, FARNNER did not mention this as a vendible, for it is not worth purchasing with Money of him: for the common way of trying money has been shewn not only by many provers of Metals, as LAZERUS ERCHER, GEORGE AGRICOLA, and many others, but I my self also in many places of my Writings, and especially in my explication of the Wonder of the World, have fully and exactly taught it, which FARNNER can never be able to mend nor imitate.

5. Flowers of Coral.

You must know what belongs to this Process that FARNNER did not

learn this Preparation of me, but of another man, which pleases him extreamly, though 'tis of no moment. But he most unworthily calls them Coral Flowers, which he exposes to sale at ten R. Dollers, seeing they are not Flowers, but rather to be called a Cremor; for when in a very hot fire they are reduced into a white Calx, from this Calx, by the help of Water, is drawn a Cream after this manner: The calcined Corals are put into common Water, and left in the Water a whole night, then in the top will appear a little skin, as is usual in CALX VIVA, which must be taken off to dry. Lastly, while that is doing, another little skin appears, which is also to be taken off, and that so often, till the Water will give no more.

I know also, that this Powder, is held up by some Apothecaries as a certain singular Secret, (but that indeed exceedeth it) which is prepared of CALX VIVA, which I have also shewn to some that have attributed great things to this Powder, who, the Experiment being made, seeing me produce true things, What need is there, said they, to burn precious Corals, when common Chalk (or CALX VIVA) will give the same thing as Corals, and they prepared no more Powder of Corals, but of CALX VIVA.

Therefore this does not deserve to be called a Secret.

N. B. That Corals, Pearls, Pearl-shells and Tortoise-shells, as well those that are in the Sea, as those that are in Running Rivers, if they are burnt together, are brought into a true and natural Lime, like that which is made of burnt Stones, needs no probation. He that will not believe me, let him go to HOLLAND, and other Sea-Ports, and he shall see that the men of those Countries do not use Lime made of

Stones, which are wanting in those places to build Walls, but that which is made of burnt Shells, which the Sea in great abundance casts upon the shore; which yet, is not so good as that which is made of Stones, which some Lovers of Curiosity have also brought them from GERMANY.

6. To make melted Tin hard.

And this Paragraph, by right, ought to have been omitted, for it is not worth Ten R. Dollers, requiring no Art in the making it; and I my self taught it many years since, as well in the First part of the Mineral Work, as in the Fourth part of my Furnaces; and it is made by REGULUS of Antimony, of which one part is mixed with 12 parts of melted Tin, and no more, for otherwise the Tin would be made brittle, and rendered unuseful; rather if one part of REGULUS is mingled with twenty parts of melted Tin, it will come out hard enough. And farther, it may as well and rightly be made of ZINK, as by REGULUS of Antimony, and needing no great matter of Labour; melts sooner than REGULUS of Antimony.

7. White Vitrifications.

These Vitrifications also, which he exposes to sale at Ten R. Dollers, are of no moment, for they are prepared of Glass of Lead, Tin-Ashes, and Flints, and Wood-ashes.

In HOLLAND this Preparation is very common: whether FARNNER IS

excellent at it or no, I much doubt; How then shall he teach others? And if he does excel, who will be the better for it? For no man studies these Curiosities, or so much as looks after them, or covets them.

But although GLAUBER, & etc.

Here FARNNER again vomits at me a mighty heap of his infernal Lyes, which are as noisome as any dead Carcass, as if he intended to infect me with their venom; but these stories do not at all agree with his other; for here he says, Although he had with a great Sum of Money purchased certain Secrets of GLAUBER, yet he had made no Examen of them, but he was forced to convert them to other uses. In the beginning of his Calumnious Paper, he thus writes: A Specification of those Chymical Secrets which the under written Farnner learned of Glauber, and in the Trial found True.

Here any impartial man may see what to judge of this double Tongued Monster. Here he denies what before he confessed; he both calls them GLAUBER'S SECRETS, and here affirms, thay never succeeded to his purpose: which if true, Why does he prefix my Name to them, if he never made trial of them? But if they have succeeded, and in the trial he has found 'em true, as he above confesses, Why does he here deny it? Can the same thing be true in one place, and False in another? Certainly I can refute such horrid Lyes no way better than by his own words. For if I should say, See here, there, or in that place thou lyest, he would not care, but answer, He did not lye at all, but spake the truth; and I might represent a Contest between two scolding Women, one whereof calling the other Whore, and the other throwing back upon her the same

things; but this will do nothing; wherefore I shall take another method.

