



THE COMPLETE WORKS  
OF

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MIRACULUM MUNDI  
(CONTINUED)

THE  
CONTINUATION  
OF  
MIRACULUM                      MUNDI.

In which Nature is clearly laid open to the Eyes of the whole World; demonstrating, that the chief Medicine of Vegetables, Animals, and Minerals, may be prepared of Salt-petre, and that Salt-petre truly merits the Name of an Universal Menstruum.

The Preface, to the Reader.

This Treatise, to which I have given the Title of the Continuation of Miraculum Mundi, containeth four excellent Arcanums, which I doubt not, but will prove very profitable to the publick. The first of these I offer to Country-men, as Husbandmen, Vine-dressers, Gardeners, and all such who are occupied in Tilling and manuring the Earth, that they may learn a new Method of fattening and enriching their Fields and Gardens, without the usual and customary way of dunging, and thence yearly acquire a greater profit.

The Second, I give to all Citizens, Merchants and others who have time and leisure, and abounding in riches, know not by what means to augment or improve their Gold and Silver. Which way I will shew them, and how to effect it after a much better and honester manner than putting it to Usury, or incommoding or oppressing their Neighbours.

The Third, I present to all Conscientious Physicans that they may learn to prepare Saluifereous and Efficacious Medicines with small charge, little labour, and in a short time; that (as becomes Christians) they may help and Succour the Miseries of the sick, and acquire to themselves an honest livlihood.

The Fourth, I dedicate to all persons of great Name and Authority, by the benefit of which, they may preserve their Health entire, and recover it when lost.

The Omnipotent God give us his Divine Grace, that we may make use of his fatherly bounty, as may tend to the promoting of his Honour, and the Love of our Neighbour, Amen.

Arcanum I.

Being a Gift given to Husbandmen, keepers of Vineyards, Gardeners, & etc.

Although I had determined with my self to reserve the Press, mentioned in the first part of The Prosperity of Germany, (by which the juice might be pressed out of great Trees, the searching after which hath wearied many Hens Brains) for the third part of the same work; nevertheless, it seems good to me to describe it in this Treatise for the good of the publick. And that chiefly for this reason, because the Omnipotent God hath now revealed to me other manners of extracting Salt-petre, in plenty, out of all Wood, and that without a Press; and not only from Wood, but also from all Vegetables, Animals, and Minerals, so that by an easie business, and in a short time, without a Press and

putrefaction, Wood, and Salt may be converted into Salt-petre: Yea, in the space of three or four hours, every Vegetable, or Animal, as also Salts of eiey kind, may be so transmuted, as that they pass into a Fatt, fervid and sulphureous Salt, which afterwards by the benefit of the Air is animated, and converted into Salt-petre. Such a Salt, although it doth not presently conceive flame, and burn like Salt-petre, yet it is now brought to that pass, that in the manuring or dunging of poor and barren ground, it doth the same thing as the dung of any Cattle is wont to effect. Hence by the same Salt every pure Sand destitute of all fatness, is quickly BO fatted, that it is rendered fit for the sowing and bringing forth Corn. Few will believe what Salt can perform, when spoiled of its Corrosive force. Therefore Christ saith not in vain to his Disciples, YE ARE THE SALT OF THE EARTH. That Earth which wanteth Salt is dead; nor can it bring forth fruit: For this inverted Salt serveth not only for Bandy and plainly barren Fields, but also for those which are fruitful, that they may be sowed every year, and bring forth fruit. Truly it is a great Gift of God, of which this ungrateful World is not worthy. It often happens, that a fiusbandman, through want of Dung, is forced to let his Fields lie unsown, till he can have an opportunity to sow them; but what a loss is this to those who in the mean time must pay the Magistrates, Taxes, or Duties, for them, and yet make no benefit of them, Were it not better for such to possess only the Third or Fourth part of what they have of such Land as would yield him every year an encrease. Certainly by this means, that Land which otherwise is scarce able to maintain one Country-man, would be sufficient

for the keeping of ten, if it were fattened after this manner by an inverted wood or salt. In like manner also Vineyards (and Hopyards) might be so fattened, that the Labour bestowed upon them might not be in vain, but that they might abound in Fruits.

So also Fruit-trees, and Meadows, and Pastures, which bear but little Grass, may be by the same Salt be so amended., as to bring forth better Fruit and richer Crops of Grass. But let this suffice, concerning those things in this place, more shall follow (God willing) in the Third Part of The Prosperity of Germany. In the mean time the Plenty of Corn and Wine will be in part consumed. But I doubt not but that this excellent Gift of God will be sought into by good Masters of Families, be had in esteem, and even from this time to the World's end, be put to use for the promoting of the Divine Honour, and the well being of many Thousands of men.

But the manner of expressing of Wood by its proper Fire, and again of coagulating this acid juice, by the benefit of the fixed Salt remaining in the burnt Coals or Ashes, into a Salt fattening of barren ground, or of reducing it into SALT-PETRE by the benefit of the Air, is indeed an excellent and singular Artifice, which rendereth all unprofitable Wood highly profitable and beneficial; yea, these are inventions so profitable, as the like hath been yet published by no man. And this Invention is much better than that of reducing Wood into Pot-ashes, in which all the acid juice passing away in smoke, wholly perisheth, and is lost, and from a great quantity of Wood a very few ashes remain, and out of them there is found but a little Salt (scarcely the Tenth Part)

fit for the fattening of ground, or to be turned into SALT-PETRE. For it is not the ashes, but the salt contained in them, that serves to both those purposes. Therefore this my method of extracting the juice of wood, and converting it into a good salt, is far to be preferred to the making of Pot-ashes of Wood. Nor doth this press serve only for the pressing out the juice of Wood, where Wood is plenty, but it may be also used with great profit in Moorish places where Wood is wanting, and which abound with Turf, which may be used instead of Wood, For the juice of Turf is equally fit with the juice of Wood for enriching of Land; so that no Country hath cause to complain that the Creator of all things hath not plentifully provided it with some part of that MUNDANE Treasure, Countries that lie high abound with Wood, and the low afford abundance of Turf, Therefore, as in Regions of an higher situation, an unspeakable quantity of Wood perisheth by putrefaction, and growing, and again rotting, serveth for no use or benefit; so also it is in places lower situated, with Turf, in which very often vast Tracts yield not the least profit to any man, although in their inward Penetrals are hidden great Treasures. Seeing that it is so in Moorish and Marshy places, if they are overgrown with Grass, and Beasts should be sent to feed upon that Grass, what profit will thence accure to men? But if they shall be invironed with too much wet or plashiness, (too boggy) so that they are impassible by men, they are of no utility at all.

There are Marshy tracts which are covered over (or swerded only with Moss) which neither afford Turf, or nourishment for Cattle, inasmuch as the growth of Grass, and Turf fit for burning, is hindered, either



by too much Sand, or large Moss. And yet those very tracts being pressed by Fire, yield a fertile juice, by which the neighbouring Fields (especially the Sandy) may be rendered fruitful. For those Moors or Marshes contain nothing but that fatness which the Rain-water hath collected from the neighbouring, high, and sandy grounds, and washed down with it self into the Valleys, where it concreteth into Moss; whence of right it should be restored to those barren sandy grounds, to fatten them. And by this means it may be brought to pass, that great fruitfulness may be conferred on much desert and waste Land, which brings no profit at all to Mankind. What I say, is agreeable to the Truth it self, and perhaps in Process of time, will be found most true, and come into use in very many places. But at this time, these things seem to Country-men, meer Dreams, and far exceed the Capacity of their maulted Brains. But as every fat Marsh is able to fatten the adjacent, barren, high, sandy grounds; so the Ocean is the Universal Medicine, and nutriment of all high and barren Regions, through which it passeth, and by the salt contained in it, bestows upon them fruitfulness. (Vid. Nat. Salium,) Whence the incredible Providence of the Divine Goodness manifestly appeareth, for which uncessant Thanks are to be given to the Almighty by all men, for His Fatherly Care, and great benefits never to be forgotten. But how the Sea salt fatteneth, and maketh fruitful sandy-ground, which is destitute of all fatness, shall afterwards be exactly demonstrated. Here, by the way, in the Description of my Press, for the pressing of wood, I was willing to mention this thing. Bow much better therefore is this my Art and Invention of preserving the

juice, and almost the whole PONDUS or weight of the wood (the unprofitable Phlegm only excepted) in that transmutation, than the invention of reducing it to Pot-ashes? For any man of understanding may easily see, That in that open burning of the wood the noble Sulphur is consumed by the Fire, and can be of no benefit. But if the business may be so ordered, that the wood shall burn, and not consume it self in burning, but be converted into a sulphureous Salt, it will be a thing of great moment. He that knoweth how to perform this, hath indeed attained the scope, and arrived to the desired end. Although a Coal be deprived of its juice, nevertheless it retains almost the same quantity that the wood had, whereof it was made. One pound of such Coals being burnt, scarce yields an ounce and an half of ashes, which ashes afford but a third or fourth part of Salt, fit to be changed into SALT-PETRE, or to fatten the Earth, Therefore it is no small Art to preserve the Sulphur of the Coals (whose Virtues are great) and to convert it into so noble a Salt.

For the acid juice of wood being pressed out, and reduced to sweetness, will effect far more in the manureing and fattening of Fields, than any one can easily believe, Hereafter, if I shall see it necessary, I shall publish yet more and greater things; but I shall yet for some time suspend the publication of the Third Part of THE PROSPERITY OF GERMANY, till I see how things will prove; being assured that my Writings for time to come will be more grateful, than to this present Age. I will now enter upon the description and use of the Press so often mentioned, for the expressing and again coagulating of the juice of Wood.



Of the Figure, Use, and Utility of the Press, by whose help the Juice is plentifully pressed out of Wood, without great labour, fit for the making of SALT-PETRE.

The Form or Figure.

First, let a round Furnace be built with Bricks of the same form with that in the first Figure, noted with the Letter A. It must be like a Glass-makers Furnace, large at the bottom, and rising round by degrees to a small point at the top; in the top must be a round hole, opening about a foot broad, by which the Wood may be put into the Furnace. To the hole is to be fitted a Cover or Stopper, made of the same matter, with the Bricks, and burnt as they are, to shut up the hole. On one side of the lower part of the Furnace, is to be a door, by which the Coals may be taken out. On the other side is to be a little hole, to which an earthen Channel or Pipe of about three or four cubits long, is to be fitted, in which the smoke or fume of the wood, forced out by the fire, may be condensed into an acid juice, and may distill into a wooden Vessel or Barrel, which is to be fitted to the Pipe, to receive the distilling acid juice. See the first Figure noted with Page 13. at the beginning of this Treatise.

A. is the Furnace or Oven wherein the Wood is charred.

B. The Cover of the Furnace,

C. The Door at which the Coals are taken out.

D. The Canes or Pipes wherein the Sap or juice of the Wood is condensed, and from thence runs into the Receiver.

E. is the Vessel or Receiver into which the Vinegar of Wood runs.

All things being prepared in the manner aforesaid, let the Furnace be filled with wood up to the top, and if the wood be not dry enough, intermix with it, in the putting in from the bottom to the top, some dry Shrubs or Bushes, or small Faggot-like sticks, by whose help the wood may be the more easily kindled, After the wood is kindled, and burns well, the hole in the top of the Furnace is to be close shut with its Stopper, that there may be no exit for the smoke, but that it may be forced to descend and seek its passage through the lower hole, by the Channel or Pipe. Therefore when the wood begins to burn, and yet can emit no flame, the heat presseth out all the juice, and forceth it into the pipe, in which, from the smoke, it is changed into an acid Juice or Liquor, which destilleth by the Pipe into the appointed receiving Barrel, All the wood being turned into Coals, and emitting no more fume, the whole Furnace, wheresoever it may admit the air; and also the hole to which the Pipe is fitted, is to be smeared over with wet ashes, that the Coals in the Furnace being suffocated or choaked, may remain entire. The Coals being taken out, may be put to necessary uses, being equil in goodness to other Charcoal which Colliers make in Woods. N. B. I would have this understood, of such wood as is of a pretty good thickness, and suffers it self to be reduced into Coals: for if you cast into the Furnace Bushes or small Brushy wood, to press out the juice, you will obtain only a Powder of Coals, which after the juice is pressed out, is to be left in the Furnace open (not smeared over, as we taught

above) till it pass into ashes, which is required for the coagulating the expressed juice; as shall appear by and by, when we come to speak of its coagulation, it. B. When you have no occasion for Coals, or cannot sell them, it is necessary, that letting the Furnace be open, you suffer them to burn to ashes. If this operation be instituted in a place where there are stones fit to make Lime of, it Would be worth the while to fill the Furnace With a layer of Wood, and another of Stones, from the bottom to the top, :which Chymists call STRATUM SUPER STRATUM, and after the juice is pressed out to open the Furnace, that the wood may be turned into ashes, by doing of which at the same time the stones will be calcjned, and changed into Lime, which being exposed to the air, (yet so that the Rain cannot come to it) will fall to pieces into a fine powder, To this Powder,: being mixed with wood ashes, the acid juice is to be poured, which was pressed out of the wood, that those two contrary natures may mutually work upon each other, and well unite: in which operation the sharp spirit of the wood loseth its Acrimony, and the fixed Salt of the wood and stones is altered, 8o that from both there proceedeth a contrary middle nature, and a sweeter salt; which being long exposed to the air, draweth from thence a Life, and is transmuted into the best Salt-Petre. I. B. This mixture is so to be exposed to the air, that lying under a Covering or Roof, and being on the sides, it may be defended from the Rain, and nevertheless attract the air. If It shall be dried by the air, it must be moistened again with the Urine of Men or Beasts, that it may never be thoroughly dry. If these things be rightly performed, you shall have pleanty of the best Salt-petre,

from this matter, in the space of a year and a half, or two years at the most; which being extracted, purified, and boiled up, shooteth into very pure Crystals. The rest of the matter being again laid in its former place, under the covering or shed, and being ordered in the same manner, as before, will in the space of two years produce new Salt- Petre, which may be extracted and boiled up as before; for that mixture still remaineth good, provided it be moistened with Urine when dry, as was said. N. B. Be that desireth to acquire Salt-petre sooner, after the conjunction of the acid spirit with the ashes, and the precipitation and mortification of both, from that conjoined matter, by the pouring on of water, he may extract and boil up the Salt, and then dissolve the Salt in Urine, and digest it by Circulatory Vessels; by which means he may obtain the best salt-petre in the space of one year. This labour of pressing the juice out of wood, and at the same time of making Stones into Lime, may be used in all those Cities and Places where wood and stones are plenty. But if this operation were to be instituted in a Wood, there would be no need of a Furnace built with stone, seeing that the Pile of Wood might be covered all over with green Turfs, after the same manner which Colliers use in making their Charcoal, only with this difference, that here must be a hole in the side, to which the duct or pipe is to be adjoined. The juice being pressed out, the pile or stack is to be every where well closed, that the Air may have no passage, if you would preserve the Coals. All being cooled, the Coals may be taken out and sold, or put to necessary uses, so that the expressed juice, which being received in no Vessels, would have vanished in smoke, plainly

costs nothing; but if you do not desire Coals, let them be burnt into ashes, that they may serve for the coagulating the spirit into Bait, and afterwards by the help of the air, in a certain space of time transmute it into good Salt-Petre,

