
M. v. Gucht. Sculp:
GUILIELMUS SALMON;
Medicinæ Professor.

Ex Lib: Gulielmi Mosley

POLYGRAPHICE:

OR,

The Arts of Drawing, Engraving, Etching, Limning, Painting, Vernishing, Japaning, Gilding, *&c.*

In Two Volumns.

CONTAINING,

I. *The Arts of* Drawing Men, Women, Landskips, *&c.*
II. *Of* Engraving, Etching, *and* Limning.
III. *Of* Painting, Washing, Coloring, Gilding.
IV. *Of the* Original, Advancement *and* Perfection *of* Painting, *with the* Various Paintings *of the* Ancients.
V. *Of the Arts of* Beautifying *and* Perfuming.
VI. *Of the Arts of* Dying *and* Staining.
VII. *Of* Alchymie, *and the* Grand Elixir *of* Philosophers.
VIII. *Of the* 112 Chymical Arcana *of* Peter Faber.
IX. *Of* Chiromantical Signatures.
X. *Of* Staining *and* Painting Glass, Enamel *and* Gems.
XI. *Of* Vernishing, Japaning, *and* Gilding.

The Eighth Edition.

Enlarged, with above Five Hundred *considerable* Additions *thro' the whole Work; and the Addition of almost five whole Books, not in any of the former Impressions: Adorned with* XXV Copper Sculptures, *the like never yet Extant.*

By *WILLIAM SALMON*, M. D.

Non Quot, sed Quales.

London, Printed for *A.* and *J. Churchill*, at the *Black Swan* in *Paternoster-Row*. And *J. Nicholson*, at the *King's-Arms* in *Little-Britain*. M DCCI.

To that

GREAT MAN

S^R *Godf. Kneller*, Kt.

SIR,

IT is Honor, as Cicero *says, which gives Being, Life, and Perfection to Arts and Sciences, and it is That in you which, I hope, will Indulge this Infant Production, from* Minerva's *Stock: If it*

Obtains but your Approbation, I have my End; and therein ſhall account my Endeavors Fortunate, and my Self Happy.

I have made bold to ſhelter it under your Protection, of which my ſmall Confidence makes me believe I am not deceived: But of this I am certain, That if it periſhes not by your Diſlike, it will live by your Eſtimation: It is your Countenance of the Work, which will be as a Seal to it, and make it as a Standart of Truth to ſucceeding Generations.

As Univerſal Fame acknowledges you the Chief of your Profeſſion, and has made you a great Judge of things of this Nature; ſo I could not have choſen out a more Fit or Exquiſite Patron;

a Man as excellently Accompliſhed to Determine, as you are admirably Skilful to Perform.

The Work of it ſelf is but as a Dead Body, but as a Body without a Soul; it is your Character and Name muſt give it Life and Spirit; and then with your Memory, I am ſure it will be Conſecrated to Eternity.

I am wholly unskill'd in the Arts of Adulation, and know nothing of Flattery: but this I ſay, that could I Write as Excellently, as you can Deſign; and Decipher in Words, as well as you can with the Pencil, I would leave to all Poſterity, the Great Life of the Immortal Kneller.

I will not detain you any longer; but I have this to Obſerve,

Epiſtle Dedicatory.

That you who are the Honor of your Profeſſion, and the Glory of your Art, have by your Excellency therein, obtained a Precedency above other Men; and all your Performances are ſuch, not to make Imitators, but Admirers, amongſt whom is,

Sir,

Your Faithful,

AND

Humble Servant,

William Salmon.

THE

PREFACE.

I. *THE Subject of the enſuing Work, is the* Art of Painting; *a Name not only too ſingular, but alſo too ſhort or narrow, to expreſs what is here intended thereby: For we do not only expreſs that Art, (as it is generally received) but alſo* Drawing, Engraving, Etching, Limning, Painting in Oil, Waſhing, Coloring *and* Dying: *All which being conſidered in their proper Extent, infinitely exceed that curtail'd Name of* Painting; *which that we might join all in one proper and comprehenſive Word, we made choice of that* Greek *Compound*, POLYGRAPHICE.

II. *To perſwade any one to the Study or Practice of theſe Arts, would be a great Folly; ſince* Ignorance *(which is always blind) can never be able to judge aright: For to him that already underſtands it, the Labour would be uſeleſs and unprofitable; to him which is already delighted therein, it would be needleſs and ſuperfluous; and to the Averſe and Ignorant, it would be the putting a Jewel into a Swines Snout: The exquiſite Knowledge of which, is impoſſible ever to be attained or underſtood by ſuch*

prejudicate and cloudy Souls, *although it is sufficiently known to many already*; *and its Usefulness as apparent as it is Excellent: To enumerate the one, or rehearse the other, it is but to perswade the World*, *that* it is day-light when the Sun is upon the Meridian; *or at least to inculcate* an Ignorance of those things, *which have been manifestly known, even a long time since.*

III. *The Method of this Work is wholly new, wherein we have united and made one, such various Subjects as have been the uncertain, obscure and tedious Discourse of a great number of various and large Volumes.* What shall we say? *Things far asunder*, we have laid together; *things uncertain*, are here limited and reduced; *things obscure*, we have made plain; *things tedious*, we have made short; *things erroneous*, we have rectified and corrected; *things hard*, we have made facil and easy; *things various*, we have collected; *things (in appearance) Heterogene*, we have made Homogene: *And in a word, all these Arts* we have reduced to certain Heads; *brought under* a certain Method; *limited to* practical Rules, *and made them* Perspicuous, *even to a very mean Understanding.*

IV. *In the Composure of this Work, (besides our own Observations) we have made use of the best Authors now extant, that we could possibly procure or get into our hands*; *wherein our Labour was not small, what in* Reading, Comparing, Transcribing, Choosing, Correcting, Disposing *and* Revising *every thing in respect of* Matter, Form *and* Order. *The which had we any* Precedent *to have followed, any* Path *to have traced, any* Example *to have imitated, any* Help *to have consulted, or any* Subject *entire: Or otherwise, had the* Number *of our Authors been small, their* Maxims *Truths, their* Rules *certain,*

their

their Meanings *not obſcure, or their* Precepts *been reduced to Method or Order, we might not only with* much more *Eaſe, Pleaſure and Certainty*; leſs *Labour, Trouble and Pains*; greater *Perſpicuity, Plainneſs and Singularity*; better *Order, Method and Language*; *but alſo* in ſhorter time *have brought to Perfection, what we here preſent you withal.*

V. *In this* Eighth Edition, *we have inſerted above five Hundred ſeveral Additions of ſingular Uſe to the Matter in hand, and ſo neceſſary to the Work, that without them they might really be accounted* Defective. *There is the various Depictings of the Ancients, according to the Cuſtoms of ſeveral Nations, drawn from the beſt, moſt experienced and faithfulleſt Authors, whether* Engliſh, Italian *or* Latin: *together with the Original Advancement and Perfection of theſe Arts.*

VI. *For the farther Satisfaction and Pleaſure of young Artiſts, we have given you a Tranſlation out of* Latin, *of the One Hundred and Twelve* Arcanums *of* Petrus Johannes Faber, *a moſt Learned and Famous Phyſician of* Montpelier *in* France, *and a very great* Chymiſt *and* Alchymiſt. *They have been earneſtly ſought for by many Ingenious Gentlemen, but by reaſon of the Scarceneſs and great Price of the Book, they were not eaſy to be had; and being alſo in* Latin, *not to be underſtood by every one who had a Curioſity that way. For theſe Reaſons we took the Pains of Tranſlating the ſame; and in ſo doing, for the better underſtanding of the Matter, have carefully clauſed each Particular, that the Senſe of the Author might the better be apprehended. But truly it is our Opinion, that moſt of them, if not all, need a* Clavis *or Key to unlock them, that their Meaning and Intention might be underſtood; and* one Key, *it is ſaid, will unfold them all, except two of them, whoſe*

whose Meaning and Interpretation is according to their literal Expression: The Investigation of the Key, *or finding out those two* unriddled Arcanums, *we shall leave to the Scrutiny of the Industrious Student, who may at one time or other* per Accidens *meet with that unlookt for, and unthought of, which is by many so much desired, and which peradventure by the same Hand might have otherwise been perpetually sought for in vain.*

WILLIAM SALMON.

THE

Postscript.

I. THIS Book having in a few Years time so obtained in the World, as to come to an Eighth Impression, above Fifteen Thousand of them having been already Sold; I was requested once more to give it a Review, not only to mend the Faults escaped in the former Impressions, and to reduce it to some better Order and Method; but also to add to it such other new Matter as the Nature of the Book might require, to supply it in several places, where it might be defective or wanting: To Explicate it in such Places and Paragraphs which were dubious, and not vulgarly Intelligible: And further to Enlarge it with a number of New and most Excellent Secrets, not yet in many Mens Hands.