In the first Obligation he gave me, he expressly says, That I had communicated, demonstrated, and shewn him some Secrets: But if they were not for his use, why did he give me a valid Obligation, to keep those secrets from the publick? Not bent to these things, Why did he in all his Letters (which he sent me, and which are kept safe to confirm what I say) confess, and profess, that he, his Wife and Children, were bound to me, and that he would come to me, that with his he might serve me all my Life.

If none of my secrets have succeeded to him, Why did he give me long since a new Obligation to be grateful to me? As I have demonstrated from his obligations and extracts out of his Epistles.

N. B. What! Could he not make trial of those things he had of me, in eighteen Months time? But if, the trial has proved the truth of those things, and he has bound himself to me by a new Obligation: Why then does he dare to say, That none of those things which I communicated to him, proved successful? Why two years after? Now he is alienated from me, and having broken his Promises of coming to me, and working with me in my Laboratory, (being married again) is an Excuse for his absenting himself, yet he asks me to communicate to him more secrets, and then he'll come. N. B. But if the first secrets have not stood the Test, why does he desire more of me?

For he might know over and over in two years time, whether my Writings would conduce to him or not.

In one Epistle, in which he boasts of killing a man, he writes thus:

Wherefore I again and again intreat you not to cast me off, but do to me according to your wonted Favour. I will on all occasions, as I have promised, in my place, satisfie you; neither will I cause that any thing should therein be desired; for which reason also I will effect it both better and sooner.

From these and the like words, which in two Epistles he used to me, I could collect nothing of Fraud, and perhaps at that time he meant none. But when he had killed that Man, and married another Wife, all his Promises and Obligations were to no purpose. And from that very time, all his endeavours have tended only to do me what hurt he could, and he daily hates me more and more; which at last appears more publick in these his lying Calumnies.

Indeed, I am apt to think the Devil and THAT MURDER had possessed his Heart. N. B. For his Epistle to me witnesseth, that for fourteen days together he had sought occasion how he might catch that man with his Wife, and bloodily revenge himself upon him; I suppose, by the instigation of Satan, whereby both the Man was killed in his Sins, and the Woman with many wounds compelled to a lewd kind of Life; of both which Crimes FARNNER is yet guilty in his own Conscience, and (unless a speedy Repentance follow on his part) he will never be freed from them. But if in a sudden passion he had done it by chance, he might merit some excuse.

But to endeavour it fourteen days together, is nothing but a Devilish Revenge and Cruelty, which can by no means be excused in a Christian, though he do it never so secretly.

But besides, he uses evil Arts; for he drew my Servant to him by Flattery, and received him into his intimate friendship, notwithstanding he knew I turned him away for his infidelity. What he writes, that he bought his Secrets of me at a great price, is a pure falsity. Indeed he forced a small Reward upon me, half of which I gave him back again, and what I kept he got over and over by communicating my Secrets to other men, so that he has fully recieved what he gave me; and by this his communicating to others, (which was done unknown to me) he broke his Promise; which nevertheless for Peace sake I passed by. Wherefore, if he will confess the Truth, I am sure he can never say that he bought all those Secrets I intrusted him with, at so great a price.

Hitherto we may believe how much Money has come to him; for since he has sent abroad his institory Letters five months ago, (nay, as I am told, two years ago) before I could know it: he could not chuse but get money by it, when forthwith he with my perfidious Servant proceeded to that insolence, as in a knit Society with some of FRANKFORD, he caused his Calumnies to be every where spread, and sent abroad, not only throughout upper GERMANY and BELGIA, but also into FRANCE, and other Foreign Countries, to get Money. Yet, according to my hopes, this institory Ware-house (by the Grace of GOD) will soon fall.

8. Plenty of Spirit of Salt.

In this Paragraph also he goes on after his manner to disgrace me, accusing me of Lyes, as if it was false, and impossible to prepare fifty

pound of Spirit of Salt in one Furnace, and in one day; and adds, that this Spirit is not so good as his, for EVERY MAN FOR HIMSELF: but this is done by adding Vitriol.