N. B. It is here also to be noted, that the expressed juice carries along with it a sharp hot Oil of a dark reddish colour, which is not to be cast away, but is to be poured upon the Ashes together with the acid Spirit, that putrefying with the Salts, it may with the rest put on the nature of Salt-petre. But he that will may apply the same to other uses; forasmuch as it is profitable for other things. Any Wood exposed to the Rain, or standing in the Water easily rotting, being anointed with this Oil, will be preserved, so that it will not so easily rot, seeing that the water cannot adhere to the Wood, but is forced to slide off, or is hindered from penetrating the Wood. Carters, or Waggoners may use the same instead of Grease to their Wheels and Axle-trees, especially when it is a little thickened with Suet or Rosen. But the best use of it that I yet know (if you except Salt-petre) is to dissolve and boil it with a sharp Lixivium made of Lime and Ashes, by which it becometh a very hot and penetrant Soap, procuring fertility; if a poor sandy ground be sprinkled with the same and moistened: For it rendereth it very fruitful; which thing it doth not only to fields, but also in Trees and Vines, insomuch, that one Ton of it avails more in the fatening of Fields, than ten Cart Loads of Borse-dung or Cow-dung: And a Bogshead, or Ton of this Soap may be carried into Fields and Vineyards, far remote, more easily than ten Loads of Dung, which is carried to

Vineyards situate in Rocky places with great labour, and no small charge.

N. B. If this Soap be used for the fattening of Vines, too much of it is nbt to be used at a time, least the Vines grow too fat and luxuriant; therefore its moderate use is required, which needs not that exactness in the dunging of Arable Land: Although in that an excess brings damage, and indeed it is the excess of good things that doth harm. A Tree, or Vine being made too fat by dunging, grows luxuriant, and putteth forth more fruit than it can bear and bring to Maturity. The Wood it self becomes too fat and soft, so that in the Winter it is easily injured by the cold. Whence in all things a Mediocrity ought to be observed. This Black Soap made of the Oil of Wood, is truly a very great gift of God, in those places where Sand renders the ground barren. Hence the admirable Wisdom of our Creator appeareth, as it were thus speaking to us: YE RUDE, AND UNSKILLFUL MEN, WHEREFORE DO YOU LEAVE THIS PLACE UNCULTIVATED? BECAUSE YOU CANNOT SOW IT WITH ANY KIND OF GRAIN, I WILL THAT IT SHALL PRODUCE WOOD, AND AFFORD YOU A MATTER, WITH WHICH, IF YOU WILL, YOU MAY RENDER IT FAT. For it is sufficiently known, that Animals, and Vegetables rotting, dung the earth, and render it fat; which thing even the Rusticks have now learned, that they do the same without putrefying or rotting, when they cut down, and burn the Trees and Bushes, which had grown up in the Fields, during the long time of the War, and spread the Ashes on the ground, by which it is fattened. But that they know not how to save, invert, and use with the Ashes for dunging, the acid Spirit, and hot Oil, which vanish in the burning, ought to seem strange to none, seeing that no man hath

hitherto declared it to them. Nevertheless, I perswade my self that this way of dunging of Land, will come into use, in process of time, but I believe not quickLy (here in Germany) by reason of that great quantity of grain which every place affordeth in this time of Peace. But if hereafter, a new War should happen (which God avert) and the Fields should lie many years untilled, through the want of Men, Horses, and other necessaries, then I believe, and not before, this necessary Art will be sought after.

But what other things the said juice of Wood is able to effect, we cannot here declare, by reason of our intended brevity: Yet this I will add, that if this acid Spirit be rectified, it may be used in the preparation of good Medicines, in Mechanick Arts, in the making of many fair Colours, from the extraction of Metals, Minerals, and Stones, and for all things for which common Vinegar is used; yea, far more commodiously, because it much exceedeth the common Wine, and Beer Vinegar in Sharpness. And even it self alone is a Medicine which cureth many incureable Diseases; being mixed with warm water, and used in a Bath for washing the Body, Is far more efficacious than those Baths which issue out of the Earth; especially in all Scabs, in Members relaxed by the FRENCH PALSE, PARALYSIS GALLICA (I suppose he means the Venereal Lues) in Fistulous and stinking Ulcers in the Legs and other parts of the Budy. Also in the Gout, Stone, Cramp, Sciatica, Palsie, Diseases of the Womb, and all sorts of sickness otherwise to be cured by the help of Baths, which this Vinegar pressed out of Wood, far •xceedeth in Salubrious Virtues,



The same doth also the hot Oil which is expelled by expression with the Spirit, which exerteth wonderful Virtues in curing those Ulcers and external effects, For which certainly, as a great gift, and to be easily found in all places, none of those who are burdened with grievous Diseases, can render sufficient thanks to the Almighty: But especially the Poor, who have not Money to buy Physick.

N. B. Here also it ought to be observed, that those who use the Bath tempered with the Juice of Wood, should before they enter into it drink some spoonfuls of this Vinegar. For this Vinegar by penetrating the whole Body, casteth out all things superfluous and noxious to nature by sweat, and openeth all Obstructions of the Liver, Spleen, and Lungs: And especially when the Vinegar is elicted from a Wood, or Herb, which is endowed with peculiar Virtues for the eradicating of those Diseases. As for Example: The acid Spirit of the Vine, Beech, Birch, and the like, taketh away the Obstructions of the Internal Bowels, That of the Oak, and other hard Woods, cureth the Corruption of the Blood, and all Diseases proceeding thence, as the Pox, Leprosie, external Ulcers of all sorts, Scabs, Fistula, and all open Sores. Also all Contractures or Cramps, Falling-sickness, Apoplexy, and Palsie. So the Vinegar of Ash, Cherry-tree, Plumb-tree, Sloe, or Bullace-tree, Medlar-tree, Arbute-tree, and the like Trees, which bear Fruits having Stones or Kernals, cure the Gout, and the Stone of the Reins and Bladder. That of Balsamick Herbs, as ST. JOHN'S WORT, SAGE, PAUL'S BETONY, or Fleuellin, Sanicle, Betony, Lung-wort, Saxifrage, and other like, taketh away the internal Hurts of the Liver and Lungs, and all inward affects arising from Blows,

Falls, & etc. So efficacious a Medicine is this juice of Wood, that the most costly Galenical Compositions are forced to give it place. In making the Bath one Pound of the acid Spirit is to be added to ten pints of water, and this quantity to be augmented, or deminished, according to the condition of the Patient and the Disease.

Before the use of the Bath, some drops of the Oil may be adjoined to the spoonfulls of Spirit, which so fortifieth the Spirit, that it more readily penetrateth the body, more forcibly accosteth the Disease, and the sooner expelleth it. In Gouty Pains, and in the stone of the Kidneys, the same Oil being rubbed upon the part with the Spirit, gives a relief not to be contemried, In brief, this juice of Woods and Herbs, if it be duly prepared and used, is able to shame and confound all the Apothecaries Shops of Galenical Medicines, notwithstanding their proud Furniture of Painted and Gilded Glasses and Boxes.

And I do not doubt but in process of time, that Physicans out of a good Conscience, will explode those unprofitable Concoctions, and in their room institute better preparations, that God may have his due praise, and the miseries of the sick receive succour.

For although this acid water doth not contain the Virtues of the whole Herb, nevertheless it is to be reputed and used as an efficacious water of Herbs, in Medicine, seeing that that which is used in the Shops hath very little virtue, as daily experience witnesseth: It being nothing but the pure Phlegm of the Herb, the chief Virtues and Essence of the Herb remaining in the supposed foeces, although the water hath carried along with it something of the Smell and Taste. Look upon any dry Herb,

which the heat of the Sun or Air hath deprived of all its Phlegm and Humidity, and Bee whether it be also deprived of its Smell, Taste, and Efficacy. And although in length of time it will lose all its Taste and Smell, nevertheless its chief Virtues yet lie hid in it. Yea, although its ACETUM be drawn from it by distillation, that an unskillful man would think that there remained no virtue at all in the remaining black Coals of Wood or Herbs, yet the most efficacious Virtues yet lie hid in the best Sulphur and Salt. And that great Virtue doth yet remain in the Coals, is not unknown to Rusticks, who in the Winter burn them to warm themselves, and boil their food, which thing they could never do by the Phlegm separated by distillation. Those black and contemptible Coals are so great in Virtue, that they emulate the powers and properties of the most Noble Creature the Sun, for which cause they merit the name of Terrestrial Suns. For whatsoever the Astral and Sideral Sun effecteth in the superiour Firmament, the same doth the Terrestrial Suns, viz. Coals, which are its Vicars, also effect. The superiour rendereth all things partakers of Life and Growth, the same doth also the inferiour Suns, In the Winter time when the Sun is far distant from us, all the Vegetables of the Earth are as dead: In the Spring upon his return, all things revive, grow, move, increase, and are nourished.

Insects themselves which have hid themselves in Holes and Caverns of the Earth to fly from Cold, and have lain as dead, do again come forth into the light. All which effects are produced by the superiour Sun. The same things also the inferiour Sun can effect. For when Flies, Spiders, and other like Insects in any Parlour or Chamber, to shun the

cold, betake themselves to Roles and Chinks, and there lie as it were dead; the first heat they perceive by the making of a fire in that room, recover their former life, and again creep out of their hiding places, as upon the Suns approaching us in the Spring. Yea, if in such a Room made hot, there had been before repositied great Insects, as Frogs, Snakes, Lizards, and the like, as also Herbs killed by the cold, they would revive, recover strength and grow equally as if they had been illustrated by the Rays of the great Elementary Sun. Therefore if this Contemptible Coal, which in the Judgement of the unskillful is deprived of all its Juice and Virtue, can perform these things; what a Medicine think you may be prepared by the help of Art of such a Coal?

But some Putatious Physican may here ask; who can prepare any Medicine from so dry and insipid a Coal? It can neither be dissolved by the strongest Corrosive Liquor, nor by the most intense fire, if no air come to it: of which, if the least Portion shall touch it, it presently conceiveth flame, and is consumed, so that nothing of it remains but a few ashes mixt with a little Salt. And those Virtues which refresh all things living, and revive the dead, all perish by Combustion, and vanish in smoke, which could they be taken and preserved, might doubtless afford a Medicine of great moment. To this I answer: wherefore cannot so great an efficacy be preserved, and used for the making of a good Medicine, before that it vanisheth by burning and flyeth into the air? Whatsoever Philosopher is ignorant of the manner of effecting this, truly he is a weak Philosopher, who ought to blush in that he setteth himself before others, and contemneth them who exceed himself

in Learning and Science. He that knoweth not how to use any palpable and coagulated matter, before it be consumed by burning, and vanisheth away, by what means will he elicit the same out of its Chaos, and concentrate it? But that the way of freeing this Noble Sulphur from its Bonds and Keepers, is not known to every one, is no wonder. For it will not come at every call. Of all the Philosophers, there is none who more clearly and openly teacheth by what means it may be delivered from its Bonds, than SENDIVOGIUS, who expressly smith, TEAT THIS SULPHUR LIES HID AND IS HELD CAPTIVE IN AN OBSCURE OR DARK PRISON, AND KEPT BY VERY STRONG KEEPERS. BUT THAT SALT ONLY IN THE CONFLICT OR FIGHT, GAVE HIM A DEADLY WOUND. No Man hath spoken more clearly than this worthy Author. Therefore he that knoweth not how to extricate that Vital virtue from its bonds, and how to use it in Medicine, let him read the above cited SENDIVOGIUS, who will clearly instruct him. If he cannot learn of him, there is no reason why any one should labour to help him.

I will propose the matter by a similitude; a Man is compounded of three things, viz. Body, Soul, and Spirit; The BODY is visible, immoveable, gross, earthly, and corruptible: The SPIRIT is invisible, moveable, living, and nevertheless mortal; But the SOUL of Man, which is his most noble part, is immortal.

In like manner, there is also a certain ANIMA or Vital Principle in Vegetables and Minerals, although there are few who know how to extract it. Therefore as in a Man the Soul is the most noble part; to which the Spirit is inferiour, and the Body the lowest or vilest; so

it is also with Vegetables and Minerals, To acquire the ANIMA or Vital Principle of any Vegetable or Mineral, that fixed and constant ANIMA is to be separated by the help of Art, from the gross, unprofitable, and dead body. For as long as the gross body adhereth to this noble Principle, so long it cannot move it self in a due manner, nor demonstrate its nobility, but is held Captive by its gross body, till it be set at liberty, by some body who knows how to dissolve its bonds. Being freed from its bonds, and the gross body laid aside, it can presently exert its power. Therefore let this be the principal care of Physicans, that instead of a body dead, and destitute of Virtue, they labour to attain the fixed and living ANIMA of Vegetables, that using that in the cure of diseases they may perform far greater things than now they do.