II. As to the particulars, which are added in this Impression, you have, 1. In the first Book, an Appendix containing five whole Ch pters. 2. The Sixth Book of *Dying and Staining* wholly new, never any thing of that kind being published in Print to our knowledge before. It was the Manuscript of an Experienced Dyer, who had practised that Art above Fifty Years, and Dying, left behind him his Secrets of that kind. I challenge nothing of it, but the new Methodizing, and fitting it for the Press. 3. In the Seventh Book, besides the Additions in the Tenth Chapter, there are added Eleven

Eleven whole Chapters concerning the *Philosophick Tincture* or *Elixir*, *viz.* Chap. XII. XIII. XIV. XV. XVI. XVII. XVIII. XIX. XX. XXI. XXII. Which is the certain Work of a True Adept. 4. In the Ninth Book, the Additions are scattered throughout, but they are so many as will make compleatly three quarters of that whole Book. 5. The Tenth Book, containing XLIII. Chapters, is wholly new, there being exactly laid down, and in a succinct and brief Method, all the ways of Painting, Coloring and Staining of Glass, Crystal, Enamel and Gems, and the way of making Adulterate or Counterfeit Precious Stones so exact, that an Artist himself shall scarcely discern the Artificial from the True, without bringing them to the Wheel. 6. The whole Eleventh Book containing the Arts of Vernishing, Japanning, and Gilding, reduced into a shorter and much better Method, than ever was done by any Author before. 7. Besides all which, we have farther Enlarged and Compleated it, with above Five Hundred other Additions, Paragraphs, and Observations, where the order and necessity of the Work required it, which are interspersed thro' the other parts of the Work, *viz.* of the I. II. III. IV. and V. Books, in their proper places; and are either Explicatory or Directive to the matter in hand.

III. In the Seventh Book, are some Discourses of *Alchymie*, and the very Process it self, (as it is believed) by which the Masters of that Learning, attained to the Sum of all their Glory. In the Perfection thereof, there are Riches, Honor, Health, and Long Life: By it *Artefius* (a Jew) lived, as is reported, a Thousand Years; how true it is, I will not say; himself affirms it: And very Wise Men, such as *Paracelsus*, *Pontanus*, and *others*, seem to give Credit to it. And thereby *Flammel*, a *French* Man, originally a poor Scrivener in *Paris*, left so great

great Monuments behind him, as must convince the most Incredulous, that he knew the Secret, and did such mighty Works, at his own proper Costs and Charges, as the most Opulent Prince in *Europe* can never do the like. He built Twenty eight Hospitals in *France*, also Twenty Churches and Chappels, and Endowed them all, with large Revenues and Incomes.

IV. As to the many Additions to every Impression of this Book hitherto, I make bold to excuse my self: I confess it is an abuse, and such an one which I my self, who have been a great buyer of Books, have often complained of; it is indeed an Oppression upon the Publick, for when a new Edition comes forth, with considerable Additions, the former Book is worth little or nothing. The truth is, the Copy was formerly in the hands of such Men, who thought much at every Penny they laid out, and provided it would but answer their ends, and bring them Money, they cared not how meanly the Publick was served by it. But now it is fallen into the hands of more Generous Spirited Men, who were desirous of having a good Work, and a Compleat Thing, and stuck at no Money to bring the same to Perfection: And accordingly, you see to what a Maturity their Gentleman-like Dispositions, and Noble Spirits have brought this Book: 'Tis through them, and their means, you have it thus compleat; and to them you ought to shew your good Nature, in rendring your Acknowledgments and Thanks, for that otherwise you must have been contented to have taken up with the few Fragments, which the penuriousness of the former Booksellers had afforded you.

V. But to make you amends for this trespassing, not so much upon your Patience, as upon your Purses, we offer you here the Valuable Additions which this Impression is enriched withal; which I

am

am very confident, the Ingenious Artiſt would not be without for ten times all that the Book will coſt him, (notwithſtanding all the other Editions which he has formerly bought, which are now like an old Almanack, out of Date:) This is enough, we hope, to give ſome ſatisfaction, and ſtop your repining, eſpecially when you ſhall conſider (by comparing this Edition with ſome of the former) what Care and Pains I have taken in the Editing thereof: This Copy alſo is all Corrected from the Preſs with my own hand, which I will not promiſe any future Edition ſhall be; and therefore may be, on that account, more Valuable than any that ſhall be hereafter Printed. And withal I promiſe, That from henceforth I will never make any more Alterations or Additions to this Work.

From my Houſe at *Black-Fryers* Stairs, *London.* 24 *October.* 1700.

William Salmon.

ERRATA.

Pag. 44. lin. 29. and pag. 45. lin. 30. for *Reſſified*, read *Reflected.* pag. 774. lin. 30. for *Centural*, read *Central.*

THE

THE

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The

The Characters Explained.

gr. A grain. *The 20th part of a ſcruple.*

℈ß. Half a ſcruple. *Containing 10 grains.*

℈ A ſcruple. *Containing 20 grains.*

ʒß. Half a dram. *Containing 30 grains.*

ʒ A dram. *Containing 3 ſcruples.*

℥ß. Half an ounce: *Containing 4 drams Troy.*

℥ An ounce. *Containing 8 drams Troy.*

℔ß. Half a pound. *Containing* { *7 ounces Troy.* / *8 ounces Averdepoiz.*

℔ A pound. *Containing* { *14 ounces Troy.* / *16 ounces Averdepoiz.*

℞ Recipe. *Take or Receive.*

Ana. Of each a like. viz. *alike Weight or Number.*

SSS. Stratum ſuper Stratum. *Which is, Lay upon Lay.*

POLY-

POLYGRAPHICES

LIBER PRIMUS.

OF

DRAWING.

CHAP. I.

Of Polygraphice in General.

I. *Polygraphice* is an Art so much imitating Nature, as that by proportional Lines, with answerable Colours, it teacheth to represent to the Life (and that *in plano*) the Forms of all corporeal things, with their respective Passions.

This Definition is clear out of the Nature of the Art, (being also a liberal Art, as are Arithmetick, Geometry, Astronomy, Dialing, Musick, *&c.) It is said to represent things* in plano, *to distinguish it from* Carving, *which is also a Representation of natural things with* Rotundity *and* Thickness.

II. It is called, in general, in Greek Κραμγπικὴ, in Latin *Pictura*, and in English the *Art of Painting*.

III. It is Sevenfold (to wit) in *Drawing*, *Engraving*, *Etching*, *Limning*, *Painting*, *Washing* and *Colouring*.

IV. *Drawing* is that whereby we represent the Shape and Form of any corporeal Substance in rude Lines only.

V. It consists in Proportion and Passion, as it hath relation to motion and situation, in respect of Light and Vision. *If*

to *proportioned Quantity* you add *Colour*, you will have at length the Form and Perfection of the Figure; so that whosoever sees it, may be able to say, this is a *Man*, that a *Peacock* that a *Leopard*; and again this is *John*, that *Thomas*, a third another Man, *&c.* And by the exact performing of these things, you may depict one *Fearful*, another *Crying* and *Lamenting*, another *Angry*, another in *Love*, &c. and that so excellently, that the Party counterfeited may be thereby easily known.

VI. *Sanderson* saith, This admirable Art is the Imitation of the Surface of Nature in Colour and Proportion. 1. By Mathematical Demonstration. 2. By Chorographical Description, 3. By Shapes of living Creatures. 4. And by the Forms of Vegetables. In all which it prefers Likeness to the Life, conserves it after Death, and this altogether by the Sense of Seeing.

VII. The *Proportion* shews the true length, breadth, or bigness of any part (in known measures) in respect of the whole, and how they bear one to another: The *Passion* represents the visual Quality, in respect of Love or Hatred, Sorrow or Joy, Magnanimity or Cowardice, Majesty or Humility: Of all which things we shall speak in order.

VIII. Herein also *Painting* differs from *Carving*; for the *Carver's* Intent is only to give the self-same *Quantity* to his Figure, which his natural Pattern hath, *viz.* equal to the Life in *Quantity only*: Whereas the *Painter*, by the help of *Colours*, adds a kind of *Life* to the *Similitude*, and gives not only *Quantity*, but a *Colourable Resemblance* also.

CHAP. II.

Of the Instruments of Drawing.

I. THe *Instruments* of Drawing are Sevenfold, *viz.* Charcoals, Feathers of a Duck's Wing, Black and Red Lead Pencils, Pens made of Ravens Quills, Rulers, Compasses, and Pastils or Crions.

II. *Charcoals* are to be chosen of Sallow-wood split into the Form of Pencils, and sharpned to a point, being chiefly known by their Pith in the middle.

Their

Their use is to draw lightly the Draught over at first, that if any thing be drawn amiss, it may be wiped out and amended.

III. The *Feathers* ought to be of a Duck's Wing, (though others may serve well enough) with which you may wipe out any Stroke of the Charcoal where it is drawn amiss, lest Variety of Lines breed Confusion.

IV. *Black and Red Lead Pencils* are to go over your Draught the second time more exactly, because this will not wipe out with your Hand when you come to draw it over with the Pen.

V. *Pens* made of Ravens Quills (but others may serve) are to finish the Work: But herein you must be very careful and exact; for what is now done amiss there is no altering of.

VI. The *Rulers* which are of use to draw straight or perpendicular Lines, Triangles, Squares or Polygons, the which you are to use in the beginning, till Practice and Experience may render them needless.

VII. *Compasses* made of fine Brass, with Steel Points, to take in and out, that you may use Black or Red Lead at pleasure.

Their Use is first to measure (by help of a curious Scale of equal Parts upon the edge of your Ruler) your Proportions, and whether your Work is exact which is done with the Charcoal. Secondly, To draw Circles, Ovals and Arches withal.

VIII. *Pastils* or *Crions* are made of several Colours to draw withal upon Coloured Paper or Parchment. Thus,

Take Plaister of Paris or Alabaster calcined, and of the Colour of which you intend to make your Pastils with, ana. q. s. *grind them first asunder, then together, and with a little Water make them into Paste; then with your Hands roul them into long pieces like Black Lead Pencils, then dry them moderately in the Air: Being dried, when you use them, scrape them to a point like an ordinary Pencil.*

And thus may you make Pastils or Crions of what Colour you please, fitting them for the *Faces of Men or Women, Landskips, Clouds, Sun-beams, Buildings, and Shadows.*

IX. *Another way to make Pastils or Crions.*

Take Tobaco-pipe Clay, and with a little Water temper the same with what Colour you please, making several according to the several Heights or Colours you intend; which mix

with the ſaid Tobaco-pipe Clay, ſo much as the Clay will bear; work all well together, make or form it into *Paſtils* or *Crions*, and let them dry for uſe.