Which Vitriol does not hurt the Spirit of Salt, as is demonstrated in many places of the First Part of my Furnaces; and he denies that fifty pound or above may be prepared in one day in my Furnaces, when yet it may be done commodiously enough, and needs no further proof.

From all which a wise man may easily judge how good a Christian FARMNER is, whose mouth uttereth nothing but wickedness, contempt, and contention, and except my inward faculties fail me, the envy of his heart, his hatred, lyes, and infernal calumnies, shall be displayed.

What is his Spirit of Salt to me, or mine to him? Let him prepare it after his way, and I will do it my way, when need requires: Wherefore does he endeavour to defile my things with his, since they cannot be deservedly reprehended by any man, much less by him.

9. Spirit of Vitriol, Nitre, Salt, Aqua-fortis, Aqua-regia, in plenty; also Sulphur; at Forty R. Dollers.

In this place may be seen the inhumane and devilish nature of this wicked fellow; for he scarce utters three words but he proceeds to my disparagement.

But what hath GLAUBER to do with his spirits, for he does not use them? And if he does need them, he can make them without them.

What does he care, if you can prepare them after a better way than

he, which yet never can be?

Whatever GLAUBER has writ of these things is worth the reading; and he can defend both himself and it, neither can you or yours spot his fame, which is so well known to the World.

10. Mineral Spirits: for twenty R. Dollers.

Here FARNNER ventures to promise a way of preparing volatile spirits, which is eight years since fully described by GLAUBER, in the second part of his Furnaces, whither I refer the Reader.

11. Flowers of Minerals and Metals; for Twenty R. Dollers.

But if any man will explore another man's nature, let him permit him to speak, and he shall easily know what temper he's of; but especially that, of all things, may easily be discerned in a drunken or angry man, who can very hardly conceal his internal blemishes. In like manner we may see by FARNNER that he endeavours to hide his lying Proceedings in my name. What if I had seen his way of preparing metallick flowers, what profit or loss should I sustain by it? He glories of those things which merit no praise. He promises to make metallick Flowers under a fixatory Cover, when yet Flowers can't be made under it, for they are not Flowers when the metals are burnt under a fixatory Cover, into a Calx, or reduced to ashes, there is, and so remains a heavy Calx: but the Flowers of metals should be brought to a very light sort of Flowers

by Sublimation; as is described at large in the First Part of my Furnaces.

FARNNER indeed, with his Shop, leaving his filthy knife, should rather have gone to the Chymical School a little, than (being ignorant of Chymical terms) sold his heavy Calxes of Metals to other men for light Flowers, and despised GLAUBER'S way of preparing Flowers, which yet has been reprehended by no man. These his Flowers, with his Coral Flowers, are course Meal, which don't deserve the name of Flowers, but Cream. Indeed, if FARNNER had not so vehemently inveighed against me, I had not displayed him thus, nor deigned his vain Proceedings one word of answer.

Yet 'tis no matter, though good men are sometimes in this life barked at, and provoked by mad Dogs, since it often happens that by this means excellent things are made publick, which otherwise would lie secret.

12. The Quintessence.

Here you may see, candid Reader, that wicked FARNNER'S endeavours tend to disturb the quiet of all good men, and destroy my well-grounded and yet irrefuteable Writings by his foolish Opinions, which he shall never be able to do, no more than a little Whelp is able to attack an armed man, whom by his barking he cannot hurt.

My Tract which I writ of the Essence of Vegetables, and printed at NORIMBURG, under the Title of THE FIRST PART OF THE Spagyrick Pharmacopea; neither FARNNER, nor any man else, could reject or contemn; but that little Tract will defend it self.

I have made publick many and excellent inventions, but no man can shew one place wherein I reprehended and brought into contempt other mens Works, as this FARNNER does. If he would act as a good man ought, and had any thing against me, he should speak it to my face, and not abuse me so wickedly behind my back.