I have here inserted this discourse, only for this cause, that I might shew that a whole or intire body is of very little moment, and that that thing whereby any good is to be effected in Medicine, is to be found only in the most noble part, to wit, the ANIMA.

And even, as in Minerals, besides a fixed and incombustible Sulphur, there is also found another, combustibile and fugacious: so also there is found a twofold Sulphur in Vegetables, in the distilling of which, by a Retort, an Oil is expelled, together with the acid Spirit and Phlegm, which indeed hath its virtues, but can in no wise perform those things which that part remaining in the black Coals is wont to effect. For by how much a Medicine shall be more fixed and constant, by so much the more do they enter and encounter long and fixed diseases; so on the contrary, fugacious medicines are found less efficacious in eradicating the same.

What I have said concerning Vegetables, viz. That there is In them a volatile and fugacious spirit, and a constant fixed ANIMA; the same also to be understood of Minerals, which besides a combustible Sulphur, possess also a fixed and constant ANIMA.

But whosoever knoweth how to conjoin the ANIMA of Vegetables with the ANIMA of Minerals, hath obtained a Medicine which is able, after a wonderful manner, to corroborate the Vital Spirit in Man. For the ANIMA of Vegetables and Minerals, are the Rays of the Sun coagulated, which necessarily contain a vivifying or enlivening power, seeing that the sun maketh all things partakers of Life.

And a man, if he only beholds the sun, or its Vicar the fire, the earthly sun, although he be in some very deep and cold place under ground, where he cannot feel its warming and enlivening power; yet he shall perceive his Heart to be recreated and strengthened by the bare aspect of it: But how much the greater a recreation and corroboration would he perceive, if he should take the ANIMA of Wine, or of some other Herb conjoined with the ANIMA of Gold, for the curing of his body, with both which it hath a great familiarity; for like rejoiceth in like, and desireth to be joined to it: And therefore it ought to seem strange to no man, that I assert, the EUMIDUN RADICALE of the humane body may be augmented by the ANIMA of Vegetables and of Gold: For the ANIMA of Vegetables is nothing else but an essential universal salt, which is found in all things.

Seeing therefore that Philosophers confess, that the redness of gold and whiteness of silver may be increased by its own universal salt,



it is reasonable for us to acquiesc in the same opinion, and to maintain it against those that ere. A visible and palpable demonstration is to be credited, Nevertheless I easily perswade my self, that this discourse of mine will not be credited by many, which I cannot help. It contenteth me, that I have written the Truth, and lighted a Candle to my Neighbour.

After one and the same manner, of Wood of little or no worth, I have shewed the making of SALT-PETRE, for SOLDIERS, GARDENERS, VINTNERS, and EUSBAJiDMEN, fit for the dunging of Orchards, Vineyards, Fields, and Meadows; of commodious Baths, for the Sick; of a good Vinegar for Chy- mists and Apothecaries, necessary for many extractions. It now remains, that I also offer a Gift to the Owners of Metallick Mines. If they shall humect or moisten the CALX VIVE, or Lime made of stones, in the Press, as we have taught, with the ACETUM or Vinegar of Wood, they shall obtain a cheap Flux, by which those hard and untractable stones digged out of metalliok Veins, may easily be melted; for the acid spirit of Wood is fixed by the Lime, and converted into a salt, causing an easie Flux. Nevertheless, this salt will be of greater profit to Husband-men, for the dungin,g and fattening their Fields (for whose sake I also describe it) than in the melting of Mineral bodies. Physicans may use the noble and afficacious juice of Wood, for the happy cure of many incureable diseases, and to their own honour and profit. This Vinegar of Wood being exposed in Eogsheads to the cold in Winter, that. it may be frozen to Ice, the Phlegm only freezeth, but the sharp spirit, with the Oil, is not turned into Ice, but remaineth in the middle of the Hogshead so sharp, that it corrodeth metals like AQUA-FORTIS. If Princes

and Great men would be pleased to take care that the Wood in their Dominions (otherwise rotting in the Woods) might be turned into SALT-PETRE, they would do well, and it would not repent them of their labour, seeing there is a time at hand, in which SALT-PETRE will be much wanted.

There is yet another secret, which for the sake of Countrymen I ought to discover, which will yield them no small profit; which is this: If Hop-poles be burnt at the ends which are to go into the Earth, and those burnt ends dipt in the Oil of Wood, that they may imbibe or suck in the fatness, and afterwards set into the earth, they admit no humidity or moisture, which otherwise they are wont to do, being every year diminished in that part which standeth in the earth. It also cometh to pass, that they communicate their fatness to the vines and stalks of the Hops to which they are joined, and render them more fat and fruitful, by this means affording a twofold profit, first in preserving the Hops-poles from rotting a longer time than they are wont to last. The other is, That the Roots of the Vines and Hops, drawing fatness and nourishment from the bottoms of the poles grow the faster, and are more fruitful. Moreover, those ends of the poles, in length of time growing rotten, yet there is no loss of the Oil, but still the same profit remaineth, seeing that those rotten ends of the poles being taken up and planted again in the earth with the Roots of Hops, they will afford them nourishment for some years, better than if they had been dunged with dung. In like manner, by the help of this Oil of Wood, strong and durable quick-hedges may be made for the fencing in of Vineyards, Orchards, Gardens, and Hop-yards, by which Beasts and Theives may be kept out.

For this purpose the sharp end of the stakes fit for the Hedges, are to be put into the Fire till they grow black, and then whilst they are hot, be dipped into the Oil, that they may well imbibe the same.

With these, being drove into the ground after the usual manner, an Hedge may be made by planting a young shoot or set of Thorn, Crab-tree, & etc. all along between the Stakes. Those sets or sprigs, which otherwise, growing but slowly, are many years before they come to a requisite height and thickness, their roots now obtaining fatness and nourishment from this Oil, arrive to maturity in less than half the usual time, and become a thick and strong Quick-hedge before the Stakes are rotten. Moreover, there is no danger of wild Beasts coming into those places where the Hedge stakes are imbrewed with this Oil, seeing that wild Beasts shun all strong odours, and dare not approach them. If you shall imbibe Hempen-Cords, or such as are made of the Bark of Trees twisted together with Grass; with the said Oil, and then bind them about Fruit-trees, it will hinder the creeping up of Spiders, Ants, or Pismires, Palmer or Canker-Worms, and other like insects, which are wont to damnifie Fruit; inasmuch as those Insects plainly abhor such hot Oils. BY THIS MEANS ALSO MAY RATS AND MICE BE HINDERED FROM CREEPING UP HOVEL-POSTS, AND DEVOURING THE GRAIN.

There is yet another manner of promoting the dunging of Fields, and the happy growth of Seeds, and not only those Fields which are lean and sandy, to which Cow-dung may be used, but also those which are hard and craggy, in which neither sand nor any dust of Earth is found.

But in making manifest this Artifice to the whole World, my intention

is not that the World should thereby be enriched with great profits, as I have endeavoured by describing the manner of Dunging poor Sandy Land, by the acid juiôe of Wood. My Scope or end is only this, That every man may see and consider how many wonderful things may be effected with wood and shrubs, which are every where found in great quantity, and nevertheless, are of no use or profit.

Who would credit any man, affirming, that it might be effected, that not only Grain, but all sorts of Trees, and excellent Vines should grow in any hard and naked Rock, without the addition of any Earth or Dung? Truly, I believe that there is no man in the World, to whom this will seem likely. This will more amaze FARNNER, with his whole Crew, than my MIRACULUM MUNDI did. Yet because the thing may be done, I cannot forbear to divulge the Artifice, only to this end, that I may subject the Divine Wonders to the eyes of the blinded World. But yet it cannot be, but that it will be profitable in many places, in those especially which lie near Rivers, and afford Wine; such are those which lie upon the MAENE, MOSELL, NECKER, RHINE, DANUBE, and other the like Rivers, where great and craggy Mountains frequently occur; in which having the heat of the Sun all the day, Vines might be commodiously planted, if Earth and Dung could be carried thither. Certainly Vines grow no where better than in Rocks and Craggs, into whose clefts and cracks they insinuate their roots, that they may thence attract to themselves nourishment, which few other Plants are wont to do: And because for the most part much Wood grows about such Rocks, it would be worth while to press out its juice, by which the hard Rocks might be reduced into a soft Dust,

fit for the Reception of Vines, which might be performed by this operation; which nevertheless would not be necessary to undertake, but for the manifesting of the wonders of God to the unskillful, and shewing that such things may be done. If any desireth to plant in a place of this sort, in which Vines or Trees growing freely in rocky and stony places, as Cherry-trees, Plumb-trees, Service-trees, and others, bearing Fruits which have Stones; at the beginning, a little hole is to be cut in the Rock by the help of Masons Tools, which is to be filled with the Vinegar of Wood: which being done, the hole is to be covered to keep off the Rain. After some days, let him see whether the Vinegar hath insinuated it self into the Rock, and again fill up the hole with fresh Vinegar, and cover it with a Stone, as before. And this Labour is to be repeated in the Summer time so often, till the Rock hath drunk up much Vinegar, and be thereby so softned for the space of an Ell in length, breadth, and depth, that it may be easily dug up with a sharp Instrument, and become a great hole; the matter digged out is again to be cast into the hole, and to be again filled with the Vinegar of Wood, and covered with stones, and so left till all the matter grows so soft, that it may be crumbled to pieces with the fingers. And in the AUTUMN, when Trees have lost their Leaves, or in the SPRING, before the Leaves come forth, viz, in the Month of MARCH, Vines or Trees are to be planted in the matter contained in the hole, and the matter to be trampled close down about their Roots, then all to be wetted by the pouring on of Water, and the event to be committed to God. So the Vines or Trees grow as well as if they had been planted in other manured ground. The reason

is this; Because the Rocks consisting not of Sand, but of stones, fit for the making of Lime, do contain much SALT-PETRE, as also the acid juice of Wood, partaketh of the same nature, this, by corroding the Rock, dissolveth the SALT-PETRE in the stone, and setteth it free, and at the same time loseth its own corrosive Acrimony, so that it cannot hurt the Roots of Vegetables, but is like to Cow-dung or rather better, for it fatteneth and nourisheth the Roots better. Therefore a Tree or Tine planted after this manner in a Rock, if it shall once put forth, afterwards dieth not, but the Roots insinuating themselves into the Clefts of the Rock, seek their own nourishment. Nevertheless every Winter when the Leaves are fallen off, some of that acid juice is to be poured to the Trunk of the Tree or Tine, that during the Winter, it may again soften some Portion of the stone, which will afford new matter of nourishment to the Roots. And by thus affusing of fresh juice every year, there will be no need of Earth or Dung, seeing that the Stone is changed into earth and dung by the juice of the wood.

Although this ARCANUM will seem a thing impossible to many, yet it is most true, of which, if any will make trial, he may easily do it in this manner: Let him get a stone which doth not consist of sand, but of such of which Lime is made, which being exposed to the Sun, let him pour upon it the acid Liquor of Wood; which when the stone shall have well imbibed or drank in, let him pour on more, and repeat this labour so often, till the stone be rendered so soft, as it may be rubbed to powder between the fingers. In this manner, rubbed or ground small, let him sow any Seed, which will sprout forth thence, as if it had been

sowed in any good earth: The reason we have already declared, viz, because the stone is converted into earth, having its own SALT-PETRE, or proper Dung in it self, and moreover, changing the juice of wood into SALT-PETRE, He who rightly understandeth and followeth my Doctrine, and shall set about the Work with diligence, will without doubt attain his end. But if he tries with a sandy stone, he will effect nothing. For stones of this sort want a nourishing salt, and they wholly refuse solution by the Liquor of Wood, so far are they from imbibing, coagulating, and changing it into a Dungy Salt. But after the following manner any one may prove, that natural Salt-Petre may be made of the stones of which Lime is made, and the juice of Wood. Let him take some pieces of this sort of Lime-stone, not yet burnt (for when burnt, it is much more facile, as I have taught) and immerge or dip them all over in the Vinegar of Wood, and dry them in the heat of the Sun, or some other warm place, and let him repeat this labour so often until they be so soft that they may be rubbed or ground to pieces like Earth. From this ground matter extract the Salt with Rain-water, which will be plainly like to Salt-Petre, So of the Stone is made Earth; of the Salt of that Stone, and the Vinegar of Wood, Salt-Petre; or a salt equally serving with the Dung of Cows or Sheep, for the dunging of all Vegetables.

Nevertheless we have not written these things to that end, as if it were necessary to plant Rocks with Vines, by the help of the Vinegar of Wood. Our purpose is only to set forth how the great efficacy of the juice of Wood may be known, and how by its help, fertility may be procured even to the hardest Rocks, which being hitherto unknown and



unheard of, my diligent search and enquiry hath now brought to light.

Let it not seem absurd to any, that I ascribe so great power to the Vinegar of Wood; for éommon Vinegar doth the same thing in softening of hard Rocks: Why then should not this acid juice of Wood do it, which far exceeds the common in strength and sharpness? It is said, that HANNIBAL made a passage through the ALPS, for himself and his Army, softening the Rocks by the benefit of Vinegar; what Vinegar that was, Histories do not mention. Perhaps it was the Vinegar of Wine; but if he had had the Vinegar of Wood, he might sooner have attained his desire.

This ARCANUM, without doubt, will give occasion of finding out many other profitable things, by the help of this Vinegar. I have opened the way, let another come, who by searching further may enlarge it, that thereby some perfection may be the sooner be acquired. There are many things lie hidden in Nature, which through our sloth and negligence not being sought after, yield no profit to Mankind. But I doubt not but time will produce aedulous men, who will make a further progress in this Vinegar, so that much profit may redound from it.