X. *A Paſtil* or *Crion for a brown Complection.*

Grind on your ſtone Ceruſe, Red Lead, or Vermilion, Engliſh Oker, and a little Pink; to this add a proportionable quantity of Plaiſter of Paris burnt and finely ſifted, or Tobaco-pipe Clay, mix either of them with the ſaid Colours, and then roul them up. Here note, that Ceruſe is mixed with all the other Colours alſo. Roul them up upon a Marble Stone, and let them be about the length of a Finger, and the thickneſs of a Gooſe-Quill.

XI. Theſe *Paſtils* or *Crions* being dry, you may ſharpen them (when you uſe them) with a Pen-knife to a point, ſo ſharp that you may draw a Hair. The Colour moſt difficult to work in this kind is *Crimſon*, if you make uſe of *Lake*, which you may avoid by making uſe of *Roſſet*; and be ſure to mix Ceruſe with all your other Colours and Shadows whatſoever.

After this manner, with proper Compoſitions, you may make all manner of beautiful Colours, as Greens for Landskips, and other Colours for Rocks, Grounds, Skies, Walks, &c.

XII. *A Paſtil or Crion for Greens.*

Theſe *Crions* are made of Pink and Bice; and Maſticote and Smalt; and Maſticote and Indico, with which Colours you may make them lighter or deeper, as you pleaſe; remembring that where you are to temper ſoft or firm Colours, as Umber, Oker, Indico, &c. you are to take the leſs *Plaiſter of Paris*; but where the Colours are looſe, there bind them ſtronger and faſter, by adding more *Plaiſter of Paris.*

XIII. *Another way to make Paſtils or Crions.*

Take your Colours and grind them very fine upon a Marble, and ſift them through a fine Tiffany Sieve; then take a piece of Tobaco-pipe Clay, and lay it on your Grinding-Stone, and temper it and your Colours together with ſtrong Ale-Wort. You muſt be very careful not to make them too wet, but of an even temper, like moiſt Clay, to roul up with your Hand upon your Stone: Then take a piece of Paper, and dry them in an Oven, after the Bread is taken out; or you may otherwiſe dry them in a Fire-ſhovel by degrees till they be hard enough; which to know, have a piece of Paper by you, and try if they caſt, which if they do, they are not dry enough; then dry them again longer till they will not caſt;

cast; after which take a Feather, and some Sallet-Oil, and oil them lightly over, and so lay them to dry again, till the Oil be drank well into them, which will make them excellent and to work free and easie.

XIV. Observe that those Colours which bind hard of themselves, must be tempered with less Tobacco-pipe Clay. Moreover, *Yellow Oker* burnt, and rouled up into a *Pastil* or *Crion*, and dried with a moderate Heat; and then being throughly dried, and made very warm, and dipp'd into Linseed Oil, and dried again till the Oil becomes well soaked into it, becomes most excellent. This being sharpened to a very fine point, you may draw admirably withal, and it will have that quality, that what is drawn with it, although rubbed hard with your Finger or Hand, it will not rub off, nor any part of it stir. And without doubt all the other Colours may be made to have the same Quality. The *German* Masters. and those of the *Low-Dutch*, made all their *Crions* with that Quality not to rub off, but were extreamly neat, brisk, lively, and (like Oil-painting) very strong.

XV. *The way and manner of using your Pastils or Crions.*

Colour the Paper that you intend to draw on with a Carnation or Flesh-colour, near the Complexion of the Party you intend to draw after: Cover the whole Paper with the said Complexion, which is made of Ceruse, Minium, and a little Yellow Oker ground with a little Gum-Arabick. When you prepare them, make a good number of various Complexions together, it not being worth while to make one at a time; lay this Ground-colour with a wet Spunge, but let the Colour be so bound with Gum, that it may not stir from the Paper by rubbing. This being done. and dry, draw the Outscetches or first rough Draught with Coal; that being as you would have it, draw over the same Lines again more perfectly with Red Chalk; then with your several Pastils or Crions rub in your Colours first, and after, with your Fingers sweeten and mix them together, driving and confounding them one into another, after the manner of Oil-Painters. And because many times the *Crions* will not sharpen to so good a Point as Black or Red Chalk, you must be very careful to close and finish all your Work at last with Red and Black Chalk, which you may sharpen at pleasure.

XVI. *Another way of Drawing with Paſtils or Crions on Blue Paper.*

The Ground-colours are to be rubbed in firſt with a Pencil, and afterwards with a ſtubbed Pencil or your Finger. After the ſame manner you may work in Parchment exceeding neatly and ſo curiouſly, that at a ſmall diſtance they may be taken for Limning.

XVII. *To make white Paſtils or Crions.*

Take Ceruſe, or ordinary white Chalk, four Ounces; Roach-Allum, two Ounces; grind them together fine, make them up into a Maſs, burn them in a Crucible, and keep them for uſe.

XVIII. To the former add good Copies, Patterns and Examples of good Pictures and other Draughts; without which it is almoſt impoſſible that the young Artiſt ſhould ever attain to any Perfection in this Art.

Thoſe that deſire to be furniſhed with any excellent Patterns, Copies or Prints, may have of all ſorts, whether of Humane Shape, Perſpective, Deſign, Landskips, Fowls, Beaſts, Inſects, Plants, Countreys, or any other artificial Figures, exquiſitely drawn, at very Reaſonable Rates, where this Book is to be ſold.

XIX. *Another way to make Paſtils or Crions.*

Take Tobaco-pipe Clay, before it is burnt, and grind it well with a little weak Gum-water; then add to it *Vermilion*, *Blue Bice*, or *Yellow Oaker*, or what other Colour you pleaſe: Let your Gum-Water be very weak, leſt it bind too hard; make it up into little Rowls, which dry, and ſcrape each to a Point for uſe, as you need them.

XX. *Another way to do the ſame.*

Take a great Chalk-ſtone, make deep Furrows in it, two or three Inches long, and ſo large, that you may lay in each a Quill; then take White Chalk ground very fine, temper it with Oil or Wort, and a little new Milk, and ſo make Pap thereof; then pour it into the Chalk Furrows, which in a ſhort time you may take out, and roul them up as you would have them; or otherwiſe let them lie till they are quite dry, and then take them out and ſcrape them into the Form you deſire: You may temper *Lake*, with *burnt Alabaſter*, for a Red, and ſo for other Colours; but Colours which bind over-hard, muſt have a little Water added to them in their grinding.

XXI. *To*

XXI. *To draw with Indian Ink.*

The Out-ſtrokes being firſt drawn with Black Lead, (after the Duſt of the Charcoal is well bruſh'd off with a Feather) then take a Stick of *Indian Ink*, of the beſt ſort, (not that which is whitiſh and hard within, for that is naught, and will not work well) wet one end of it with Water, or rather with your Spittle, which is better, for that is not ſo ſubject to ſink into the Paper, which ought to be very good Dutch Paper; and have ready ſix or eight ſmall Pencils, of ſeveral ſizes, which put on little Sticks two or three inches long, the better to hold them.

XXII. With the one Pencil you muſt draw, and with the other at the other end of the Stick, you muſt, (it being a little wet with your Spittle) wipe off the hard edge: Begin faint at firſt, then ſhadow it higher, as you pleaſe; otherwiſe, if it be too dark at firſt, you will be in danger of ſpoiling your Work. The leaſt touch of your Pencil on the *Indian Ink* is enough. This manner of Drawing is pleaſant and admirable, and now much in uſe, ſetting off the Work very neatly. *See Lib. 2. Cap. 31. Sect. 30.* of this Work.

CHAP. III.

Of the Precepts of Drawing in General.

I. BE ſure to have all the Neceſſaries aforeſaid in readineſs, but it will be good to practiſe as much as may be without the help of your Rule and Compaſſes: It is your Eye and Fancy muſt judge without artificial Meaſurings.

II. *Then firſt begin with plain Geometrical Figures,* as Lines, Angles, Triangles, Quadrangles, Polygons, Arches, Circles, Ovals, Cones, Cylinders, and the like. For theſe are the Foundations of all other Proportions.

III. The *Circle* helps in all orbicular Forms, as in the Sun, Moon, *&c.* the *Oval* in giving a juſt Proportion to the Face and Mouth; the Mouth of a Pot or Well, the Foot of a Glaſs, *&c* the *Square* confines the Picture you are to copy, *&c.* the *Triangle* in the half Face; the *Polygon* in Ground-plats, Fortifications, and the like; *Angles* and *Arches* in Perſpective;

the *Cone* in Spires, Tops of Towers and Steeples; the *Cylinder* in Columns, Pillars, Pilasters, and their Ornaments.

IV. Having made your Hand fit and ready in general Proportions, then learn to give every Object its due Shade, according to its Convexity or Concavity, and to elevate or depress the same, as the Object appears either nearer or farther off the Light, the which is indeed the Life of the Work.