13. All acid Wines.

It troubles me Indeed, that I communicated this excellent secret of encreasing the Virtue of acid Wines, and making them better, to FARNNER. What he writes, that he found out those things, is a pure Lye, which he had of me; when nevertheless he is not afraid to tell so impudent a Lye, as that he had found out a better foundation of that Secret, which is most notoriously false; for neither he nor any other man, nor my self, can find any thing better than the pure Essence of Wine, conducing to that Work; which Essence of Wine, by the strength of its innate fiery Nature and Property, all sorts of immature Wines may be ripened in fermentation, and turned to a brisk Staple, and good Wine, in which lies all the Art.

For he that knows this, may also correct acid Wines, yet let him have a care that he does not take foul Brandy wine, as FARNNER has done, wherewith he has done it, as he says.

This excellent Art, and heretofore unknown, to him that knows how to handle Wines, may serve instead of many; and this unfaithful FARNNER might have received much profit from it, if he had not made it publick;

but since he has every where published it, there shall henceforth no profit accrue to him nor me, if I should be destitute of better things, for he has defamed this excellent Secret every where by his lying Epistles sent abroad.

As for me, though he has taken from me the great profit which redounded to me from it, by his prating and lyes, I do not this from such a trouble of mind as will happen to him, if he shall be forced indeed to want all its fruit.

If this perfidious FARNNER had hid this Secret, he would have needed no other Arts, neither need he have sold it for an hundred Duckets, but he might from it have procured to himself sufficient whereon to live. A greater damage has happened to my by his publication than I can declare; and I very hardly endure that so excellent and profitable a Secret should be despised; neither will any good man approve it, especially they that sustain loss by it, and for that cause will always abhor him. He might have gotten enough by it, in secret, and without detriment to his Neighbour, but that he was minded rather to marr the profit and propagate the damage of not only himself, but me, and many others that have knowledge of it; which no man can deny to be a wicked act.

That Reward which FARNNER gave me for communicating to him my Secrets, in all amounted to but sixty or seventy UNGARIES (an UNGARICUS is Nine Shillings of our Money) which yet, from the communication of those Secrets I trusted him with, he received again, so that all those things which he had of me, cost him little or nothing. Nevertheless, he does not stick to say, That he gave me a great sum of Money for my

Secrets, which yet I refused to take, and though he twice made a Journey of Fifteen miles to me, that he might get something out of me, yet I denyed him, and communicated nothing to him, till he came the third time, and learned some of my Secrets, and afterwards, when he had obliged himself to work with me in my Laboratory, I communicated more to him. Neither had I shewed him the least of those many Secrets for his Present, which will never compensate the damage I have sustained by him, had not he obliged himself under the loss of all his Goods, as also his Credit and Reputation, that he, his Wife and Children, should serve me so long as I should live, as plainly appears from his Obligations given to me.

But if he had given me a Thousand UNGARIEI, or Duckets, and I had known he would have exposed this Secret to sale, I would rather have given him all of it back again, than suffered it to be made common. Neither can his vain Excuse, That he exposes his own inventions, and not mine, to sale, profit him any thing; when 'tis evident enough, that nothing in the nature of things can be found, which may render small Wines better than the ANIMA or Quintessence extracted from other Wines; for the ANIMA of Wine only, and nothing else, can encrease the strength of Wine. Neither is the comparision of this melioration of Wines incongruous with two torn Garments, neither of which can be worn; but if either of this is cut, and that which yet is whole and good, is sewed to the other, and so of two torn, one whole Garment is made; then that Garment may be worn, when yet, before, neither of them was useful.

The same also is to be understood of small wines that are neither

durable nor vendible, but after one Hogshead is strengthened by another, it becomes not only durable, as good Wine, but vendible, and will yield as good a price as two small Hogsheads. And this Secret is both very noble and profitable in those places, where the wines are seldom brought to maturity, and for that cause are not durable nor saleable. For there is a lamentable Complaint among Vintners, that immature wines are not vendible, and they can get no money for them. Thus they say, Have we laboured in vain with our wines a whole year? Look there the lie, and no man buys them: In the mean while we suffer want and can't make our selves merry with our wines, for they neither profit us nor others; unless we have presently some other better wine, wherewith to mingle this, and so render it vendible, it will strait be corrupted, and turned to water. These and the like Complaints I have often heard from Vintners; but if they had the wit of Taylors, that can make one new Garment of two old ones, their affairs would be in a better condition, for after this manner they might preserve their acid wines, and there would be no need of mixing better wine with them. For which excellent Invention, all men that deal in wines, ought to think GOD and me.