There is found another kind of stones, which for the most part is used for the building of HouseS, which being soft, is easily cut, so that steps or stairs, and Window-frames are made of it. It is to be reduced by the help of Fire into a Caix of a white, ashy, and reddish colour; it also refuseth to be melted; nor is it like to Sandy stones, abut is Partaker of both natures, and contains much Salt-Petre. But neither by its reduction into a Calx, nor by the pouring on of water, can it be exhorted from them, except it be first prepared after a

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singular manner, for then it yields to water; concerning which thing I have written a peculiar Treatise, which God willing shall shortly come forth. There are whole Mountains of this sort of stone, containing a great Treasure of Salt-Petre, which hath hitherto been known to none.

These few things I was willing to offer to Country-men, concerning the pressing of wood, and the utility thereof. The Circulatory Vessels in which the juice of the wood, and all the salts of the Air are animated by an uncessant motion, and converted<sub>4</sub> into Salt-Petre, I will not divulge at this time, but reserve them for my self and my Friends.

(THESE ARE DESCRIBED IN THE THIRD PART OF THE PROSPERITY OF GERMANY.)

In the mean time this excellent Art will not sleep, but will be exercised in many places. Now whosoever shall need the same, he will know what is to be done. For I have determined to bestow the same for the good of my Neighbour, lest it should be buried with me in oblivion.

I have also an Artificial Invention (which is taught in the Prosperity of Germany) of turning common salt in the space of a few hours, so that it shall be plainly like Salt-Petre, for the enriching of poor, lean fields; and yet an hundred weight of it will scarce cost a Dollar (which is about 4s. 6d.) Which is indeed a singular Gift of God in these last times, which will be highly profitable both to the Rich and Poor, in all places of the World, For if the Culture of Wine and Corn shall every where become better, and more profitable, by the help of this Art, it cAnnnt be, but that all men will receive profit, and obtain a more commodious way of living.

For by this Art, not only all Fields, whether they have lately brought

forth Fruit, or whether they have lain fallow, and for some time brought forth nothing, are brought to that condition, that they may bear Fruit every year: but also barren places, which would never bring forth any Fruit, are rendered fertile, and fit to bear fruit; so that no place can be found in the world, how barren soever it be, which by this MEDIUM may not be rendered fertile. Moreover, this Art is to be greatly esteemed, because by it ground may be fattened in those places, where no Cattle are found, and therefore afford no dung; seeing that hitherto no other than the ordinary way of dunging hath been known.

So also in places far remote from the Dwellings of men, to which Dung cannot be carried, this Art may be exercised with great profit; especially when Dung is difficult to be procured, or costs dear, and is not carried to those remote places without great charge, for which reason they cannot be tilled, but are forced to lie uncultivated.

Seeing that one Rokehead of my fattening Salt can effect more than some Cart-loads of common Dung. Nevertheless this is to be noted, That when any Field dunged with the said salt, is to be sowed with Corn, the seed is first to be macerated or steeped for one night in water, in which that salt is dissolved. For being so prepared, it will grow faster than if it had been committed to the Earth, without any foregoing maceration,

Consider, when the Soldiers have taken away the Horses and Carts, carried away the Oxen, devoured the Cows and Sheep, and wasted the whole country, by what means shall the wasted Fields be dunged and restored to the Husband-man, that returning to their former fruitfulness, he may reap from them the expected Fruit.

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Indeed, in time of Peace, when Horses and Oxen abound both for the ploughing of the ground, and making of Dung, Dung is always of worth, there never being too much of it, and therefore this my Invention may bring not a little profit. Whence it may be of a far greater advantage in those places, where (by the Divine permission) those Locusts have eaten up all things. Ought we not then to receive so excellent a Gift of God with all Thankfulness?

The Omnipotent God give to us all His Grace, that we may shun all temporeal and carnal Security, as the deceitful snare of the Devil, and seek after that which is eternal, constant, and perpetual, Amen.

Arcanum II.

Being a Gift presented to rich Merchants, & etc. that they may improve their Money and Estates without Usury.

Although I had determined to treat of this ARCANUM, with other excellent uses of SALT-PETRE in the emendation of Metals, in the Third Part of The Prosperity of Germany; yet for certain reasons I have deferred the publishing of that Book for some time; but considering my profitable Inventions of making SALT-PETRE, and not doubting but that there will be found men who will put SALT-PETRE to better uses than that of making Gun-powder, I could not forbear here to describe one good and profitable use of the said salt in the emendation of Metals, which is free for any boldly to experience, seeing that I have written the very Truth. Re that shall follow the sence of my words, and hath

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some skill in metallick Labours, will not lose his pains, but will thence reap no contemptible profit. But if any man would perawade himself that such works is to be done without labour and trouble, and great Masses of Gold to be obtained with idleness, be will be greatly deceived, not considering that this requires his putting his hand to the plough, and using great diligence.

I have described the following Operation openly and clearly; affirming, that it will succeed to the Operator, according to my description. If any shall err in the performance, let him blame himself and his own ignorance, and not me. For in this process all things are plain, and to be understood according to the Letter, and may also be performed by an easie imitation.

The manner of the Operation.

R. of Copper one part, of Gold or Silver two parts, and of REGULUS MARTIS three parts, all which melt together in a good and well covered Crucible, taking great heed that no Coals shall fall into the Crucible and corrupt the Work. All being melted, and the cover taken off, yet warily that no Coals fall into the Crucible, cast in as much SALT-PETRE, well dried and powdered, as there is of Copper and REGULUS in the Crucible, to the melted matter, and again cover the Crucible, with the same caution about the Coals, which so put about the Crucible, that they may not lie upon its Cover, but it may be at liberty, to be commodiously lifted up with the Tongs for the inspecting the Mass in the

Crucible. For if the Fire should be too great, the SALT-PETRE would boil over the Crucible, and infer loss. And this may easily happen, seeing that the SALT-PETRE entering and working upon the REGULUS and Copper, swelleth and riseth up. Wherefore it is necessary, that this Work should be done in such a Furnace, as I have described in the Fourth Part of my Furnaces, having its doors, by which the Fire may be governed, and rendered stronger or weaker.

After that the SALT-PETRE hath imbibed the REGULUS and Copper, and turned them into a reddish SCORIA, which is wont to be done in the space of a quarter or half an hour, the lower door being opened, the upper one must be shut, that the Fire becoming stronger, may melt the SCORIA, till they flow like water; which when you see, by lifting up the Cover a little, remove the Coals about the upper part of the Crucible, and take off the Cover, and having taken good hold of the Crucible with your Tongs, lift it out of the Furnace, and pour out the melted matter into a melting Cup or Cone, (Such a one is described by its Figure in the Fourth Part of Furnaces.) being first heated, and well smeared within with Wax; in the bottom of which, when cold, there will be a REGULUS of pure Gold, which being freed from the Scoria, will be so much increased in weight, as it hath attracted from the Copper and REGULUS MARTIS, which will be the fiftieth part of the weight of the Gold.

The red Scoria, which have a fiery taste upon the Tongue, contain the Salt-Petre, Copper, and REGULUS reduced into a Scoria; which if you would separate from the Salt-Petre, as soon as you have parted it from the REGULUS, put it again into the Crucible in the Furnace, put a Coal

to it in the Crucible, which being well covered, let it again flow well for a quarter of an hour. In this Operation, the Coal or Coals put to the Metals; viz, the Copper and REGULUS of Antimony, will separate them by precipitation from the Salt-Petre, so that they will become a REGULUS together, and the fixed Salt-Petre will be separated, and rest upon the REGULUS, from which being cooled, it may be removed by knocking it off. If the operation be rightly performed, you will recover almost all the REGULUS and Copper: but little also of the Salt-Petre is lost, which hath now put on another nature, becomes fixt, and answereth in virtue to the salt of Tartar. N. B. Because those Scoria cannot be so perfectly removed from the Salt-Petre by the Coals, but it still retaineth somewhat of the Copper and REGULUS, which the Coals could not precipitate; they may be kept in some warm place, lest they be dissolved by the air, till you have a quantity of them; which being reduced by burning Coals, may yield their Metal, Of which more shall be said anon,

This Labour, although it squares not with the capacity of the rude and unskillful, nevertheless it is easie to be done by those who have any knowledge in the melting of Metals. But all the manners of operating cannot be so accurately delivered, that every unskillful man should presently be rendered capable of understanding them; I write the Truth openly, and he that well understandeth me, may rejoice with profit. I write not to unskillful TYPO'S, but only to those who know how to handle Metals in the Fire. It may be here asked, Whether this augmentation of the Gold, ariseth from the Copper, or from the REGULUS of Antimony? I answer, from both, but more from the Copper than from the REGULUS.



For there is no Copper or Antimony found, from which Gold is not elicited after the aforesaid manner, seeing that there is in both an invisible and spiritual Gold, nevertheless one containeth more than another; and being melted with Gold, give forth to the same, which also attracteth it. Therefore as often as Copper, and Regulus of Antimony, and SaltPetre shall be melted together with Gold, so often will the Gold receive an encrease; so that this Labour being repeated eight or ten times every day, there will be an augmentation of the Gold not to be contemned, for besides all the Cost, it will afford the daily Gain of one Floren out of an hundred, (A Floren is 2 S. in Germany, about two and twenty pence in our Money.) This is certainly a profit to those who will put their Money to Usury, much more honourable and safe than their trusting it in the hands of others.

But seeing that this Labour is to be performed in Crucibles, (and that too in large ones, if the gain aforesaid be expected) it doth not want its trouble and difficulties; for if a man will use great Crucibles, he can hardly perform the Operation above three or four times a day; and if he use small ones; although it be ten or eleven times repeated in a day, yet the profit will be very small. I will therefore here appoint a way to do it without Crucibles, upon Hearths instead of Crucibles, which neither let out the melted matter by running over, or by their cracking or breaking, as Crucibles are wont to do, but always remaining in the Oven or Furnace, save the trouble of putting in and taking out of the Fire. For Crucibles, bow good soever they be, being exposed to the cold Air, by taking out, and thence being suddenly again put into a

great heat, are very easily broken. From whence it is manifest, that great danger of losing some of the Gold attends the use of great Cru- cibles, so that their use is to be abstained from, altho' the Work it self be of great profit. But good strong Hearths may be used for this Labour, without all danger; for as long as they are left in the Furnace, so long they are good, and the melted Mass doth not flow out. If I had not found out this way of working with Hearths, I should not have divulged this operation, which is as followeth.

The manner of preparing the Hearths or Tests.

An Iron Ring or Hoop is to be made, either square or round, of the thickness of one finger, and four fingers high (or deep) one side being a little narrower or lesser in compass than the other, being well smoothed or polished on its inside, having two ears or handles, whose magnitude and space will be known by the quantity of the matter which is to be handled. To prepare the Focus or Hearth, place your Ring or Hoop upon some smooth stone, and then put into it, so standing, your Earth, being first rightly prepared, (for this purpose our Staffordshire Clay is excellent, as also for making of Crucibles to abide the Fire) so that it may a little exceed the upper superficies of your Hoop, force it down strongly with a broat Iron Hammer, by beating or knocking it in, and what riseth above the top of the Hoop, cut off with a Knife, that it may be even with the Ring; then remove it with the Ring, and strew upon the stone some fine sand, or rather the fine powder of broken

Crucibles, upon which set the Ring, with the bottom upwards, that the other side, which before lay upon the stone, may be wrought in with the Hammer as the first, so that the Ring or Mould may be exactly filled with the Earth, The Focus or Hearth being prepared in this manner, the larger side thereof is to be so excavated or hollowed away by a bowed or crooked Knife, having two handles, so that the rotundity declining from the Superficies of the Ring, even to its middle, where inclining it self, it may keep the thickness almost of a finger at the top or superficies of the Ring, and so it will become like a Vessel or Pan, having a round or spherical Cavity, such Eearths or Tests are wont to be prepared of Ashes, for the bringing of Gold and Silver to a purity in Metallick Mines, & etc. at length that hollowed roundness is every where to be smoothed with a smooth and round Hammer or Mallet, and after the smoothing, the whole Test being inverted with the Hoop, is to be set upon a Board, without stirring it; if the middle of the Hoop or Ring were before besmeared well with Oil, it will the easier come off of the Test, which being exposed to the Air, and dried a little, is then to be set in the heat of the Sun or warm Furnace, that all the humidity being taken away, it may obtain its requisite dryness, before it be put into the Furnace to endure the Fire; for except it be very well dried, it will crack or chap in the Furnace, and be wholly unprofitable for this Work.

The Test being taken out of the Ring, and set by, the inside of the Ring is again to be anointed with Oil or Grease, for the making of another Test, of which so many are to be made as need requires, or the

quantity of the prepared Earth will allow, The earth that was left in the hollowing of the first being mixed with the rest, whilst it is yet moist, serveth again, so that there is no waste or loss of the Earth. The same earth also serves for the making of the Covers or arched Roofs with which the Tests are to be covered, to keep the Coals from falling into the melted matter. N. B. There is no need of having two Hammers, seeing that one sufficeth, having one end of a hands breadth, and smooth, and the other end round.

The way of making the Covers of the Tests, which are called MUFFLES.

First, a Type or Mold is to be made of Wood, answering to the bigness of the Test, but not with one Handle, as those are made for the purifying of silver, but with two oblong Necks, and without Chaps or Chinks, which otherwise are wont to happen, that so the Cover may remain entire. Then to this Wooden Mould the Earth is to be applied, and the Cover to be wrought in the usual manner,

Of the Figure oi the Furnace.