V. *The second Practice of Drawing* consists in forming *Fruits*, as Apples, Pears, Cherries, Peaches, Grapes, Strawberries, Peascods, *&c.* with their *Leaves*; the Imitation of *Flowers*, as Roses, Tulips, Carnations, *&c. Herbs*, as Rosemary, Tyme, Hyssop, *&c. Trees*, as the Oak, Fir, Ash, Walnut, *&c.*

VI. *The third Practice of Drawing imitates*, 1. *Beasts*, as the Lamb, Elephant, Lion, Bear, Leopard, Dog, Cat, Buck, Unicorn, Horse, *&c.* 2. *Fowls*, as the Eagle, Swan, Parrot, Partridge, Dove, Raven, *&c.* 3. *Fishes*, as the Whale, Herring, Pike, Carp, Thornback, Lobster, Crab, *&c. Of which, Variety of Prints may be bought at Reasonable Rates.*

VII. *The fourth Praxis imitates* the Body of Man with all its Lineaments, the Head, Nose, Eyes, Ears, Cheeks, Hands, Arms, and Shadows, all exactly proportional both to the whole, and one to another, as well to situation as magnitude.

VIII. *The fifth Praxis is in* Drapery, imitating Cloathing, and artificially setting off the outward Coverings, Habits and Ornaments of the Body, as Cloth, Stuff, Silk and Linen, their natural and proper Folds; which, although it may seem something hard to do, yet by much Exercise and Imitation of the choicest Prints will become facile and easie.

IX. In drawing of all the aforegoing Forms, or whatever else, you must be perfect, first, in the exact Proportions; secondly, in the general or outward Lines, before you fall to shadowing or trimming your Work within.

X. In mixed and uncertain Forms, where Circle and Square will do no good (but only the *Idea* thereof in your own Fancy) as in Lions, Horses, and the like; you must work by Reason in your own Judgment, and so obtain the true Proportion by daily Practice. Thus,

Having the Shape of the thing in your Mind, first draw it rudely with your Coal, then more exactly with your Lead or Pencil; then peruse it well, and consider where you have erred, and mend it, according to that Idea *which you carry in your Mind. This done, view it again, correcting by degrees the other Parts,*

even

even to the leaſt Iota, *ſo far as your Judgment will inform you; and this you may do with twenty, thirty, forty, or more Papers, of ſeveral things at once. Having done what you can, confer it with ſome excellent Pattern or Print of like kind, uſing no Rule or Compaſs at all, but your own Reaſon, in mending every Fault, giving every thing its due place, and juſt Proportion: By this means you may rectifie all your Errors, and ſtep an incredible way on to Perfection.*

XI. Having then good Patterns and Copies to draw by, the young Artiſt muſt learn to reduce them to other Proportions, either greater or ſmaller, and this by often and many Trials (as we ſhall hereafter more particularly teach) this requires great Judgment; for in a Cut, you ſhall find neither circumſcribing Strokes, nor difference between Light and Light, or Shadow and Shadow: Therefore ſerious Obſervations are required in the Sight of thoſe things, whether coming forwards or going backwards.

XII. The drawing after Plaiſter-work, done by Skilful Maſters, as the Gladiator and Children of *Franciſco*, the Rape of the *Sabine* Women, the Wraſtler, the *Venus* of *Greece*, *Hercules*, *Hermes*, Anatomical Diſſections, and other Pieces of Antiquity, are main and neceſſary Introductions to attain a Perfection in Drawing after the Life.

XIII. This done, let the young Artiſt now begin to exerciſe in Drawing after the Life; (for that is the compleateſt, beſt, and moſt perfect Copy, which Nature has ſet for Obſervation) wherein the Liberty of Imitation is preſented in the largeſt latitude; and this muſt be attained by much Practice and diligent Exerciſe, adjoining the Inſtructions of a good Maſter.

XIV. In this Practice of Drawing let there be a Perfection attained, before ever there be the leaſt Thoughts of Colours or Painting; for that afterwards all things belonging to Painting, will in a ſhort time be eaſily and perfectly underſtood.

CHAP.

CHAP. IV.

Of Particular Observations in the Art of Drawing.

I. IN drawing after a Print or Picture, put it in such a Light, as that the Gloss of the Colours hinder not your Sight, so as that the Light and your Eye may equally and obliquely fall upon your Piece; which place at such a distance, that at opening of your Eyes you may view it all at once; the greater your Picture is, the further off you must place it to draw after; the which you must always be sure to put right before you, a little reclining.

II. Observe to draw all your Out-lines at first very faint with a Coal, because, if amiss, you may rub them out with the Feathers of a Duck's Wing, or a bit of Bread, and so mend the Fault the more easily, which, if you lean hard, and draw very black, will be more difficultly rubbed out. These Out-lines must be drawn true and agreeable to the Pattern, before you begin to shadow any part of it. The Out-lines next the Light draw very soft and faint; and having drawn one Feature, let it be a Direction for you in some measure to draw another, by observing with your Eye (and being also guided by your Reason) the distance from that to the next Feature, making a small Mark at the Place with your Coal, and then draw it, and so the next, till the whole Figure is designed.

III. Then observe the middle of your Picture to be copied, which touch upon your Paper with the point of your Coal; then observe the most perspicuous and uppermost Figures (if more than one.) which touch gently in their proper Places: Thus running over the whole Draught, you will see the Skeleton, as it were, of the Work.

But if you go on without these Considerations, whereunto your Draught will tend or run; when having ended your Work, you will be forced to draw the same many times over and over again, and it may be, every time to as little purpose; by the tediousness of which, your Ingenuity will be dulled.

IV. Be secure of a right and true Draught, though you do it slowly; what you think may be done in two or three Hours, it will be better to bestow two or three Days upon: By this means (though you act leisurely, yet you will act prudently,

prudently, and) you will both sooner and better than can be imagined, attain the Perfection of what you desire.

V. These Out-sketches being made, view them diligently, whether they answer your Pattern apparently; for the Gestures of the Life ought to shew themselves eminently in the first and rudest Draughts thereof; without which, be sure your Work will be faulty.

VI. Having viewed these Sketches, begin to correct and amend them (where you find them amiss) and *gradatim* by adding or diminishing a little here and there, as you see it differ from your Pattern, you will bring it nearer and nearer to the Life.

VII. Observe the distance of one Muscle, or Joint, or Limb to another, and the same in all other Accidents of the Figure; their Thickness, Bigness, Length, Breadth, Windings, Turnings, Shadows, *&c.* Shadow next to the Light very faintly; and where you see bold and free Touches, be not fearful in expressing the same. In drawing a Head by the Life, or otherwise, observe to place your Features exactly right upon the Cross Lines, whether it be a full Face, or a three quarter Face, as you may see in the Examples. In *Foreshorting*, there make the Cross Lines to fly upwards, where they look upwards; but bending downwards, in a circular manner, where the Aspect is downwards. And having the Out-lines true made by a Coal, you must then proceed to trace over again the same Lines with a Pen, drawing them more exactly; and by imitating all the Hatches, with their exact Distances one from another, their crossings, turnings, and winding, with much boldness and freedom perfect your Design.

This with a Charcoal you may easily do, because you may wipe away what is amiss.

VIII. In drawing after Plaister and Embossed Works, choose a good North-light, which let descend from above, not dilating or scattering it self too much, by which you may the more pleasantly shade your Work.

If the Room has a South-light, put oiled Paper before the Window; or if you draw by Candle-light, have a Lamp shaded with oiled Paper; for a Candle will grow lower and lower, which causes the Shades to change, all which you avoid in a Lamp.

IX. Then set your self down about three times as far from the Pattern as the Pattern is high, so as your Eyes in a direct Line may view the same; then with a Plumb-line observe what Parts of your Pattern appear to you, by the extending

extending ſtreight thereof, and how one under another they come in Sight, and accordingly make your fundamental Sketches, as we have juſt before taught.

X. In drawing the Muſcles of a Humane Body, you muſt firſt have either the Life, or very good Patterns made either of Plaiſter, or drawn in Pictures, enough of which are to be found in Anatomical Books, but chiefly the Book of *Jacob Vander Gracht*, compleated with many Varieties and Curioſities; from whence the Alterations and Changes, Riſing and Falling, Extenſion and Contraction, and other Operations of the Muſcles, Arteries, and particular Members, are in Imitation of the Life excellently depicted.

XI. In drawing after a naked Body, all the Muſcles are not ſo plainly to be expreſſed as in Anatomical Figures; but that ſide whoſe Parts are moſt apparent and ſignificant in the performing of any Action, muſt more or leſs appear according to the Force of that Action.

XII. In young Perſons the Muſcles muſt not manifeſtly appear ſo hard, as in elder and full grown Perſons; the ſame obſerve in fat Men, and fleſhy, and ſuch as are very delicate and beautiful. And in Women you muſt ſcarce expreſs any at all, becauſe that in the Life they either appear not at all, or very little, unleſs it be particularly in ſome forceable Action; and then you muſt repreſent them but very faintly, leſt you ſpoil the ſingular Beauty of the Body. The like obſerve in little Children.

XIII. In drawing of theſe Muſcles the Motion of the whole Body is to be conſidered; in the riſing or falling of the Arms, the Muſcles of the Breſt more or leſs appear; the Hips the like, according as they bend outward or inward; and the ſame chiefly in the Shoulders, Sides, and Neck, according to the ſeveral Actions of the Body: All which Alterations are firſt to be obſerved in the Life.

XIV. The Width and Largeneſs of the Picture is alſo to be conſidered; about the Legs and Garments below it ſhould be larger, ſhewing it ſlender above, as it were Pyramidalwiſe, by diſcovering one Shoulder, and hiding the other, which is ſhortned by turning the Body.

XV. But ſometimes the Figure is to be repreſented biggeſt in the upper Parts, by repreſenting either both the Shoulders, or both the Arms, ſhewing the one Leg and hiding the other, or both of them, after one ſort, as the Diſcretion of the Artiſt ſhall ſee meet.