I pray, who would not have communicated these things to a man that had given himself for a pledge? But if he must not stand to these Obligations, I can't see whom we may trust. I curse the unhappy hour wherein this unprofitable subject and that perverse man (if he may be called a man) came first in my sight: which troubles and molestations he brings upon me in my old Age, which might spend its time much better, than by refuting his detestable Calumnies. Neither does his wickedness to me hurt me only, but my Children also.

In his last Obligation he promises, That if by premature death I should be taken out of the world, that he, for the kindnesses I had done him, would adopt my Children for his own, and make them his Heirs: but here, in his most false writing, endeavours all he can to deprive my (yet young) Children of their own, and convert their Goods to himself, as indeed he has done.

Further, He in his last Obligation also says, he humbly prayed GOD to prolong my Life and Health, but in this place he endeavours by his Cavils and Calumnies to kill me, and if he could do it with his own hand, (which God forbid) I believe he would not stick at it: It is a small thing with him to spill Man's blood, for he has experienced his ability that way.

I indeed esteem it the Goodness of God to me, that it is His will, perhaps, that this should rather turn my profit than disadvantage, for hereby I am taught to be wiser another time, and to shun humane Frauds.

14. All Wines.

Here any wise man may judge whether or no this thing deserves to be sent into Foreign Countries, and there to be sold at a price; when there is no Country-man that does not know that Wine assumes the relish of the Herbs, Flowers, & etc. which are steeped in it.

15. Brandy-Wine of all sorts of Corn.

That FARNNER brags of this knowledge, he owes it to GOD and me, from whom he had it: For when at first he complained to me, that he could not keep the Corn from burning in the Still, and so make the Brandy-wine stink, I upon his intreaty communicated this Secret to him. But because FARNNER so much glories of this knowledge, he shall not enjoy it long. I must confess, indeed, that this Secret is not of less value than that whereby wines are meliorated; neither does he get less by it: but forasmuch as I resolve to buy all his Wares every where of him, I will neither leave him this, that he should be free from the trouble of informing others in this thing, and that otherwise would be forced to make long Journeys to buy them of him, may leave off those Journeys, and take this way of preparing it: Take as much Corn as you will, whether Barley, Rye, Oats, or Wheat, steep it in sweet water for some days, then place it that it may sprout after the same manner as Corn is Malted for the making of Beer; turn it well for a certain time, lest it be corrupted by too much heat: then when it is well sprouted, spread it abroad, that it may presently cool, and it will never sowre.

But if you would use it presently, then take as much of it as your Distillation will require, and in a Kettle full of water, boil it so long, till the grains are broken, then pour it into a wooden Vessel, and when it is luke-warm, add to it the fresh dregge or grounds of Beer and let it ferment; when it has fermented enough, which is usually at the end of two or three days, then Brandy-wine is made in a common Still,

by distillation from that Corn; what remains in the Still will serve to feed Oxen, Cows, Hoggs, or other Cattle.

But the Brandy-wine which proceeds from thence, must be rectified, as the way is, and by this means it is rendered more sweet and grateful to the relish, than any other Brandy made of Corn: the reason is this, That all Bread-Corn, of which Brandy-wine ought to be prepared, if it be put to ferment presently after softening, it is necessary in the still, by boiling, reduced into a pap, and so being corrupted by a dustion, produces a stinking Brandy-wine.

But this protuberating and burst Corn cannot be burnt, and therefore makes good Brandy.

Also the Corn may be broken on a Mill-stone, water poured upon it, and distilled out of a Still, placed within another, or in a Kettle filled with water, so also it cannot be burnt; yet this way it will yield but little.

N. B. But if any man will give this Brandy a relish, like that made of the Lees of Wine, then he must rectifie it upon the Lees of Wine, for this way by the Oil of Wine, which is plentiful among the Lees, he acquires his ends, and in all things he may use this instead of that.