The Furnace is so to be built, that it may have within-side the space of an hands breadth all round the Test from its Walls, for Coals, the Test standing in the middle; so that the magnitude of the Furnace is to be proportionable to that of the Test, and may be either round or square, provided it be built with good Bricks, or fit stones, and

Lute, or Earth rightly prepared. There ought to be at least a span between the bottom and the grate, which also ought not to be fastened to the Furnace, but standing upon four Feet, that it may be taken in and out by the foreside of the Furnace (when need requires) being always open. Let the Furnace rise above the Grate the height of a span, being every way close, having no door. Upon this height of a span a hole is to be left of an hands breadth and height, by which the Test may be inspected, and the mixed Metals put in and taken out, and the Fire may have its passage. N. B. But if the Test should be above a span over, which would also cause the Furnace to be the greater; then that hole being too little, would not allow a sufficient passage for the Fire; therefore the hole is to bear a due proportion to them. From this hole, nourishing the Fire by its ventilation, the Furnace is yet to be carried up the height of two spans, to its upper hole or top, where the Coals are to be put in. Moreover, an Iron Cover is to be made with hollow Superficies, with Iron Buttons, or little Knobs infixed, by which the Lute being put in, may stick fast; the Convex or upper part of the Cover must have a Handle, by which it may be lifted up when the Coals are to be putt in, and afterwards put down again to shut the Furnace.

See the Figure of this Furnace in all its parts, at the beginning of this CONTINUATION of MARACULUM MUNDI, noted at the top with Page 62.

- A. The Furnace, as it is working.
- B. The lower part of the Furnace open.
- C. The upper part of the same.

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D. The Grate.

E. The Hearth or Test.

F. The Mussle, that belongs to the Hearth.

G. The Cover of the Furnace, with which it is to be covered when the Coals are in and at work.

H. The Vent for the Smoke.

When you will work with the Furnace, first put in the Grate, and upon it the foot or prop made of firm Lute, and upon it the prepared Test, and upon the Test its Cover or Muffle, the foremost neck of which ought to come close to the hole on the foreside of the Furnace, and the hindmost neck to touch the baëk of the same. The foot also which supports the Test, ought to touch the fore-part of the Furnace, that the space between the Test and the Wall of the Furnace, may be well stopt or closed. Also, if the neck of the Cover or Muffle doth not fit close enough to the foremost Wall, the Joints are to be well closed with Lute mixed with Hair, that the Fire may have no passage by them, but may pass through the hindmost neck of the said Cover, and under the Cover it self into the Test, and thence out of the foremost neck. If the Fire shall have any other passage by the foremost neck, the heat will not be sufficient to melt the Metal. Therefore the chief Artifice concerning this thing, is the building of the Furnace in due form and proportion. An Iron door is to be fitted to the Furnace under the Grate, for the governmg the Fire, by which it may be encreased or diminished, as need shall require, And the other hole in the superiour and fore-part of the

Furnace, by which the Metals are put in and taken out of the Test, is also to have a door, that necessity requiring, the fire may be governed, and if too great, it may, be restrained. To this also a little Chimney or Funnel is to be fitted, which may receive and carry away the noxious fumes of the Metals and Coals, that they may not hurt the Operator. All these things being rightly prepared, the Furnace being well dried, is to be filled with Coals, and to be covered with its Cover, a lighted Coal or two being put next the Grate, the doors are to be shut, that the Fire may kindle by degrees, by which the danger of breaking the Test, and its Cover, the Muffle, by a sudden heat, may be avoided. The Furnace, Test, and Muffle, being all red hot, the Metals (viz, the Gold which is to be augmented, and the Copper and REGULUS of Antimony, from which the augmentation is expected) are to be put upon the Test with an Iron Ladle, the great door below, and the little one above, are to be opened, that the Fire growing more powerful, may forthwith melt the Metals on the Test, which being rightly melted, a little dry Salt-petre in powder is to be cast in upon them with an Iron Ladle, which will presently change a portion of the melted matter into a Scoria: When it flows no longer, but ceaseth from operating on the Metals, lying upon them like Dross, a little more Salt-petre is to be cast upon the melted Metals, which will again change part of them into Scoria. This Injection of Salt-Petre is to :be continued so long, until the Scoria ehall be no longer hard, but remains liquid like Water, which is a sign that the Salt-petre hath abstracted the Copper and REGULUS of Antimony from the Gold, and its operation is finished, And so much REGULUS of

Antimony and Copper is not to be put upon the Test, (I believe the word NOT is an error of the Printer, in the Copy, and ought to be left out) that it, when a due portion of Salt-Petre shall be added, may be full to the brim, and the Coals not to be burnt out in vain, in the empty Test, which is well to be noted. The fluid Scoria of the Salt-Petre, Copper, and REGULUS of Antimony, are so long to be kept in Flux upon the Gold, as you think the Test can suffer it; for by how much the longer the Gold shall remain in its flux, under these Scoria, so much the more of spiritual Gold it will attract from them, and render it corporeal; and the Gain will be so much the greater. Nevertheless, for the greater certainty sake, after the Scoria have lain ten or twelve hours in Flux upon the Gold, they may be taken out of the Test, to see whether the Test be yet strong enough to sustain them longer in flux, because in a continual flux they are wont to attenuate and perforate the Test with holes, especially if they were not prepared of good Earth, which is able to endure the Fire. Therefore, if you find the test yet strong and thick, and not perforated with holes, you may again add the Scoria to the Gold lying in the test, and keep them so long in flux, as you think the test will hold good. When the Scoria condense themselves, and flow with difficulty, a little fresh Salt-petre is to be added, by which being reduced to a thinner flux, they may give nourishment and increase to the Gold, which in this operation hath the place of a seed, as the Copper and REGULUS at Antimony supply the place of the earth, by affording aliment and augmentation to the Gold; the Salt-petre is in the stead of Rain, which moisteneth the Earth, and rendereth it fruitful; therefore



by how much the longer the Gold lieth and groweth in this Earth, so much the more encrease it obtaineth. After the test is no longer fit to bear the fire, or you would leave working, open the lower door of the Furnace, and take off the Cover from the top, that the heat of the fire may be diverted from the test, and the Scoria grow thick, and the Gold under them hard, draw out the Scoria by degrees with an Iron Hook, from the Gold, that it may remain in the testintire, and in one compact Mass, and not be mixed with the Scoria, like Grains, and occasion loss. All the Scoria being taken out, the Gold is to be freed from the test with a thin sharp-pointed Iron, then taken out with the tongs, and weighed, to see what encrease it hath got.

N. B. That as long as the Test keeps firm and good, it were better not to take out the mass, but to be left upon the Gold in continual flux. This is a Labour not to be despised, seeing that the first Coals being burnt out, more are to be added only; so that this operation may be continued for some days, without intermission, provided the Tests be well made, which also ought to be done if you expect any profit; of which you need in no wise doubt, if the operation be rightly instituted; especially if the Antimony and Iron, of which the Regulus is made, be good: For the more Gold the Antimony, Iron, and Copper shall contain, the more volatile Gold the fixed Gold which is melted under them, will attract to it self. But if you want such Metals as are rich in Gold, and are forced to be content with the common, the Gold will nevertheless get an encrease in the Operation. N. B. When Metals containing Gold are to be had, there is no need to keep the first SCORIA in so long a

flux upon the Gold, seeing that presently after the Copper and Regulus of Antimony shall be turned into Scoria by the Salt-petre, they may be removed from the Gold with an Iron Hook, and new Metals forthwith added, and again reduced into Scoria by the Salt-petre. This labour of removing the Scoria, and adding fresh Metals, being long continued, will add the greater encrease to the Gold, because Copper, Iron, and Antimony contain much corporeal Gold, which in their reduction into Scoria, associateth it self with the Gold. Therefore when those Scoria are withdrawn, and new Metals added, it cannot be, but the encrease of the Gold must be greater than proceedeth from the first Scoria, in which only thd spiritual Gold is rendered corporeal. The addition of fresh Metals, and the abstraction of the Scoria repeated 10, 15, yea 20 times a day, must necessarily give a great encrease to the Gold, if the Metals contain both a corporeal and spiritual Gold. The abstracted Scoria may be reduced in a Teat of the same Furnace (of which Tests there ought to be many in readiness) and the Copper and Regulus precipitated from them, and put to other uses, of which my other Writings every where make mention, And they are precipitated by the Powder of Coals, or Antimony. The way of precipitation is this; the Salt-petre hath absorbed the Sulphureous Metals, viz, the Copper and REGULUS MARTIS, and changed them into Scoria, Now, if to these Scoria some other Sulphur be injected, which the Salt-petre covereth more than the Copper and Regulus of Antimony, it layeth hold on that, by which those Metals which it had first absorbed, are dismissed, and fall to the bottom. But the Regulus and Copper cannot be so separated by precipitation, but that

somewhat of them will yet adhere to the Salt-petre. These may be fixed together, that they may render Gold again in fusion, or the fixt Nitre may be extracted from the Scoria, with Rain-water, to be used for other Labours; as shall be taught hereafter, The residue of the Scoria will be yet of use to Potters, to glaze their Earthen Vessels. But if the Scoria and Salt-petre be not separated, but left together, they may be used with greater profit for the making of Salt-petre, or for the dunging of Land (of which we shall presently speak) than if they be separated. The manner of doing these things shall be described in their order. But first it seems good to me to exhibit a proof, by which every one may know the certainty of this matter, viz, that this work doth not only afford a profit to the Operator, not to be contemned, but also that Gold doth obtain a true and certain increase from the Copper and Regulus of Antimony, whereby the Work may be undertaken with the greater boldness and confidence; which I thus demonstrate. Take a small piece of silver, freed from its gold by AQUA-FORTIS, that you may be sure there is no Gold in it: to which, in fusion, adjoin so much Copper and Antimonial Regulus, as being reduced into Scoria by Salt-petre, and again separated from the silver, may leave it malleable and ductile. This being dissolved in AQUA-FORTIS, will leave at the bottom undissolved a reddish powder of gold, which it hath attracted to it self from the Copper and Regulus of Antimony. Now, so much as there shall be of this Gold, so much and no more corporeal Gold did the Copper and Regulus contain, which the silver hath absorbed. The Scoria possess no more corporeal Gold, but yet abound with spiritual, which you may find by

the following Experiment, Cover those Scoria put into a new Crucible with Powder of Coals, and set the Crucible into a small Wind-Furnace, that they may melt. In this melting, the Nitre will rather enter the Sulphur of the Coals, than that of the Metals; and associating it self to that, dismisseth the Copper and Regulus. Which being done, pour out the melted Mass into a Cone, and when it is cold, separate the Regulus separated to the bottom, which will be the same Copper and Regulus of Antimony which the silver hath deprived of their corporeal gold; which is demonstrated as followeth: Take a bit of Silver, cleared from its Gold, which join with the said Regulus by melting, and reduce the melted mass by Salt-petre into Scoria, as before, pour the mass into a Cone, and being cold, separate the Silver. This being dissolved in AQUA-FORTIS, leaves at the bottom no reddish powder, as the first silver did. By which it clearly appears, that the Copper and Regulus of Antimony had yielded all their corporeal Gold to the Silver in fusion, which nevertheless can afford no gain, except the Labour be many times repeated with fresh Copper and Regulus. But because this repetition is wont to require no small quantity of Copper, Regulus Of Antimony, and Salt-petre, to bring the silver to a golden nature; and moreover, every one knoweth not how to make profit of the Copper and Regulus, deprived of their Gold, or to put them to other uses, and that Salt-petre is not seldom sold at a great price, no great profit can accrue by this Labour to such. nevertheless, they will obtain no small gain, who after the extraction of the gold, know how to use Copper, and the Antimonial Regulus, and Salt-petre, which I have shewed in many places of my Writings. But

those Metals being melted with Gold, and turned into Scoria by saltpetre, bring far greater profit than when wrought with silver. For somewhat of the silver is consumed, as well as somewhat acquired by it; but nothing of the gold is lost, if the Crucible be firm, that nothing run out. N. B. If any gain be expected from silver, such Iron, Antimony, and Copper are to be used, as are pregnant with Gold, and to be often abstracted from the silver, and the metals themselves afterwards to be put to other uses, bringing profit, to say nothing of the Saltpetre, which may be made at a far cheaper rate (that it can be bought) by those who seek profit from Silver. I have instanced these Experiments, to demonstrate that every Copper, and every REGULUS MARTIS contain somewhat of corporeal Gold, and being reduced into Scoria, do yield it to the adjoined Gold and Silver; and that nothing more can be extorted from them, except being reduced into Scoria by Nitre, they be for some time kept in Flux upon the silver, or Gold which is better, that their spiritual Gold may insinuate it self into the corporeal, and augment it, which the following Experiment sheweth.

Take of Copper, and Regulus of Antimony, deprived of all corporeal gold, by the addition of other gold, what quantity you will, melt them with gold, and convert the Copper and Regulus into Scoria, after the usual manner, with SALT-PETRE, which keep in Flux upon the Gold for 6, 8, or 10 hours, and then pour all out into a Cone; the gold being separated from the scoria, and weighed, will shew what it hath gained in this operation. This increase from the twofold matter added, viz, the COPPER and REGULUS MARTIS, is profit; which notwithstanding proceeds

more from the one than the other, as this Experiment will prove, Take one part of silver, which holds no gold, and one part of REGULUS MARTIS, being melted in a Cruáible, reduce them, as hath been often said, by salt-petre, into scoria, and being well melted, pour them out into a small Ingot; which when cold, separate the scoria from the silver with a Hammer; the silver will be pure white, and of very easie fusion, but will contain nothing of gold. N. B. If to the silver and Regulus of Antimony, you shall also add Copper, and then turn all into Scoria by the help of saltu.petre, and when well melted, pour them into an Ingot, so that the scoria flow upon the silver, This silver being separated from the scoria with a Hammer, or by lying a while in water, you shall find that part which was covered by the melted scoria, to be all over so gilt, that you can scarce rub it off with your fingers, which Gold hath adjoined it self to the Silver, chiefly from the Copper. For if more Gold had proceeded from the Regulus, the melted Silver would also necessarily have been gilded by that, which yet without the addition of Copper is not wont to be. Nevertheless, let no man perswade himself that the Regulus of Antimony being omitted, the sane augmentation would happen, because the greatest part of the Gold proceeds from the Copper. For without the Regulus, the Copper would not suffer it self to be reduced into Scoria by the Salt-petre; so that necessity requireth, that all those matters should be conjoined in the said manner, to acquire any profit.