XVI. N.i-

XVI. Neither ought this to be obſerved only in the whole Body, but even in every Part; ſo that in the Legs, when a Muſcle is raiſed outwards on the one ſide, that which anſwers directly on the contrary ſide muſt be drawn in and hid, for ſo it appears in the Life.

XVII. The Proportion of the *Figure* ought to be multiplied by degrees in proportion of one to two, three, four, *&c.* For herein the chief Skill conſiſteth; the Diameter of the biggeſt Place between the Knee and the Foot, is double to the leaſt; and the largeſt part of the Thigh triple.

CHAP. V.

Of the Imitation of the Life.

I. IN order hereunto it will be neceſſary (having fixed a convenient Time and Place) to chooſe a good Maſter, with whom you may ſpend two Days in a Week at leaſt; or elſe a Society of about half a ſcore or a dozen young Men, who are experienced to draw after the Life, by the Advice and Example of whom, and your own diligent Obſervations and Care, you may come not only to mend one anothers Faults, but alſo one anothers Judgments.

II. Then chooſe a well-ſhap'd Man, one of large Shoulders, of a fair Breaſt, ſtrongly muſcled, full Thighs, long Legs, and of a proportionable height, not too tall nor too ſhort, nor too thick nor too ſlender, but a Perſon every ways of an admirable Shape.

III. Let this Exemplar be made to ſtand in a good Poſture, repreſenting ſome noble Action of the Life, letting the Head turn it ſelf to the right ſide if the left be ſhadowed; and contrariwiſe, making the Parts of the apparent Shoulder ſomewhat higher than that which is obſcured; and the Head, if it looks upwards, leaning no farther backwards than that the Eyes may be ſeen; and in the turning of it, let it move no farther than that the Chin may only approach the Shoulder; making alſo the Hip on that ſide the Shoulder is loweſt, a little to ſtick out; and that Arm foremoſt, where the Leg is behind, and contrariwiſe,

IV. The

IV. The ſame you muſt obſerve in all four-footed Beaſts; and this generally to make the Limbs croſs-wiſe to cohere together; and in the turning of it forward, backward, upward, downward, ſideways, ever to counterballance it by the Oppoſition of other Parts, the right Knowledge of which is a great Step to the Imitation of the Life.

V. This done, let him, whoſe turn it is to begin, firſt sketch on the Paper his own Idea's (being fixed in a convenient Place and Light, as in the former Chapter) wherein you muſt endeavour to make every part to agree with the whole, firſt, in Form; ſecondly, in Proportion; thirdly, in Action. After this begin again, running over your Draught, bring it to a Concluſion, as we ſhall hereafter teach you.

VI. Obſerving always, that after you have sketch'd your whole Figure, that you chooſe a Part (which you moſt deſire to finiſh) to perfect the ſame, in regard that with the reſt ſtands in a good poſture; the Reaſon is, becauſe Time will not always eaſily permit to finiſh or compleat a whole Figure, unleſs it be with expert Artiſts; it being much better to perfect a part than to leave the whole imperfect, which as each Practitioner arrives and draws nearer to perfection, he may with ſo much the more boldneſs, ſecurity, and certitude, attempt the compleating of the whole.

VII. You are alſo to conſider after what manner you would have your Figure to be ſeen, whether upon even Ground, or from aloft; for accordingly you muſt make the poſition of your Exemplar.

VIII. Let the young Artiſt alſo, at his Conveniency, ſometimes view the Country, and practiſe upon the drawing of Landskips, as much repreſenting Nature (1. in their diſtance, 2. in their mutual poſition, 3. in viſible aſpect) as poſſible may be: By this means he will come to have a general and compleat Underſtanding in the Univerſal Meaſures of all Things.

IX. In drawing of the Face conſider the Circumference thereof, and whether it be round or long, fat or lean, great or ſmall, ſo that ye be ſure in the firſt place to take rightly the dimenſions and bigneſs of the Face. In a fat Face you muſt make the Cheeks to ſwell out, and ſo make the Face look as if it were ſquare. If it be neither too fat nor too lean, it will be round, for the moſt part; but if it be a lean Face, the Jaw-bones will ſtick out, and the Cheeks fall in, and the Face will be long, and thin or ſlender.

X. Ob-

X. Observe, when you draw the outmost Circumference of a Face, to take the Head and all with it, otherwise you may be deceived in drawing the true bigness of a Face; and then you must judiciously consider and view all the gentle Master-touches, which give the Spirit and Life to a Face, and discover the Grace, Affections and Dispositions of the Mind, wherein lies the Excellency of the Art, and Glory of the Artist.

XI. A smiling Countenance is differenced in the corners of the Mouth, when they turn up a little: A staid and sober Countenance in the Eyes, when the upper Eye-lids come somewhat over the Balls of the Eyes. A frowning Countenance in the Forehead, by the bending of the Eye-brows, and some few Wrinkles between the two Eye-brows about the top of the Nose.

XII. A laughing Countenance is from the universal Composition of the whole Face; so also an angry Countenance, which is discerned by extraordinary frowning. There are also some touches about the Eyes and Mouth, which you must diligently observe, thereby giving a kind of Life and Spirit to your Draught.

XIII. A graceful Posture is a mighty thing to be observed in every Picture, that all things be express'd with proper Actions; to wit, in their true and natural Motions, according to the Life and Spirit of it. In a *King* express *Majesty*, by designing him in such a graceful Posture as may cause the Spectators to behold him with Reverence. A Soldier express in such a Posture as bespeaks the greatest Courage, Boldness, and Valour. Make a Clown in a sordid and clownish Posture. A Servant or Page as one waiting with the utmost diligence. And in all your Draughts make the inward Affections of the Mind to be lively express'd in the outward Actions, Motions, and Gestures of the Body.

XIV. But to attain to the exquisite Knowledge of these things you must diligently observe the Works of the most famous Masters, and strive to imitate their Examples, who of a long time had accustomed themselves to draw all Varieties of Gestures and Postures; as the Actions of Wrastlers, fighting at Cuffs, Stage-players, Fencers, the inticing Allurements of Curtizans, riding the Great Horse, Turnaments, *&c.* wherein the Motions of the Eyes and Hands, and the Carriage of the whole Body, are exactly to be remarked, if you would in your Drawings express any thing to the Life.

XV. But

XV. But that this may appear the more natural, and not forced, you must observe in your Draught a kind of Carelesness and Loosenes, that the Body be not made stiff in any part, but that every Joint may have its proper Bendings, that the Intention of the Figure may not be lame, and the Joints as it were starch'd, but that every Limb may have its proper Freeness and Looseness, agreeable with the natural Life of the Picture.

XVI. That every thing may thus naturally accord, you must often and diligently also observe the Life. Should you draw a Man turning his Head over his Shoulders, you must not turn or wind more than Nature will admit; nor must any other Action be forced beyond, or made to come short of the Limits of Nature, yet it ought to be quickned to the highest pitch. As if you were to draw a Man fighting, either to strike, or avoid the Stroke of his Enemy; in Running, Wrastling, Leaping, *&c.* be sure you do not so much overdo Nature, as to express a Posture which cannot be imitated with his natural Body.

CHAP. VI.

Of the Imitation of Draughts.

I. THe Learner must, by many and often Trials, get a Habit of Imitation; which if it be to be done with the Pen, beware of scratching and making thin and lean Stroaks, but rather broad, which you shall draw from above, downwards; but according to the Shades, some of the Hatches must be sharp, some broad, some unequal, and some equal.

II. Hold your Pen or Pencil somewhat long, (and not so upright as when you write,) seeming as though you laid it straight forward; and if they be Pastils, accustom your self to turn them in your Hand; by this means you will prevent their becoming so soon blunt, and they wearing to a point may serve without scraping the making of a whole Draught.

III. In shadowing of your Draught, you must first begin to do it faintly and smoothly, and straight against the edges of the Light, so that it may look as if it had been dash'd with a Brush-Pencil; and then here and there overshadow it again in the

the darkeſt Shades farther out, and adorn it with Hatchings; and where any thing more is required, put the ſame in nimbly and clearly by gentle touches, the which will add a great Grace unto your Work.

IV. Doeſling (which is a certain beſmeering of the Work) is to be done with Crions of Red or Black Chalk, touching the Draught eaſily all over ſmoothly and evenly with the points thereof, and not with Cotton or the like put up into Quills, as ſome uſe; though that may be done in ſome Caſes, as where one Work is to be brought into another.

V. If Copies be taken (chiefly upon coloured Paper) to make it curious and neat, let the edges of the heightning be ſmoothed a little (not with Cotton, but) with the like coloured Paper rouled up to a ſharp point at one end, and by this means you will take away the ſharpneſs and hardneſs of your edges, and make them look ſweet and pleaſant.

VI. In Performance of theſe things a certain kind of Waſhing is ſometimes neceſſary, performed with Pencils dipp'd in ſome coloured Liquor, and ſo laid upon coloured Paper; and this to be done either through the whole Work, or in a part thereof, to wit, in ſome principal flat Shades, which may be afterwards looſly wrought over with a Pen or Black Chalk, the which will look very pleaſantly.

VII. This Waſhing muſt be firſt done very weak and faint, yet ſmooth (without ſmoothing of it at the edges, except by a new Stroak of your Pencil moiſtened with your Tongue; for much ſmoothing will ſpoil your Work) this firſt Waſhing being dry, go over again with your Work, yet only thoſe Parts where there ought to be a darker Shade; and afterwards again give ſome deeper and harder touches without ſmoothing, the which will very much ſet your Work off.

VIII. Faint Shadows, and Things obſcure, muſt be preſented as faintly as may be, chiefly upon coloured Paper, where the heightning helps you; but beware you go not too often over your Shades, leſt you ſpoil them, by making them too hard and ill-favoured.