N. B. Also, he that will, may, without this previous coction and fermentation, pour the budding Corn hot into a vessel of luke warm water, for by this means the Corn begins to ferment of it self, and needs no other Lees to its fermentation; yet it does not produce so sweet a Brandy, as if it had first been boiled; for by coction the ill taste is taken from the Corn, which the Brandy otherwise retains. Further, also it

produces much more Brandy, if the Corn is so boiled, that it may be broken. And this, good Reader, is a most excellent and profitable Secret, and will bring you in much wealth, if you use it rightly, and you may make great quantities of it.

FARMNER did no man wrong, by taking (according to his own estimation) a Hundred Duckets for it, for it is worth much more, especially if the residue of the Corn pays the charge. Yet no man hereafter will give him so much for it now 'tis made publick.

Indeed it is injurious to me to divulge it, but because it is now in the foul hands of FARMNER, 'tis better that others also enjoy it, than that he only should reap the benefits of it. But though by my communication FARMNER should put on a Lions skin for his defence, yet he can't hide his Asses ears under it; as appears from this Paragraph, where he writes, that he had sent four measures cross the Seas, to try if they would bear the Sea-water; for then he thinketh he hath made his Port. Good God! How resplendant is the Wisdom and Philosophy of this FARMNER! Certainly, if he shall make one or two Experiments of this kind, that his Brandy-wine will bear the water, he'll duly merit to be credited the chief Professor in the Acadamy of Idiots, for that will befit him, seeing that the reason is not hid to him, as he writes; wherefore Drinks are altered by the Sea-waters.

But he will make his first Experiment in these four measures, and if it proves well, then he promises to teach this Art at a price.

O the blindness of this perverse World swelling with Pride! Who ever heard that a good burning spirit, whether made of Wine or Corn,

will be corrupted by the sea-water? I grant it may be corrupted, if it be invalid before: But a good and firm burning spirit will never be corrupted by sea, for all wines bear the water, those only excepted which labour with a defect of spirit, but strong wines very seldom, for the more spirits there is in any Liquor, whether Wine, Beer, or Metheglin, it is in the less danger of being corrupted.

But if the spirit is in wine, be its preserver, and defender from Corruption, How comes it to pass that Brandy-wine, which if well prepared, is nothing but spirit, should be corrupted? If the Spirit in wine be the Preserver and Defence of the wine, which yet is weakened by a great quantity of water, so as the wine remains good, and is safe from the corruption of water: Why then should not it defend it self, since it is so strong and free from water? Who doubts that a concentrated Life is able to perform greater things than a diffuse and weak life?

Hence you may see how great knowledge FARNNER has drawn from the light of Nature, that he should boast so.

16. To strengthen all sorts of Beers.

In this place FARNNER again shews his Asses ears, when he writes, That he can strengthen Beers, that they shall not be inferiour to Rhenish wine. Here every wise man may discern how great and stupendious this man's folly is.

Behold, he attributeth the goodness of Rhenish Wine to its strength, which indeed is a great error; for the goodness of Rhenish-wines consists

not in their strength, but sweetness. French Wines are far more fragrant than Rhenish, yet in sweetness and soundness it comes not near it. So likewise HUNGARIAN, GREEK, ITALIAN, and SPANISH Wines, & etc. are much stronger, but for sweetness, as well as goodness and wholesomeness, Rhenish wine, far better, although the other excell in strength. And so this is a great absurdity: Indeed Beer may be strengthened, by adding a burning spirit to it in fermentation, whereby it may endure the longer; which thing I can't deny, and it ought to be done: but that a Vinegar may be drawn from them like Wine-Vinegar, is a pure story; for though it may happen that Beer may give a strong Vinegar, yet it never yields Wine-Vinegar, for a great difference may be discerned between Wine and Beer-Vinegar, though they have both the same strength, if you make trial of both: Whence it appears, that FARMNER is ignorant what Vinegar is, because he knows not the difference of it.

Strong and right Wine-Vinegar is known by these Trials. First, if it be shaked in a Glass, it by and by receives its clearness, and leaves no skum, dreggs, or bubbles, on the top, as Beer-Vinegar does; for let it be never so stromg, it retains its own nature, and causes a skum, if it be shook just as the Beer it is made of: but Wine-Vinegar leaves no skum. Secondly, the longer Wine-Vinegar is boiled, the stronger it is; the reason is this, There is naturally in it an innate sharpness, which is not volatile; but the sharpness of Beer-Vinegar consists in its volatility, which in boiling is abated; so that the longer it boils, the weaker it is. And these are the two chief and most certain trials of Vinegars, which FARMNER'S Vinegar will never bear, and therefore will

still be Beer-Vinegar, and does not deserve that it's Preparation should yield Fifty R. Dollers.