Here thou hast, benevolent Reader, Specimens sufficient for the trying the truth and certainty of this thing: It's free for every man

to enter upon the prescribed way with greater and longer Operations, that he may attain the desired profit.

What I have many times said, I Say again, That this Operation is true, and brings great profit, provided it be instituted in a due manner. The Salt-Petre is the chief thing required in this Operation, which he that knows how to prepare with small cost, and understanding what I have written, may boldly undertake the Work; but he that must buy it at a dear rate, I will not advise to meddle with it. Be that cannot understand what I write, 'tis better for him to spare his labour and charge, and employ himself in those things which do not exceed his capacity.

It behoveth me now to shew the use and benefit which the scoria which are left in this Operation are of, that there may be no waste or loss. But the quantity of scoria in this Operation will be more or less, according as it shall be exercised. If good Antimony, Copper, and Iron, which contain corporeal Gold, may be had in plenty, and Saltpetre also cheap, the loss will not be great, if the scoria should not be altogether put to the best advantage. For if there be enough of the Copper, REGULUS MARTIS, and Salt-petre to be had, they are to be reduced into scoria, flowing upon the Gold, that with it they may leave the Gold contained in them. But here no regard is had to the spiritual or fugacious Gold which they contain, which is laid aside with the scoria, and new Copper and Regulus is put to the Gold, and the scoria again laid aside for other uses, so that in one and the same day, this labour of adding new matter, and as oft separating the scoria, may be repeated

ten or twelve times. Whence it comes to pass, that the Gold is every time enriched, and attracteth more corporeal Gold from those matters in one day, than it could do in fourteen days, if they contained only spiritual Gold. But on the contrary, a great quantity of Copper, Regulus, and Salt-petre are required for this labour, which if they cannot be had cheap, the charge will be the greater, seeing that those Metals which are pregnant with corporeal Gold, will abundantly compensate the charge, especially if benefit be made of the scoria, which we will presently shew. But if a quantity of the said matters be wanting, and vulgar Antimony and Copper be used for the extracting the spiritual Gold only, there will not be so many SCORIA; but it sufficeth, that the first scoria be left so long in flux upon the gold or silver, until they have yielded some augmentation to the same. And in the mean time, the addition of no other thing is required, but Salt-petre, of which a little is to be injected to the hardened scoria, to render them more fusile, and to cover the Gold the better with their flux. This way will not cost so much, besides a good quantity of Coals: Nor will the Work itself be so troublesome, seeing that it need be inspected only once in two or three hours, and any Boy may govern the fire. Or if the Furnace be so built, that (like a dull HENRY) the Coals constantly sliding down, the fire may feed itself, the Operation may be continued night and day without any looking after. In the working the other way with Metals containing corporeal Gold, there is more labour and care, seeing that every hour the scoria ought to be removed, and new metals to be added. Therefore every man may chuse that which is most convenient for him.



Moreover, where neither Antimony, Copper, or Iron abounding with corporeal Gold, are to be had, the Operation may be instituted in another way, and applied to the making of salt-petre In abundance, and with small costs. For after the Regulus and Copper, in flux upon the gold, are reduced to scoria, they are not to be removed, as otherwise they are wont, but the Copper, with the Regulus must be precipitated from the Nitre, by the Powder of Coals, in which precipitation the gold taketh to it self the metal reduced into scoria, so that the fixt Nitre only is to be removed, which is afterwards to be put to other uses: And the Copper and Regulus, by the addition of new salt-petre, are again to be reduced to scoria, and to be precipitated from the Nitre by the Powder of Coals, and the Nitre again removed: So the Copper and Regulus will always remain in flux upon the gold in the Test, and nothing but the added Nitre will be every time separated.

N. B. This Labour doth not indeed draw forth so much gold as that which hath new metals added every time to the gold; but yet it excelleth that in which the metals are kept in a continual flux upon the gold, without the addition of new; for as often as the Copper, with the Regulus, are burnt by the Nitre, so often the Nitre burneth and consumeth somewhat of their superfluous sulphur, and by how much the more the combustible sulphur is burnt and consumed, by so much the more the spiritual gold in it is dissolved, and adjoineth it self to the corporeal gold, to get it self a body.

And this is the difference of those Operations, of which a man may chuse which lie pleaseth, or rather that which fits the matters, he hath

at hand. Whichsoever he shall undertake, it will afford a profit not to be slighted, especially if he pay not too dear for his Nitre, or can make it himself at a cheap rate.

How Profit may be made of the SCORIA which remains after this Operation.

It behoveth the studious of Art to know, that there is a difference in the scoria removed from the gold by the forementioned Operations. Those which are removed from the gold only remaining in the test, and in which the Nitre, Antimony, and Copper remain mixt, are metallick, from which the Copper and Regulus may be precipitated and separated, by the casting in of crude Antimony or Powder of Coals. The scoria from which the Metals are already precipitated in the test, are nothing but fixt Nitre. The scoria also differ, in which the Metals are precipitated by Antimony, from those which are precipitated by Coals; those partake more of sulphur, these less; for the sulphur of coals differs in its nature from the sulphur of antimony, and requireth that a difference be observed, and that either scoria being put to its due use, it may bring the desired profit. And this is the difference: When the Copper, with the REGULUS MARTIS, is precipitated by coals, that the Copper, with the Regulus of Antimony, is precipitated, but the Iron which was in the Regulus admitteth not of precipitation, but remaineth in the scoria; whence it comes to pass, that the Regulus, after precipitation, is found to be lighter than when it was put into the Crucible. Therefore what the precipitated Regulus hath lost, necessarily remaineth

in the scoria; for which cause those scoria are of more hard and difficult fusion than those which remain after the precipitation with Antimony: For when the metals are precipitated by the casting in of Antimony, to one pound of scoria, an ounce, and sometimes more, of Antimony is cast in, which precipitateth all the Copper and theRegulus attracted by the Nitre, and giveth a more ready fusion to the scoria. But nothing more plainly sheweth the difference, than the pouring on of water upon the scoria, to make a LIXIVIUM. The scoria upon which the coals were cast, yield a clearer and sharper LIXIVIUM than those on which Antimony was cast. On the contrary, the Antimonial scoria, by reason of the Antimonial combustible sulphur, are of a dryer nature and property.

The best thing in both the scoria, is the fixt Nitre, which is to be drawn out of them by Water, and may be put to various uses, with no small profit.

In the first place, from those scoria a good Medicinal Tincture may be drawn by the af fusion of spirit of Wine, of which mention is made in divers places of my writings. Those scoria far excell all Dung, and also common salt-petre it self, in promoting of vegetation. Nevertheless, they are first to be made more temperate, because they are too fiery to be used alone. They also effectually promote the augmentation of Gold, and also the health of the humane body, by their most pure Essence extracted by the spirit of Wine.

They may without injury be called THE PHILOSOPHICK DUNG, because they augment the growing power in Vegetables, Animals, and Minerals, neither In Operations of this kind is there any Equal in the world.

Their smell is like that of humane Excrements; nor are they unlike to them in Aspect, but most efficacious in their use. There are many things of great moment yet lie hid in them, all which It is not for me to describe. Those things which I have hitherto written, I have often done with my own hands, and proved by many Experiments. What I deliver is not from hear-say, or the reading of others Books, being resolved to publish those things only, which an infallible Experience hath taught me, so that every man may boldly, and without any doubting, give credit to them.

Moreover, this fixed Nitre is endowed with the same virtue with other Btrong LIXIVIUMS: Nevertheless, it is more efficacious than that of any common Wood, Inasmuch as Nitre exceedeth the fixed salt of Wood in its maturity. The residue of the ècoria from which the LIXIVIUM is extracted, serveth for the glazing of earthen Vessels.

He that desireth to know more of fixed Nitre, may find it in my FURNACES, as also in my PHARMAC. SPAGYRIC. and especially in TEE EXPLICATION OF MIRACUL<sup>t</sup>fl4 MIJNDI; where he will meet with many things worthy of admiration. For the Philosophick Dung, see the 35 th. Article at THE EXPLICATION OF MIPACULUM MUNDI, my Apology against FARRNER, and the Description of my Press for Wood, in this Treatise; in which places he may find those things which will abundantly satisfie him. Concerning this Universal (tho' contemptible) subject Nitre, we will treat more; God willing, in the following second part of MIRACULUM MUNDI.

Here we have shewed the well-minded Reader, how by this one only Operation, he may encrease or augment his Gold, inrich his Fields with

a fruitful soil, and preserve his health; so that there will be none who may not receive profit from it.

I cannot but here commemorate what some time happened to me in this Operation. When the Copper and REGULUS MAPTIS were mixed by melting together, and reduced into scoria by Nitre, the matter thence proceeding was wonderful, appearing in variety of fair Colours, emulating a Peacocks Tail, Therefore when I saw such various colours, I presently thought with my self, whether that matter might not be fit for making a Tincture, which might change the imperfect Metals into Gold; seeing that I had read in some Philosophers, that there is more Tincture in Iron and Copper than in Gold; which gave me an occasion of considering whether this conjunction of MARS and VENUS, might not be the Adultery spoken of by the Poets, or rather the Vitriol of the Philosophers; for this matter retaineth a very fair greenness, not only in the fire, but also out of it, as well wet as dry. Whence I began to persuade my self, that Iron was the Gold of Philosophers, Copper their LUNA, and Antimony their ARGENT-VIVE, and Nitre to perform the Office of a SOLVENT or Bath, in which they are dissolved and digested. Being moved with all these things, that I might make trial, according to my simplicity, I put all the said matters into a Glass, and committed it to VULCAN, (or the Fire) which being administered by degrees, all the matter passed together into a black colour; to which a very fair greenness, with variegated colours resembling the Tail of a Peacock, succeeded, which continued in the Fire for some weeks. But seeing that it would not at all be changed, I being wearied with the tediousness, took the fair matter out of the glass,

and put it into a Crucible, which I set in a Glass-makers Furnace, that I might perform this Operation with the less Labour: And after three days I again took it out, and I found all the matter changed into a glass of a bloody colour, but not transparent. The Crucible being broken, I found in the bottom a little Regulus of an Iron-like colour, which being tested with Lead, yielded white Silver, which being dissolved in AQUA-FORTIS, left no Gold at the bottom. Being struck with admiration, I began to think whence that Silver should proceed, seeing that I did not expect Silver, but Gold; at length being satisfied in that, I was of opinion, that from this subject by one and the same labour, might be made both a red and a white Tincture; but I have not hitherto had time and opportunity to try the truth of the matter experimentally. Whatsoever I have here written, is only that I might afford matter to others who are desirous of seeking, by whose diligent searches some good may be obtained. This Admonition I also think necessary, That they who endeavour to bring any subject to a constancy in the Fire, by fixing, as the Chymists call it, that they lute and close well their Vessels, lest the Air (which is a great impediment to the Operation) should hinder the Work.

For Example. A Wood-coal, for the greatest part, consisteth of a fugacious and immature Sulphur, mixt with a few faeces, being put into an open Crucible, and set in a small Fire, it is presently burnt, and being all consumed, leaveth nothing in the Crucible, but a few Saltashes; but being put into a Crucible well closed and defended from the Air, and committed to a great Fire, and therein kept for many years,

yet would lose nothing of its weight, colour and body, but would remain a black Coal, without any alteration. But on the contrary, if any Mercurial salt be added to the Coal in a due weight, and be enclosed with it in a crucible but one day, and kept in the fire, the coal will be changed into a red, fiery, heavy stone, more Metallick than Vegetable, whose admirable Virtues the Tongue cannot declare. Seeing therefore that from any fugacious and volatile Vegetable in so short a time, a constant Fixed thing may be made by Art, Why should not the same be made much better of some Mineral or Metal, which is much nearer to Fixity? And although these coals black the hand, nevertheless they contain much good, which he that knows how to come at, will by the same easily make his hands white again, and draw that from it which is more conducive to the health of Man's Body, than from all the costly and fading things in the whole World. A WORD IS ENOUGH TO THE WISE. Although I have here shewed, that sulphurated Nitre is a true Medicine for Animals, Vegetables, and Minerals, yet I would not be understood as if I affirmed there was no other, which is not my intention, seeing that if this Medicine were to be generally used for Vegetables, it would be too costly, (AND THERE ARE OTHER THINGS DESCRIBED IN THIS BOOK FOR THAT PURPOSE, WHICH ARE FAR CHEAPER) and I have shewed it only to the end that the wonderful Works of GOD might be manifest to those who are willing to try. For if any man will macerate the seed of any Vegetable in the Tincture drawn from sulphurated Nitre, by the Spirit of Wine, in a warm Bath, he may from that macerated seed produce a growing Herb, in a few hours space.

A Tincture of this sort will effect more in curing of Diseases, than a whole Apothecary's Shop. But he that knoweth how to join some spiritual Gold with this Tincture, that the Gold may thence attract to it self nourishment and encrease, as a Vegetable doth from the Earth, will easily obtain a Universal Medicine. But if any think that I mean such a Medicine as changeth the imperfect Metals into Gold, in flux, he is mistaken, for that is to be attributed to the Stone of Philosophers only. But I call It Universal, as it is the chief Medicine of Animals, Vegetables, and Metals, which I intend always to keep by me, ready prepared, that I may render others partakers thereof. I intend also this Winter to prepare a great quantity of the Universal Medicine for Vegetables, by the benefit whereof Grain may be made to grow in meer Sand, that so this Invention may become profitable to many men, provided they will but undertake the work: Not that I intend to prepare this of Nitre, which is too costly for the Dunging of Fields. For common Salt, which is abundantly cheaper, in a few hours, may be so changed, that losing Its corrosive Nature and Property, it becomes plainly like Nitre in taste, figure, and virtue, but not Inflammable, and excelleth the Dung of Cattle for dunging of Land. Neither let any may fear that this Preparation of common Salt requireth much labour or trouble, or Is difficult to be done; for he that shall see the Operation but once, will easily be able to understand and imitate the same.