IX. In Drawing, whether it be after a Draught or the Life, firſt obſerve the thing in general, in reſpect of the circumferent Strokes; for them are they which bound and contain all the parts of the whole, and without which the particular Parts can never be perfectly diſtinguiſhed, nor repreſent themſelves in their Being: This done, then conſider in like manner the Parts, and ſuppoſing the parts each to be a whole;

you may come to repreſent the parts of parts, and by the ſame Means to expreſs the whole of any Draught whatſoever.

CHAP. VII.

Of Drawing the Face of a Man.

I. IN drawing of the Face you are firſt to obſerve its Motion, whether upwards, downwards, forwards, or ſideways; whether it be long or round, fat or lean, great or little.

For if it be fat, the Cheeks will ſeem to ſwell; if lean, the Jaw-bones will ſtick out, and the Cheeks fall in; but if neither too fat nor too lean, it will be for the moſt part round.

II. Touch lightly the Features where the Eyes, Mouth, Noſe, and Chin ſhould ſtand, (having firſt drawn the Circle or Oval of the Face) then make a ſtroke down from that place of the Forehead which is even with the Chin, coming down where you ſhould place the middle or tip of the Noſe, and middle of the Mouth, which ſtroak muſt be made ſtraight down in a full right Face, but arched or oval in an oblique Face, leaning that way towards which the Face doth turn; then croſs the ſtroke about the middle of the Eyes, either with a ſtraight Line in a right Face, or with a curved, either upwards or downwards, according to the preſent action or poſture of the Face; then make another anſwerable to that, where the end of the Noſe ſhould come; and another for the Mouth, that it be not made crooked.

III. This Croſs is difficult to be underſtood *in plano*; but upon a Face made upon a ſolid Body, in form or ſhape of an Egg, the ſeveral Variations of the ſaid Croſs are moſt excellently demonſtrated; and from hence may the Learner underſtand all the Alterations of a Face, and thereby draw it all manner of ways, as ſideways, upwards, downwards, forwards, backwards, *&c.* and that only by the motion of the ſaid oval ſolid, accordingly as in the following Figures you may eaſily perceive.

IV. Then if the Face look upwards towards Heaven, or downwards towards the Earth, let the Eyes, Noſe, Mouth, and Brows look accordingly with it; and now proceed to the placing of the Features. V. In

V. In a just proportioned Face, the distances, 1. between the top of the Forehead and the Eye-brows; 2. between the Eye-brows and the bottom of the Nose; 3. between the bottom of the Nose and the bottom of the Chin are equal.

VI. In drawing the utmost Circumference of a Face, take in the Head and all with it, lest you be deceived in drawing the true bigness.

VII. Then consider all those chief Touches which give Life to a Face, adding Grace thereto, and something discovering the Disposition of the Mind.

So the Mouth extended, and the corners a little turning up, shews a smiling Countenance; the Eye-brow bending, and the Forehead and top of the Nose between the Eye-brows wrinkled, shews one frowning; the upper Eye lid coming something over the Ball of the Eye, shews one sober and Stayed; with many other touches, which give Life and Spirit to a Face, which in good Prints, by little and little, and diligent Observation you will at last find out.

VIII. The distances between the Eyes, is the length of one Eye in a full Face, but in a three quarter or half Face it is lessened proportionably; and exactly underneath the corners of the Eyes place the Nostrils.

IX. Having given touches where the Eyes, Nose, Mouth and Chin should be placed, begin to draw them more exactly, and so proceed till the Face be finished; and then make the Hair, Beard, Shadows, and other things about it.

X. Be sure to make the Shadows rightly, and be sure not to make them too dark, where they should be faint; for that can never be made light again, and so the whole Face is marr'd.

The Shadows are fainter and lighter in a fair Face, than in a swarthy.

XI. When you have finished the Face, give here and there some hard touches with your Pen where the Shadows are darkest; then come the Ears and Hair, wherein, having drawn the Out-line, draw the principal Curls, or Master-strokes in the Hair, which will be a Guide to you in the lesser Curls, whose Dependance are on them; always make the Curls to bend exactly, according to the Pattern, that they may lie loose, or carelesly, and not as if they were stiff and forced; the Curls being rightly drawn, in the last place strike in the loose Hairs which hang scatteringly out of the Circles;

XII. In forming the Ear, deſcribe an Oval as it were, and proceeding lightly, join ſtroke to ſtroke, in ſuch manner as you ſee in the Figures; ſo that the Ear may be entirely formed, without digreſſing from the Bounds of Nature or Art.

XIII. Laſtly, having practiſed a little by Rule, and brought your hand in; in drawing of any thing, firſt ſtrike the Out-ſtrokes, principal Veins and Muſcles lightly, and afterwards ſhadow them, ever following exquiſite Patterns and Prints, which will both encreaſe your Judgment, and bring Command to your Hand.

CHAP. VIII.

Of Drawing the Extreme Parts.

I. IN drawing the Hands, draw not all the Joints, Veins, or other things to appear plainly, but only lightly and faintly, and ſtrike out the bigneſs of the Hand and the manner of its turning with faint touches, and not with hard ſtrokes.

II. Then that being done right, part the Fingers, according to the Pattern, with like faint ſtrokes; then mark that place where any of the Fingers do ſtand out from the others, with a faint Reſemblance.

III. This done, proceed to draw it more perfectly, making the bending of the Joints, the Wriſts, and other principal things, more exactly; and laſtly, go over with it again, drawing every ſmall bending or ſwelling of the Fingers, Nails, Knuckles and Veins, ſo many as do appear.

VI. Learn by good Prints the juſt Proportions of the Hands, with their equal diſtances, obſerving this Rule, that according as it turns one way or another, to ſhorten proportionally as they appear to the Eye.

For ſo much as it turns away from our Eye, ſo much it loſes in proportion, yea ſometimes a whole Finger, two, or three, or more, is loſt to our Sight, which you muſt accordingly anſwer in your Draught.

V. In drawing of the Feet, the ſame Rules which we even now enumerated, at the firſt and ſecond Section of this Chapter, are to be underſtood here.

CHAP.

CHAP. IX.

Of Drawing the whole Body.

I. FIrſt begin with the Head, and be ſure to give it its juſt Proportion, anſwerable to what you intend the whole Body ſhall be; then draw the Shoulders in their exact breadth, after them the Trunk of the Body, beginning at the Arm-pits, and ſo drawing down to the Hips on both ſides, obſerving withal the exact breadth of the Waſte; laſtly, draw the Legs, Arms, and Hands, exactly to your Pattern.

II. But firſt draw with a Coal, and that very lightly and faintly, drawing nothing perfect (that you may the eaſier mend it if it be amiſs) and then afterwards finiſh one thing after another as curiouſly as you can.

III. Let the parallel Sinews, Muſcles, Veins and Joynts, be placed oppoſite one to another in a ſtraight line (as Shoulder to Shoulder, Hip to Hip, Knee to Knee, *&c.*) for which purpoſe draw ſtraight croſs lines to guide you therein; obſerving that which way ſoever the Body turns or bows, theſe Lines may anſwer accordingly.

IV. Let all perpendicular Joints, and Parts alſo, be placed in a right line one under another (as they are in your Pattern) for which end, draw a ſtraight line (if the Body be ſtraight) from the Throat thorow the middle of the Breſt and Privities, to the Feet, to which line draw all thoſe particular Points, parallels, that the Body may not appear crooked or awry.

V. In bowings and bendings of the Body, let the extuberance of the outward part be juſt equal to the compreſſion of the inward part, making all things of an equal proportion, that as oppoſite parts may be equal (as the Arm to the Arm, Leg to Leg, *&c.*) ſo every part may be proportionable to each other, (as the Hand not too big for the Arm, nor the Arm for the Body, nor the Body for the Legs, *&c.*) only with this difference, that (as the one part may appear fully to the Eye, or the other may turn away either in part or in whole, or be ſeen ſide-way) it be made ſo much leſs than the other, by ſo much as it turns away from the Sight.

VI. As you obſerve a juſt proportion in bigneſs, ſo alſo in length, that as every oppoſite part may not be too long one for another, but according to the propoſed magnitude; And

in this case, that if the Body be awry, or any ways hid, those parts may shorten accordingly, to what is out of sight.

VII. Observe the just distance of one thing from another, for by that means you will be more exact in your Draught, and in short time perfectly imitate your Pattern or Nature.

VIII. If you be to draw a labouring Man, you must, without any regard of the Season, represent him with raised Limbs, and strong Muscles swelling and standing forth, sweating and burning, especially in such as carry Burthens, draw great Weights, or use vehement Leaping, Walking, Jetting with Weapons, Fencing, and such-like Exercises.

IX. Lastly, But to such as are sleeping, you must be careful to give no such kind of Actions in their lying, as will not in probability give them leave to sleep; for being represented with their Limbs or Bodies supported by their own force, and not by the help of another thing, it shews the Weakness and Indiscretion of the Artist.

CHAP. X.

Of Drawing a Naked Body.

I. IN Drawing after the Life, as there are Variety of Faces, so no certain Rules can be delivered for the same; yet the following Precautions may be useful.

II. Draw out the Head in an oval, one fourth part for the Hair, one fourth part for the Forehead and Brows, one fourth for the Nose, and the last for the Mouth and Chin.

III. Having drawn out the Head, measure out eight times the length of the Head (the Head making one of the eight Parts) and draw a straight Line from the top of the Head to the sole of the Foot.