Acid or Sower Beers.

What belongs to this, requires nothing of Art, neither is it worthy to be taught at a price when every Country man can do it, by projecting and well stirring in a vessel of acid beer, two or three handfuls of beech ashes well sifted, made wet with a little beer, and letting them lie in it about eight days, for then the ashes by reason of the Salt which is in them takes away the sowerness of the beer, and make it drinkable.

N. B. If the beer be not too sowre, a handful of sifted ashes may be sewed up in a linen bag, and put into the Beer through the bung, and there left for this way the Beer may be preserved from sowering and need not be stirred nor troubled. Also some handfuls of wheat put into the beer, draws its sowerness from it, the same also is done by egg shells, Crabs eyes, Tortoise shells, Sea shells, calx viva, and such like things which attract the sharpness, and turn it into sweetness.

But whence is it that FARNNER now so abounds in the knowledge of wines and beers, when yet but two years since, when he prepared and sold brandy wine and beer, that he complained to me, that he had sustained much damage in handling them, so that he should perish unless he learned how to take away and remedy the burning of Corn in the Still, the ill smell of his brandy wine and the sowerness of Beer. Why could

not he then help himself, and beware of those Losses? He will object that at that time a certain light shone upon him, by whose benefit he knew Nature. However true his objection be, it will never induce me to believe that this light could in so great a measure so suddenly help him, which is a great absurdity: for so much knowledge is given to no man in a nights sleep, it is a false story. But that my faithful instruction, with which I instructed him, has enlightened him, and like a guiding star led him in the right way, is most true, tho he is unworthy of those precious Pearls which like a wild boar he treads in the dirt under his feet.

18. Vinegar of Corn.

What belongs to this Paragraph, is demonstrated in the sixteenth paragraph, that tis impossible to make a vinegar of Corn, like that of wine: wherefore this cannot (as he thinks, deserve fifty R. Dollers.

19. Vinegar of green Woods.

Indeed I wonder that FARMNER is not ashamed of these things which I have many years since so clearly described or to bring them to light anew, that he might get money by teaching those things to others, which are already published in the first part of FURNACES, And so he adorns himself with other mens Feathers.

But he will object, I have in the trial found these things true,

and therefore describe them, but he does it to this end, and to no other than he may cheat them of their money who did not know that I had so long since writ of them. He that desires any of these things, may find 'em in the first part of my FURNACES, and he shall not need to give FARNNER, ten R. Dollers for his instruction herein.

20. Altho GLAUBER, & etc.

Here he contemns my way of extracting TARTAR from the lees of wine, when yet it was a year since clearly and perspicuously described and published at NORIMBERG, which FARNNER could never correct. But he bragged that he had found by a certain position another compendium, which indeed might be, since it is easier to add something to an Art once found, than to find the Art it self, but it does not become him to disswade men from this Art which is already described, and which may be had gratis, and to despise it and bragg among all men of his own inventing a better. What good men will think of these bold malignities may be easily judged: but if I had writ nothing of these things, who would have taught him that there was TARTAR in the lees of wine? But I not only found and writ what was in them, but also largely taught how they might be usefully extracted.

Yet this trifler dares as imprudently, as falsly say, that he had corrected it, and added to it, and therefore would not let it go without his price.

After the same manner he deals with my other secrets (which, tho

he had them of me, he braggs that they are his own) with which he proceeds, as with the lees of wine, namely with my Alkahest, Panacaea, Melioration of wine, compendious distillation of Corn, preparation of vinegar, correction of beer and others in many places.

Whence could he have known what was meant by my Alkahest and Panacea, or how small wines and beers should be meliorated, how Corn without adustion should give plenty of burning spirit, and whether there was TARTAR in the lees of wine or not, and how it might be extracted thence, except he had seen and learned all these things of me? Of which also I had many years since publickly made mention in my writings, which is so well known that he cannot deny it, how much soever he opposes the truth.