Hence, seeing that in all places there are many barren Fields to be found, it cannot be, but that great profit may be acquired by it.



Arcanum III.

A Gift offered to all diligent Physicans.

The profitable use of SALT-PETRE, in the Concentration of METALS, and Preparation of Excellent MEDICINES.

Although in the first Part of MIRACULUM MUNDI I have described divers concentrations and emendations of Metals; nevertheless in those there is nothing common with that ARCANUM, which I intend here to describe. For those ARCANA concern only the emendation of the imperfect Metals; but this also treateth of the Preparation of many excellent Medicines.

The manner of concentrating and amending of Metals by NITRE.

First, a Man is to be made of Iron, having two noses on his head, and on his crown a mouth, which may be opened, and again close shut. This, if it be used for the concentration of Metals, is to be so inserted into another man, made of Iron or Stone, that the inward head only may come forth of the outward man, but the rest of his body or belly may remain hidden in the belly of the exterior man. And to each nose of the head, glass receivers are to be applied, to receive the vapours ascending from the hot stomach. When you use this man, you must render him bloody with fire, to make him hungry and greedy of Food. When he grows extreemly hungry, he is to be fed with a white Swan: When that Food shall be given to this Iron man, an admirable Water will ascend

from his fiery stomach into his head, and thence by his two noses flow into the appointed Receivers; a Water, I say, which will be a true and efficacious AQUA-VITAE; for the Iron man consumeth the whole swan by digesting it, and changeth it into a most excellent and profitable Food for the King and Queen, by which they are corroborated, augmented, and grow. But before the Swan yieldeth up her spirit, she singeth her Swanlike song, which being ended, her breath expireth with a strong wind, and leaveth her roasted body for meat for the King, but her ANIMA or spirit she consecrateth to the gods, that thence may be made a SALAMANDER, a wholesome Medicament for men and metals.

This manner of operating, by which metals are wont to be concentrated, I was willing to describe in this Enigma, that It may be known to be no Fable, but that the same manner hath been described by other Philosophers before me. This appears from the sixth Key of BASIL, where he delivers the like manner. BASILIUS writeth concerning SALT-PETRE speaking of it self; WHEN MY END IS THREATENED, & etc. From which words it is manifest, that he used the same way for the particular and universal emendation of Metals, as also for the preparing of excellent Medicines. But because this Enigma is a little too obscure for the unskillful, I think good to interpret it word by word.

The Iron man is the distilling Vessel, which I have described in the Second Part of my Furnaces. This is put into another Iron or Stone Furnace, and the fire under it. To the noses or pipes of the upper part, some Receivers are to be so applied, that at least three Glass- Receivers may be applied to one nose, the first of which is to be firmly

luted to the nose; the second must enter the perforated belly of the first Glass, by a Pipe; and in like manner the third must be inserted into the belly of the second; the Pipe of the second Glass, which entereth the belly of the first, is to be well luted; the third is not to be luted to the belly of the second, but to remain open, that the expiring gass may go out of the second into the third. To the other nose also three or four Receivers are to be applied after the same manner, but so that the last may remain un.luted. The white Swan is the AMALGAMA of Tin and ARGENT-VIVE, to which Nitre is added; and it is done as presently you shall hear. (See the Figure of this Furnace, before the beginning of this Treatise, noted with page 96.)

A is the Furnace.

B The Vessel in the Furnace.

C The Hole with an Hollow Verge, through which the Swan is conveyed into the Vessel.

D The Tongs holding the Cover with which the Vessel is to be covered as soon as the Swan is put in.

E An Iron Ladle, wherewith the Swan is put into the Vessel.

F The Receiver.

G. The Bench that supports the Receivers.

H The Laborator.

R. one part of Tin, melt it in a Crucible, when it is melted, take the Crucible out of the Fire, and pour out the melted Tin into another

earthen Vessel, and mix therewith one part of ARGENT-VIVE, which will presently be absorbed by the Tin, but the Tin will become so brittle and friable, that it may be ground upon a stone to fine powder. With this fine powder mix two parts of good and pure SALT-PETRE, by grinding them well together, till the AMALGAMA cannot be known from the SALTPETRE, but one white powder be made of both. This powder is The SWAN OF BASILIUS, of which he prepareth Meat for the King; but I call it THE FULMEN OF JOVE, by which all Metals are destroyed and reduced into nothing. And from this nothing, Metals much better and more noble are generated DE NOVO. Concerning this destruction and regeneration of Metals, consult PARACELUS'S Book, THE VEXATION OF ALCHEMISTS, and the Third Part of my MINERAL WORK, and you shall find, that PARACELUS hath involved this Operation in obscure words, as also BASILIUS, who delivereth the same in his sixth Key, with the same obscurity, which here, without any covering, I have openly and clearly made manifest.

N. B. I would have the studious of this Noble Science know, that JUPITER alone, or Tin mixt with Glass only, in this artificial distillation by the fiery man, yields that medicinal spirit, without the addition of ARGENT-VIVE, and leaveth the meat or augment of SOL and LUNA in the bottom. But that our Ancestors have adjoined MERCURY or ARGENT-VIVE, I also by experience have found it profitable. But it is chiefly done for this end, that the Tin being rendered friable and fit for grinding, may be the better be mixed with the Nitre; for it would be laborious and troublesome to file the Tin to mix and destill with the Nitre, as RAPTISTA PORTA teacheth in his Natural Magick. This reduction into

Powder by Mercury, is performed in a very short time, and wonderfully promoteth the Labour, whilst the Mercury acting upon the porous Jupiter, penetrateth him, and rendereth him compact. On the contrary, THE FULMEN OF JOVE burneth the wings of Mercury, and maketh him remain stable; so Jupiter is an help to Mercury, and Mercury to Jupiter, and both become more noble by the power and efficacy of Salt-petre; for Jupiter possesseth much combustible sulphur, which nevertheless burneth not PER SE, without some help; in the effecting of which SALT-PETRE is a Master, having neither euperiour nor equil. Well doth BASIL say, that sulphur only is Nitre's best friend, and also its worst Enemy, which we have found to be most true, in this operation.

When the Tin and Nitre grow hot together, they take Flame like Gunpowder; the purer part, like some subtile spirit, vanisheth into the Air, and the more fixed, stable, and better remaineth at the bottom; for the noxious and superfluous Sulphur of the Tin is burnt by the SaltPetre, which being separated, the rest of the Tin acquireth a more compact and better body. The Mercury also adjoined in this operation, yieldeth whatsoever good be hath, offering his Spirit for Medicine, and his Body for the encrease of Gold or Silver; so that more profit accrues by the addition of Mercury, than if Jupiter were fulminated by Nitre alone. Very few will believe how noble a Sulphur there is hid in Jupiter, which can be made manifest by Nitre only. Truly, Mercury can by no way be better deceived and overcome, than by the Fulmen of JOVE, which casts a terrour upon all the gods. Therefore they are very wary, lest they be touched with that Thunder, and slain with sudden death.

If Jupiter were destitute of his most efficacious Thunder, neither his father, SATURN, nor SOL nor LUNA, with the rest of the gods, would be subject to him. Mars, Venus, and Mercury would only sport themselves with him. Mars would shew him his Sword, VENUS would intangle him with her amorous Net, and MERCURY, the deluder of all dreaming Aichymists, would fly away, and laugh at him. VOLENS NOLENS they all fear Jupiter, and must allow him the Empire; the conversation of JOVE is perilous to all the Metals, even as it often brings subjects into no small danger, to converse with their Prince. Hence the vulgar Proverb, PROCUL A JOVE, PROCUL A FULMINE; He that keeps from the fire, is not in danger of being burnt.

But leaving those things, we will now address our selves to the operation it self, and plainly shew how it is to be performed. And first, let the studious know that this Work requires a diligent and skillful Operator; but he who knows not how with skill to handle the Fire, I advise him to abstain from this Work. The Art is true and excellent, so that he that understands but a little, may see the whole Work to stand upon a firm foundation drawn from Nature. He that knows the nature of Metals and Minerals, knows that the goodness and perfection of Gold and Silver, the best of Metals, consists in a stable, fixed and incombustible matter, and on the contrary, that the imperfection of the imperfect Metals, proceedeth from a combustibile and stinking Sulphur only; which superfluous Sulphur, if it shall be any way separated from them, that which remaineth, ought necessarily to be purer, more fusible, and constant in the fire. There are many ways by which

that superfluous and combustible Sulphur is separated from Metals; of which mention is made in the Mineral Work, and the fourth part of Furnaces. In this operation, the manner of separating it by combustion, is performed by Nitre. In this Treatise also other ways are indicated, yet Nitre is to be used in them all.

But the studious of Art ought to know that in this Operation, not only the superfluous Sulphur of Jupiter and MERCURY may be separated and consumed by burning and each Metal concentrated and amended, but also to both, or to JUPITER alone other Metals may be added, and by the help of Salt-petre may be fulminated and concentrated; for the Fulmen of JOVE doth not only concentrate and amend his own proper body, but also other Metals adjoined to him. Nor do I know a nearer way of destroying Gold and Silver quickly, than the Fulmen of JOVE, which so destroyeth all the Metals, that afterwards without the addition of other things, they cannot by any force of fire be reduced to their former fusile bodies, inasmuch as in melting PEPSE, they always pass into Glass, every one being tinged with that colour which is proper to the metal. Gold is changed into a very elegant glass, like to a RUBY; the glass of Silver hath the colour of a CHRYSOLYTE; the glass of Copper hath a green and red colour like a Jasper; the glass of Mars differs not much from it; the glasses of Tin and Lead remain white. These Glasses being (by artificial reduction) reduced into their bodies, are much better and nobler than they were before. This sudden fire also clippeth the wings of Mercury, so that part of him is constrained with the JUPITER to abide the fire. That swift fluxing powder which is compounded of Nitre,

Tartar, and Sulphur, mentioned in the second part of my Furnaces, is also not to be contemned; for when that mass is mixed with MERCURY, and kindled by a live Coal, the MERCURY is altered, as when it is to suffer the fire, it maketh a cracking noise, till it breaks through the fire, but being apprehended by the Fulmen of JOVE, it hath no time allowed it to cry out; for when it beginneth to feel the heat, it singeth a Swan-like song, but before it can break out from the Fulmen it is killed.

BASILIIUS calleth this THE SONG OF THE SWAN, alluding to what the Ancients have delivered concerning that Bird, viz. That when she is old, and ready to die, she sings a song, which being ended, she presently dieth. This Saying the vulgar believe of that Bird, which yet is false, seeing that I never yet heard any man say that he had heard the Song of a dying Swan. The ancient Philosophers hereby meant our Metallick Swan. But let any one enquire, whether the AMALGAMA of JUPITER and MERCURY may be compared with a Swan; because it may every way be broken, within and without, it is like to the Feathers of the said Bird, and therefore the Philosophers have not unfitly called it a Swan. As for its singing, it is thus; When the AMALGAMA is mixt with Salt-Petre, and wrapt up in Papers, and one after another of them cast into the Iron man, the MERCURY with the JUPITER beginneth to sing a Song like the fine Note of some Bird, which endureth no longer than the crowing of a Cock, seeing that the flame presently followeth, which maketh the separation.

But that any one may be more certain of this matter, I will openly and clearly expound the Operation word by word.



Rx. of Tin and. MERCURY each 1 lb. make an AMALGAMA, as I have taught above; grind this with lb. 1j. of pure Salt-Petre, freed from all its faeces, reducing the whole mass into a minute powder, till the AMALGAMA can be no more felt by the fingers. This fine powder distribute into sixty equal parts, more or less, and put each part into a Paper, so that every Paper may contain about two lothones, or an ounce, wrap them up: This quantity is not to be exceeded, especially if the Iron man and the Receivers be not large; for the lesser Vessels require the less of the matter: For the matter being cast into the red-hot Vessel in Papers, when it taketh flame, giveth a crack or puff like Gun-powder, which is kindled with a Coal. The Labour is easie, which may be called THE WORK OF WOMEN, or PLAY OF BOYS. For as soon as one Paper is enkindled, the vapours ascending with smoak and wind, pass into the Receivers, which being quietly settled, another Paper is presently to be cast in, that it may sing its Swan-like Song, and pass into the Receivers in a fume. This casting in of the Papers is so long to be continued till they are all spent. You can scarcely put in above ten Papers, or fifteen at the most, in an hour, for if one Paper be cast in too soon after another, the ascending Spirits of the JUPITER and MERCURY would not settle completely, but some would fly out at the hole of the last Receiver, and be lost. By this means the Iron man is nourished by degrees with his food, viz, the white Swan, even as Infants are successively fed by their Mothers.

After all the Papers are in, the fire is to be let go out of its own accord; and when all the Spirits are condensed in the Receivers, the

Receivers are to be removed one after another, in which is the ANIMA of Tin and Mercury, and of that metal which was added, of a white or ashy colour, if Tin and Mercury only were used. But if Gold was added, it will be of a purple colour; if Silver, of a yellow; if Copper, the colour will be reddish. And this is not only to be understood of the matter which passeth into the Receiver, but also of that which remains in the bottom of the Iron man. The ANIMA hideth it self in the corporeal flowers which ascend into the Receivers, by which it is the more easily acquired, and which otherwise, perhaps, by reason of its great subtilty, would be very difficult to obtain. If you can put your hand into the Receivers, you may take out the flowers with a bent spoon, which hide the ANIMA; but if not, with an Iron Wire fitted for the scraping them off, or by washing them out with Water, which are to be handled further, as you shall presently hear.