IV One Head's length from the Chin is for the Breast; the next eighth part reacheth to the Navel, the fourth part to the Privities, the fifth part to the middle of the Thigh, the sixth part to the lower part of the Knee, the seventh to the small of the Leg, and the eighth part to the Heel.

V. The Muscles you must observe to draw exactly as they are in the Life; the breadth of the Shoulders is about two measures of the Head, the breadth of the Hips two measures of

of the Face; the Arms ſtretched out are juſt the length of the whole Figure, the Breaſts alſo accounted; but without the Breaſts they are but ſix.

VI. The Arms hanging ſtraight down reach within a Span of the Knee; the length of the Hand is the juſt length of the Face.

VII. Obſerve firſt to draw the Head exactly, and next, the Shoulders in their juſt breadth; then draw the Trunk of the Body, and the reſt as at the firſt Section of the ninth Chapter.

VIII. Be ſure to place the Joints, Sinews, and Muſcles in their natural Places, and alſo proportionately, in reſpect of Magnitude, Similitude, and Parts, leſt it ſeem crooked and deformed.

IX. See that every parallel Joint bend moderately, ſo as to anſwer in Nature its oppoſite.

X. Laſtly, It will be extreamly advantageous to draw very much after the Life, and after good Prints of Anatomy, and Statues and Anatomies made of *Plaiſter of Paris*, which is the only way to arrive at the perfection of drawing a naked Figure well, and without which indeed you can never expect to be a good Artiſt. XI. The Picture alſo ought to be quick, free, and lively; and if you have many of them in one piece, they ought to be ſo ordered as that they may not ſeem to be crouded, or to fall offenſively, but ordering them gracefully (on the fore ground eſpecially) ſo to manage the Whole, that the reſt of the Figures decline and leſſen proportionably and by degrees, both in height, or magnitude and ſtrength, according to their ſeveral diſtances.

CHAP. XI.

Of Shadowing a Naked Body.

I. THe Shadows of the Neck, in a Child or young Woman, are very fine, rare, and hard to be ſeen: In a Man, the Sinews and Veins are expreſſed by ſhadowing of the reſt of the Neck, and leaving them white: The Shoulder is ſhadowed underneath; the Brawn of the Arm muſt appear full and white, ſhadowed on one ſide.

II. The Veins of the back of the Hand and the Knuckles are made with two or three hair-ſtrokes with a fine touch of the Pen.

III. The Paps of a Man are ſhewed by two or three ſtrokes given underneath, in a Woman with an orbicular Shade, ſomewhat deep; the Ribs retain no Shadow, except you repreſent one lean or ſtarved.

IV. The Belly is made eminent by ſhadowing underneath the Breſt-Bone and the Flank: The Brawn of the Thigh is ſhadowed by drawing ſmall hair-ſtrokes from the Hip to the Knee, and croſſed again overthwartly.

V. The Knee is to be finely ſhadowed underneath the Joint; the Shin-Bone appears by ſhadowing one half of the Leg with a ſingle Shadow.

VI. The Ankle-Bone appears by ſhadowing a little underneath (as in the Knees) and the Sinews thereof muſt ſeem to take beginning from the midſt of the Foot, and to wax bigger as they grow nearer to the Toes.

VII. Laſtly, The Shadows of the Foot muſt take place, according as Reaſon and Occaſion requires; for which (as alſo in all the former Precepts) the having of good Prints will be no ſmall Advantage unto you.

CHAP.

CHAP. XII.

The way and manner of Shadowing.

I. IF it be a Surface only, it is beſt ſhadowed by drawing Lines either ſtraight or oblique, (according as the Superficies is) through the better half thereof.

II. If it be in a Body, it is a double Shadow, and is uſed when a Superficies begins to forſake your Sight, as in Columns and Pillars, where it is double darkned, and repreſenteth to the Eye, as it were, the Back-ſide, leaving that unſhadowed to the Light.

III. The treble Shadow is made by croſſing over again the double Shadow, and is uſed for the inward parts of things, as in clefts of the Earth, Wells, Caves, the inſides of Pots, Cups and Diſhes.

IV. In ſhadowing, let the Shadow always fall one way, that is, on the ſame ſide of the Body, leaving the other to the Light.

So in drawing a Man, if I begin to ſhadow his Right Cheek, I muſt ſhadow the Right part of his Neck, Arm, Side, Thigh, Leg, &c.

V. But if the light ſide of the Body be darkened by the oppoſition of ſome other Body ſtanding between the Light and it, it muſt receive a contrary Shadow, according as the Light is obfuſcated.

So if three Pillars ſtand together, that in the midſt muſt receive a Shadow on both ſides.

VI. All circular Bodies muſt have a circular Shadow (by the firſt Section of this Chapter) according to their form or appearance, and the orbicular Shadow of the Object which caſteth it.

VII. Let your Shadow grow fainter and fainter, according to the greatneſs of the diſtance from the opacous Body ſhadowing.

And the Reaſon is, becauſe all Shadows are pyramidal; in which caſe, ſpace of place prevails with the Light againſt the Shadow.

VIII. Where contrary Shadows concur, let the meaneſt and moſt ſolid Body be firſt ſerved; and in double and treble Shadows,

Shadows, let the firſt lines be very dry, for fear of blotting, before you croſs them.

IX. All perfect Lights receive no Shadow at all; but being manifeſt, are only to be made apparent by that Body which receives them, whoſe Shadow muſt be according to the efflux of Light; but the colour of the Light ought to agree with the medium which receives it, whether it be Air, Cryſtal, Water, Amber, Glaſs, Tranſparent-Wine, or the like.

X. Some Artiſts have uſed a little too much White, yet with a certain kind of Grace, although their Work has been much lighter than the Pattern in the lighteſt part of the Body; but then withal they make the Shadow as much too much in the obſcure parts, where the Light fell by reflexion to ſet forth the decay of Light in the ſame part of the Body, by this means the Work ſeems to be much raiſed, thereby deceiving the Sight.

XI. For the Light which comes to the Eye in a pyramidal form, comes with a blunter and larger angle, and ſo repreſents the Object the more evidently, whence comes a wonderful *Eminency*; the Cauſe of which is, for that there is much more Shadow than needs in that part where the Light decays moſt.

XII. So that the viſual lines failing, that part comes to the Eye with a more acute Angle, and therefore cannot be ſeen ſo perfectly, but ſeems to fly inwards, and ſtand farther off.

CHAP. XIII.

Of expreſſing Paſſions in the Countenance.

I. *Love* is expreſſed by a clear, fair, and pleaſant Countenance, without clouds, wrinkles, or unpleaſant bendings; giving the Forehead an ample height and breadth, with majeſtick Grace; a full Eye, with a fine Shadow at the bottom of the Eye-lid, and a little at the corner; a proportionable Noſe; Noſtrils not too wide; a clear Cheek made by ſhadowing of it on one ſide; and a ſmiling Mouth made by a thin upper Lip, and ſhadowing the Mouth-line at the corners.

II. *Fear*

II. *Fear* is expressed by making the Eyes look hollow, heavy and downward, thin fall'n Cheeks, close Mouth, and staring careless Hair about the Ears.

III. *Envy* is best deciphered by the only hanging of the Cheeks, and a pale Countenance; and sometimes by grinning of the Teeth.

IV. Let every Passion be represented according to the outward appearance thereof, as it is in those Persons in whom it reigns; observing the Rules at the sixth Section of the seventh Chapter.

V. If you design a Perfection in this Art, you must endeavour to chuse out the best Actions for every purpose, in restraining the luxurious Fury of Nature by a deliberate Discretion which you ought to have in the Idea; by the benefit whereof you will finish your Design with Delight and Contentment, always expressing in each Member a certain hidden resemblance of the principal Motions which affect the Eye and Soul of the Spectators, and merit the chiefest Commendation.

VI. To express a Passion truly, you ought to give every thing and part its proper Motion, or that which best befits your Intention, which is nothing else but the agreement of proportion and form to the nature and matter of the Action or Passion intended, wherein consists the whole spirit and life of the Art, which by Artists is sometimes called the *fury*, sometimes the *grace*, and sometimes the *excellency* of Art: For hereby you put an evident difference between the *Living* and the *Dead*, the *Fierce* and the *Gentle*, the *Wise* and the *Simple*, the *Sad* and the *Merry*; and in a word, discover all the several Passions and Gestures which Man's Body is able to perform.

VII. But these things are impossible ever to be exactly done in a Picture, till you have first carefully beheld the Life, that thereby you may come as near the same as possible may be; to which adding Art withal, you will meet with no Motions so potent which you will not be able artificially to imitate: These things will be the more exactly accomplished, if you be often seeing and continually practising what you have seen. By this means you will unawares attain to a most exact habit of doing well, and lively express all Gestures, Actions, and Passions subject to natural Bodies.

VIII. The

VIII. The Paſſions of the Mind are certain Motions proceeding from the Apprehenſion of ſome moving or powerful Object; now this Apprehenſion is threefold, *viz. Senſitive*, *Rational*, and *Intellectual*. From theſe three there ariſe three principal Paſſions in the Mind, *viz. Pleaſures of the Senſes*; *Moral Vertues* or *Vices*; and *a Pious, Religious Life*, or *Irreligious and Wicked*.

IX. From the particular Paſſions or Affections of the Mind, as *Love*, *Hatred*, *Deſire*, *Fear*, *Joy*, *Hope*, *Sorrow*, *Deſpair*, *Confidence*, *Boldneſs*, *Impudence*, *Conſtancy*, *Fortitude*, *Timorouſneſs*, *Valour*, *Anger*, *Pleaſantneſs*, *Humility*, *Patience*, &c. there ariſe ſo many kinds of Actions, exactly to imitate which, you ought to obſerve carefully the motions of the Body, by which they are outwardly expreſſed.