21. All Copper Ores.

In this place FARNNER teaches that Copper Ores are to be separated, when, yet they are not separated but melted, that thence the Copper may come forth, which Copper if it contains silver being mixed with a due weight of lead, it is separated: but Mines of copper are never separated, which he does not understand, and so he betrays his ignorance in these terms. This way of separating is sufficiently known, and every where where copper mines are found, is wrought in abundance and cannot be hid. He that possesseth Copper mines, will easily find men that will thence elicite the copper, and afterwards separate it, neither will any man need to go to FARNNER on that account. Indeed I wonder at his extream

impudence, that he was not afraid to promise that he would teach others so many Sciences, of which if he knew the half part, his village would not hold all the furnaces he would need for the demonstration of them.

Further, for these and the following Sciences, which yet; are the most difficult and laborious of all, he requires no money, but for a certain reward promises to demonstrate them all.

22. From Tests and Cupals.

He has drawn this separation also from my writings, that therewith he might fill his calumnious letters: neither do I believe he could do it before he had seen me do it. It is done by the powder of coals, as I have plainly described in my Chymical Colloquie.

23. Gold and Silver.

This Art Lazerus Ercker has described, but because his way is too hard, I have shewn an easier in the explication of the wonder of the world, and there the following melting Furnaces are also described, and therefore I need not say any thing of them here.

All these inventions which FARNNER braggs of as his own, are mine; for my unfaithful Servant taught FARNNER those Furnaces which he learned of me.

And at length.

I have nothing to say to these four last paragraphs, because they don't concern me as the former do, and FARNNER himself exposes them as speculations and not as experiments, as I also believe that they are only fancies and foolish imaginations: yet there is one thing which I must answer, which he mentions in his third paragraph, that the time will come when GLAUBER'S Alkahest must be forced to hide, although it is not wholly to be rejected. But if it be so unprofitable that it must hide, why does he expose this to sale at fifty R. Dollers, and the Panacea which is prepared with it, at thirty? And he has already got sufficiently by it: if it be so improfitable, why then does he offer to Sell it to others knowingly and willingly at a price? If FARNNER has rightly termed my Alkahest unuseful and must be forced to hide, he has surely deceived many. But I confidently assert, that my Alkahest will never hide, but defend it self in all places: Perfidious calumniators, thieves and their accomplices shall hide, but not my Alkahest. If he has found out better things than I, let him publish them as I have done, that every man may judge whether they be true or false: Why this boasting and wicked vanity in dispising others? For truth needs few words and less braging. In his writing in which he sets down the value of every Secret contained in the last paragraph, namely, from the twenty first to the twenty eighth, he promises to teach other men for no certain price, but on courtesy, those secrets which yet are the best, if he could know them. But if he can effect those things and teach 'em all

to others, he would not certainly teach them gratis, for 'tis impossible for him to build those Furnaces requisite to the making of those things in a half a years time.

From which it sufficiently appears how ignorant he is of what he writes: Certainly if his wares which he had of me gratis, should find Chapman, no doubt but in one year he would get some thousands of ducats.

I thought fit to answer you these things now, that I might shut your foul mouth which was so wide open to lyes, but if after this you don't cease your lyes and calumnies, you will compel me to use other means to bridle your malice. In the mean while I doubt not, but all good men in this short Apology (in which I have not refuted thy lying calumnies with indecient or contentious words, but from thy own obligations and hand writing) will plainly see how wickedly and perfidiously thou hast behaved thy self towards me. This damage which thou hast done me, neither you nor all yours both present and future faculties, nor all thy servants can ever repair: It remains therefore, that I say with Job, God gave, and God has taken away, blessed be the name of the Lord. But I don't believe you will escape divine punishment, to which I commit my cause at this time. It is certain that every thing has its time, which I also patiently expecting your downfall (when God shall take upon him the patronage of a just cause) perhaps with these my eyes shall sooner see than hope. Indeed I wanted not matter to dispute these things more largely, but that for a reason known to myself, I was hindered in doing it at this time. But as soon as I can, God assisting me, I shall not be wanting to propose to all impartial men in the world, questions to be

resolved, from which every ingenious and good man may see, animadvert and give judgement, how ungrateful, perfidious, unjust and inhumane thou hast been to me.

Finish.