The mass remaining in the stomach of the Iron man, being taken out when it is cold, hath a fiery nature and a white colour, if it were only of Tin and Nitre, but if any other metal was added, the colour will be varied, as above. This mass cannot be reduced to its former body by Fire alone, how vehement soever it be, seeing that when it is melted, it runneth into glass, and that too very difficultly. Nevertheless, by the following operation it may be reduced to its pristine Body: Put it into a very strong Crucible, which cover, and set in a Wind-Furnace that will give a very strong Fire (such as is my Fourth Furnace) the Fire being raised by degrees, let it be made white-hot, and when it is so, the Cover being removed, throw into the fiery mass a little Sulphur,

Antimony, or Coals in fine powder, put on the Cover again, and lastly, cover the Crucible over with Coals, that all the matter may flow well. In this operation the combustible Sulphur will enter the fixt Nitre, and separate it from the fixed Metal, and with the same, whatsoever of Sulphur, Antimony, or Coals was added, will be turned into black Scoria. The Tin, with the Mercury, and the Metal, if any were added, separateth it self from the Scoria, and returneth into a metallick body, which after it is poured out and cold, is to be separated from the Scoria. Jupiter hath the aspect of his former body, but is amended, as the proof will shew him that pleaseth to make it; the remaining Scoria are to be kept, because an excellent universal Medicine may be made of them. The REGULUS being melted again, is again to be amalgamated with its own weight of Mercury, which AMALGAMA is to be mixed with its equil weight of Nitre, and put up into Papers, and again cast into the Iron man, as we have shewed before, that the Flowers and ANIMA may be collected and added to the former. The remaining mass isto be precipitated with sulphur, as before, and the Scoria being separated from the Regulus, to be added to the former, and the Regulus to be again brought with Mercury to an AMALGAMA, that with Nitre the Flowers and ANIMA may be again elicted. This Labour is to be so often repeated, until half the Regulus be converted into scoria: That part which remains being examined by the Cupel, will shew how much gold and silver is generated by this Labour. Which profit will serve to buy other Coals and Metals to carry on the Work. The ANIMA which passed into the Receivers yieldeth a most excellent medicine; so do also the scoria which were reserved

at divers times, afford one little inferiour to that; and how they are to be handled, we will teach in order. Therefore by this only operation a universal medicine for humane and metallick bodies is acquired particularly, and from the remaining part an amended metal paying the necessary costs which are required for the continuing the great Work.

How therefore particularly of Tin and Copper often fulminated, one may get a profit not to be conten3ned, I will clearly shew; forasmuch as I have not performed that labour only once, but many times; in like manner I will deliver the way and mode whereby an excellent medicine may be prepared for the curing of all curable Diseases, which also I have often done. But how a tTniversal medicine may be prepared of the ANIMA of metals, for humane and metallick bodies, I cannot teach; for I have not: hitherto had time and opportunity of perfecting so great a Work. Nevertheless, I do not at all doubt, but that the Philosophick stone may be made of this ANIMA; But by what means I think this may be effected, (saving to every man his own judgement) I will not conceal from the studious of the Divine Wonders. What I have done with my hands, I can render others the more certain of; those things which I have done, I leave as they are. The beginning of the Labour I have clearly enough proposed; from which, if any may cannot learn more, 'tis best for him to abstain from this kind of Labour.

All the Philosophers cry out with one voice, FIX THE VOLATILE, AND VOLATILIZE THE FIXT, and you will have the true universal medicine. From which scope he will not erre, who shall take good subjects for his work. Therefore, because in this our operation, Gold (besides the rest

of the metals) being endowed with a most pure body, is rendered volatile and fugacious, and stript of its ANIMA, verily it will be credible, that of the ANIMA of Gold, if the ANIMA of Mercury shall be joined with it and digested to fixation, may be made the SALAMANDER constant in the Fire. The purple ANIMA of Gold and Mercury which hath passed into the Receivers, I free from the Flowers of Tin, by washing it out with the sweet universal Water, known to every one, filtering it through Paper, coagulate it, and then fix it into a tinging stone. And I doubt not, but some good thing will thence proceed.

From the scoria remaining after the reduction, you may easily extract a medicine. Nevertheless, those scoria are divers, and have a diverse nature; for those which remain after the operation with Tin and ARGENT-VIVE, are of another nature and property than those which proceed from the working with other Metals adjoined to those two, as Gold, Silver, Copper, or Iron. Every Metal hath its own proper powers and virtues, which in the extraction of the Scoria go forth together, and render that Extract more noble, or else diminish its virtues. Gold and Silver have a different nature and properties from Copper and Iron. Nevertheless Copper and Iron are not malignant or hurtful in the Scoria, but also possess great virtues. Nevertheless the greatest virtues which are elicited from the Scoria, are to be taken for a Tincture of Sulphur; for the Metals being destroyed by fulmination, and again reduced into a body, leave but a very small part in the Scoria, seeing that their greatest part returneth into a metallick body. Therefore the Scoria principally consist of fixt Nitre, and that Sulphur by which the destroyed

Metals are again reduced into a metalliick body from the Nitre. The Scoria of the Metals destroyed and precipitated by Coals, or common Sulphur, have one and the same nature, virtues, and properties. The Scoria of that reduction made by Antimony, partake of another nature, to wit, of a grosser and stronger than those which are made by common Sulphur or Coals, for they sometimes cause vomiting, which the other do not.

And this I would note, that because Antimony as yet containeth many Arsenical qualities, common Sulphur containeth but few, and Coals none at all; that therefore also the Scoria made by these, are safer than the other; nevertheless, I confess that those are somewhat cruder, and more immature than those made with Antimony; but being extracted with Spirit of Wine, yield an excellent Tincture, which is a kind of a Universal Medicine; for it is sufficiently known, that no subjects (Gold and Silver excepted) are found fitter for Medicine, than Antimony and common Sulphur. And because Wood-Coals exactly answer to this common Sulphur in their nature, properties, powers, and virtue, therefore I commend the Scoria's made by them, and prefer them to those prepared by Mineral Sulphur and Antimony; not that there is a greater efficacy in Coals than in Antimony and common Sulphur, but because those of Coals dissolved by fixt Nitre, are rendered more apt and easie to render their virtues to spirit of Wine, are of a more easie extraction, and are somewhat more familiar to the animal nature, than common Sulphur and Antimony. But the Medicine prepared of either of those scoria, is efficacious, and differeth but little in its external species and colour.

All the difference in those Tinctures, is, That that which is extracted from the Antimonial scoria, if it be taken in a little the larger dose, before fixation, causeth vomiting, and operateth more forcibly than the other two. All three after the manner of sulphurs, gild silver, help the growth of Vegetables, by dunging, and nourish and augment Gold being made spiritual, and closed up in the moist way.

And although I do not yet know what it can perform in the transmutation of Metals, yet I am persuaded, that if it were fixed and rendered constant in the Fire, and made to have ingress into metals, that it would effect something in transmutation. It sufficeth me at this time to have indicated the way by which a universal Remedy against all curable Diseases, is to be prepared of the remaining scoria. He that desires to know more, let him set to his hand, and search farther; the way is opened to him: But if he desires somewhat better, let him set upon the Spirit of Mercury and Gold, which is forced into the Receivers, and search for it in that. As for the remaining parts, viz, the metallick flowers, and the running Argent-vive, which passed together into the Receivers, the running Argent-vive may be separated from the Flowers, and used again for the like labour, by amalgamating it with Jupiter. The Flowers are again to be reduced with the fulminated metals, that nothing of the Gold and Silver may be lost; so this labour being continued, will give a perpetual encrease of Gold and Silver, besides the tinging ANIMA, and the Expenses will be only for the Salt-Petre, which will be little to those who know how to make Salt-Petre themselves, for the making of which, I have shewed the way; so that without any great

labour, trouble, and cost, not only an honest livelihood may be gotten, but also a good medicine, for the relief and comfort of the forsaken Sick.

But before I conclude this my concentration of metals by Salt-Petre, I think fit here to adjoin some admonitions for the benefit of the studious of these Laboura. When in the reduction of the metals destroyed by the Fulmen of JOVE, the scoria are left too long upon the gold, and not poured off in due time, they (after a certain magnetick manner) attract the remaining ANIMA which the Fulmen hath left in the Gold, and leave the whole pale. If Argent-vive be amalgamated afresh with this pale Gold, and this Labour sometimes repeated, the Gold will be wholly spoiled of its ANIMA, being partly driven into the Receivers, and that which is left attracted by the scoria, then the gold loseth all its colour, and the scoria put on a bloody colour. From this red scoria the Tincture is to be extracted, by a certain singular Artifice, and to be used in the known manner. The pale Gold recovereth its yellow colour by Iron, Copper, or Antimony.

Moreover, this is also to be observed, When by the Pulmen of JOVE the ANIMA of SOL and MERCURY is propelled into the Receivers, the Receivers being taken off, the Flowers which hide the ANIMA, are to be taken out, and kept in Glasses close stopt. For the said ANIMA of SOL and MERCURY is so spiritual, volatile, and fugacious, that like a Bird it presently flies away, and leaves an empty nest; the truth of which thing I have experienced. BE THAT WILL NOT BELIEVE WHAT I SAT, LET HIM TRY, AND HE WILL FIND IT TO BE TRUE.



But that I may shew the studios of the Hermetick Medicine how he may experience this matter, I will declare by what chance I my self came to know it.

At a certain time, when I had taken the ANIMA of Gold and Mercury, made by the Fulmen of JOVE, out of the Receivers, not clearing one Receiver so well, but that somewhat of the ANIMA remained therein; I put in some ounces of Water, that I might thereby the better wash out the remaining Flowers: In the mean time, some more urgent busness called me away, I set the Receiver with the Water in it, upon a Table in my Laboratory, before or near a Window, and forgetting it, left it there for some days; the Cold being then very sharp, in that time had frozen all into Ice; I coming into my Laboratory, to see if some Glasses, in which were Water, were not broken by the Ice, as is usual, I found some wholly filled with Ice, and seeing this Receiver to lie there, I presently believed that Receiver to be broken by the Frost; but taking it up in my hand, I found that the Water in it was not frozen, but remained clear, therefore I rejoiced that the Glass remained unhurt, and wondered much whence it should proceed; but I could impute it to no other thing, but to the hot spirit of Gold and Mercury, of which notwithstanding there could not above three or four grains remain in the Glass, which although so very little, preserved some ounces of Water from freezing. From that time, weighing the matter more diligently, I found an incredible heat in that ANIMA. Let others enquire and search what may be performed by such a heat; this I know, that hereafter there will be sedulous Artists, who will thank me for this my faithful Institution.

For it is very likely, that this subtile and fiery Spirit of Gold and Mercury, such as it yet is before fixation, maybe presently used with great profit, in the taking away many occult Diseases of the Body. Moreover, it is to be observed, That if Metals, whether Gold, Silver, or Copper be conjoined by amalgamation with Tin and Argent-vive, they ought first to be reduced into pure and shining Calces, that they may be the more readily received by the Mercury: But only a fourth or sixth part of the Calx is to be added in the Amalgamation, lest the Tin (by too great a quantity of the Calx) be hindered in fulminating, for the whole operation consisteth in a right fulmination. But lest any should err in working, he may first make trial, whether all things be well mixed and prepared, by putting half a dram of the mixture into a small Crucible, and upon that a live Coal, and beholding the Fulmen with an intent eye, that he may see what colour it gives: If it riseth so white and clear, that it dazieth the eyes, as the looking upon the Sun is wont to do, all things are rightly and orderly mixt; the smoke is tinged with the colour of the adjoined Metal, as Purple from Gold, Blue from Silver, Green from Copper, but Tin and Argent-vive only give White. Also from the Mass remaining in the Crucible, it may be seen whether the Fulmen be rightly performed, viz, if the CAPUT MORT. or residing Mass be porous, and fiery upon the Tongue, being touched therewith. The Colours also of that Mass are various, according to the added Metal; Tin and Argent-vive alone leave a fiery white matter.

Neither is this to be passed by, being of no small moment, viz. if you seek not a Medicine, but only the emendation of Metals, it is

not necessary to add Mercury with the Metals, but the Gold, Silver, or Copper may be melted with Tin, for so they become a brittle Mass, which may be powdered in a Morter, and mixed with an equill weight, or a little sore, of Salt petre, and put into a strong Crucible, and covered, then put into a circular fire, so that the fire may approach it by degrees, till the Crucible and Matter be hot, and at length taking flame, may be enkindled and dispersed. In which operation many Flowers file away, and a fiery Mass remaineth in the bottom, which is again to be reduced into a metallick body in a strong Crucible, in a Wind-Furnace, by the addition of some combustible sulphur, and after the reduction, to be reduced again into powder, and mixed with fresh Nitre, and again treated in the same manner, by sometimes repeating the former Labour. At length that Mass being reduced in a Crucible, the Gold, Silver, or Copper will be found augmented by the Tin.

N. B. Because in this operation, not a little of the Metals flies away in fume, the Crucible may be set In some Wall, and on the Wall over it some Vessels or subliming Pots capacious enough may be fastened over it, that the Metals being kindled by the Fulmen, the elevated Flowers may be preserved and advanced to a purer Metal than they were before. This Labour doth not differ much from the Operation of BASILIUS, in which Salt-petre saith, MY LOVER IS A CHEERFUL OR PLEASANT WOMAN, & ETC.

There are only two feminine Metals, viz. LUNA and VENUS, either of which serveth to this Labour, yet this is more profitable than that, yea, end the same Labour giveth an augment to Sol, Mars, and Saturn, which are not feminine. When Tin is melted with VENUS of LUNA, these

pleasant females are elevated with 30y, they sing, dance, and suffer themselves to be handled in what manner soever it shall please one to treat them; therefore they are called BRISK OR PLEASANT WOMEN. This is an Operation not to be contemned, forasmuch as it well compensateth the Labour, and requireth but small costs besides the SALT-PETRE, and also may be wrought in a great quantity, but our former with Mercury is better. There is yet more lies hid in this operation, but I think it not necessary here to recount all things. Let the Reader kindly accept of this, and shortly (God willing) more and better shall follow.

Whatsoever I have here written, is the very truth, and confirmed by many Experiments, in which every one may safely confide, and if he operates aright, will find the truth; for all things here delivered, are to be understood according to the Letter, and so to be observed in all the Labours.