X. And ſo accordingly to diſtribute and diſpoſe of them in your Picture, as you have obſerved them in Nature; which if you fail in, you pervert the Order of Nature and of Things; run your ſelf into Confuſion, and ſo loſe the Beauty of your Work.

CHAP. XIV.

Of Human Proportion.

I. THE length of an upright Body is equal to eight times the length of the Face or Head: The Arm, hanging ſtraight down, reacheth within a Span of the Knee: The length of the Hand muſt be the length of the Face: The Arms extended muſt be the juſt length of the Body.

Whoſoever (ſaith *Vitruvius*) *will proceed in his Works with Judgment, muſt needs be acquainted with the nature and force of Proportion. For all Deſigns carry with them ſo much the more Grace and Beauty, by how much more ingeniouſly they are proportioned: This being well underſtood makes a Man not only an excellent Judge of ancient and modern Artiſts and their Workmanſhip, but alſo an admirable Inventer and Performer of rare and excellent things himſelf. It adds Majeſty and Beauty to his Deſigns, and draws his Invention many degrees on to Perfection.*

II. Thoſe Parts of the Body near to the Eye muſt be made greater and longer than thoſe farther off, (becauſe the Eye judgeth

judgeth so of them) and according to the distance from the Eye, so must you vary from that which is otherwise the real true proportion of those.

It is almost impossible to do any thing in the Art of Proportion commendably, without the Knowledge of Arithmetick *and* Geometry; *wherefore the Knowledge of these Sciences is required as a thing most necessary: For how otherwise should any one understand the exact Measure and Proportion of a Body?*

III. *To make a Side-way Head.*

You must first form an equilateral Triangle, in what position you please, turning the Triangle to make the Face upon one of the three sides, be it which it will, either upwards or downwards, higher or lower, dividing that side into three equal parts; the one to serve from the lower part of the Hair to the lower part of the Forehead; the second, thence to the upper part of the Nostrils; the third, to the lower part of the Chin.

IV. Now having framed these three Lines, draw a little crooked stroak with a Coal, Chalk, or Blacklead Pencil, out of the right line, which may reach from the top of the Forehead unto the Eye-brow, from whence draw the slope line, bending at the end. To make the Nose (either long, short, gross, or thin, as you desire it,) let it end at the second distance where the Nostrils are to end.

V. Then subdivide the remaining third part in the midst, where the Mouth shall be placed for the parting of the upper and under Lips: Then frame the Chin, having respect to the perpendicular Line, that it fall not out of the middle of the Chin, adjoining thereto, the under Chin, down to the Throat-pipe or Gullet.

VI. With the other two dividing lines, (the one from the top of the Forehead downwards, ending in the midst of the back part of the Ear; and the other proceeding upwards from the Chin, ascending till it meets with the superior descending line) guide your self in describing the Ear, taking heed that its Circumference stretch not out too far about the upper part of the Forehead.

VII. Describe a great circular line, by which, from the roundness of the Head, to the nape of the Neck, observing the natural proportion, and form thence downwards the rest of the Neck. Observe also that the tip of the Ear exceeds not the lower part of the Nostril.

VIII. *To describe the Fore-right Face.*

Form

Form a perfect Oval, which divide in the midst with a line the longest way. (*viz.*) a perpendicular line, which divide into three equal parts, allowing a fourth of one of the three parts for the Hair in the Forehead. So have you the first third part for the Forehead and Hair, the second third part for the Nose, the third part for the Chin.

IX. In the midst thereof must the Mouth be formed, always remembring that the Eyes must be in one line; the cross lines of the Nose and Mouth must always be correspondent to the cross line where the Eyes are placed; the Eyes must be the length of one Eye distant from another, and their inward corners let be exactly perpendicular over the out-side of the Nostrils.

X. To make the Ears, they must be much foreshortned, by foreshortning, *viz.* for that the Eye doth not see their extended latitude, it must be abbreviated or drawn in; and the length of the Ear must be from the Eye-brows to the bottom of the Nostrils; then describe the Neck with the Hair according to their natural situation.

XI. *To draw a Head fore-shortned.*

To do this with Frets, Grates, Squares, or Geometrical Instruments, breeds only a confusion of lines, for that this Face can scarcely be measured by any Rule, unless the whole Body be framed together: In this case therefore make a circular Draught (much like that in the foreright Face) with the aspect upwards or downwards, as in the foreright Head, where the transverse lines are straight, but these are drawn circularly.

XII. If the Head flies upwards, the traced strokes and the divisions must ascend or rise upwards; but if it looks downwards, then they must all decline downwards, with this Caution, that the Ears and Eyes fall not out of their due points, as you may see in the Example.

XIII. In foreshortning you must take things as they appear to the Eye, and not to draw the full proportion of each part, but to shorten all, according to the rate or reason which they are obfuscated.

XIV. *So if you would draw a Ship foreright, there can appear but only her forepart (for the rest being hid cannot be exprest:) The like of an Horse looking full in my Face, or a Man lying along; I must here of necessity foreshorten, to express the visual property: And in this case your Eye and Reason must be your chief Guide to give the true reason and measure of these appearances, whether in Drawing, Limning, or Painting.* XV.

XV. The use of this foreshortning is to express all manner of actions in Man or Beast; to represent many things in a little room; to shew at one view to the Eye and Mind, the whole Body of a Temple, with all its Arches and Pillars, whether the inside or outside, as also the sundry sides of Cities, Castles and Forts, and such-like.

XVI. In every Case you must make Nature the Pattern of all Draughts, so that nothing be express'd, but what doth agree and accord with Nature; and that nothing be either forced beyond Nature, nor yet any thing to come short of Nature.

As if in drawing the Picture of a Man, be sure you draw not such a Posture as is impossible for him to imitate with his natural Body.

XVII. Observe this Rule in all Foreshortnings, that you always rather imitate the visible proportions of things, than their proper and natural proportion by measure; for the Eye and Understanding together being directed by the *Perspective Art*, ought to be your Guide in Drawing and Painting.

XVIII. And therefore in all foreshortnings there must be a proportion observed, according to the Judgment of the Eye, that what limbs or parts of any thing do appear, may agree in proportion as well as in foreshortning.

XIX. If you make a Side-face without any prescribed Measure or Triangle; you ought however to consider in your Mind the natural distances and proportions, and by drawing many without a Rule or Limit, you will easily do it by the Eye, and your Hand will draw all things right by custom.

XX. And those first Strokes or Draughts being taken from the Life, and reduced by the Pencil with Colours, you will find it very correspondent and like, and as exact as you can desire it.

XXI. *The Proportion of a Man of ten Faces.*

From the top of the Head to the Soal of the Foot, is divided into ten equal parts. The first distance begins at the top of the Head, and reaches to the root of the Chin: The second from thence to the Throat-pit: The third thence to the parting of the Breasts: The fourth thence to the Navel: The fifth thence to the Privities, which is just the middle of the length of the Body: From thence to the Soal of the Foot are five parts more; whereof two are between the Privities and the Mid-knees, and three more to the Soal of the Foot.

XXII.

XXII. The first of the ten parts which is for the Face, is to be divided into three equal parts: The first beginning at the upper part of the Forehead, and ending upon the upper crosſ line of the Eye-brows: The second distance reacheth from thence to the bottom of the Noſe: The third reacheth to the bottom of the Chin, which is the first and uppermoſt diviſion. Now in a foreright Face be ſure to place the Eyes the length of one Eye distant from another; and the length of one Eye the bottom of the Noſe is to be.

XXIII. The breadth of this Body conſiſts alſo of ten Faces, *viz.* between the extremities of both the middle Fingers, when the Arms are extended or ſpread abroad; and it is thus divided. The Hand from the end of the middle Finger to the Wriſt, is the length of a Face, (or one of the tenth parts:) From the Wriſt to the Elbow a Face and half: From the Elbow to the Shoulder-joint, two Faces: Thence to the Throat-pit, one Face: The Hands have the proportion of one Face: The Nipples muſt be placed at the diſtance of a Face and half from each other, equal to the diſtance between the Wriſt and the Elbow.

XXIV. The compaſs of the Head from the Eye-brows to the Neck behind is double to the length of the whole Head. The compaſs of the Waſt is the diſtance of three Faces to the diameter thereof, and is all one with the Trunk of the Body. The circumference of the Body under the Arm-pits, and the ſpace between them and the Wriſts, anſwer in a double proportion, and is agreeable to half of the Body.

XXV. *The Meaſures which are equal between themſelves.*

1. The ſpace between the Chin and the Throat-pit is equal to the diameter of the Neck. 2. The circumference of the Neck is equal to the diſtance of the Throat-pit from the Navel. 3. The diameter of the Waſt is equal to the diſtance between the knob of the Throat and the top of the Head; and that is equal to the length of the Foot.

XXVI. 4. The ſpace between the Eye-lids and the Noſtrils is equal to that between the Chin and the Throat-bone. 5. The ſpace from the Noſe to the Chin is equal to that from the Throat-bone to the Throat-pit. 6. The diſtance from the hollow of the Eye-brow, and from the Eye-brow, to the centre of the Eye, is equal to the prominency of the Noſtrils, and the ſpace between the Noſtrils and the end of the upper Lip.

XXVII. 7. The diſtance between the top of the Nail of the Fore-finger, and the Joint next the Palm or Thumb, is equal

to

to the distance between the said Joint and the Wrist. 8. The greater Joint of the Fore-finger is the height of the Forehead.

XIX. 9. The space between that Joint and top of the Nail, is equal to the length of the Nose, from the tip to the Arch above the eyes, where the forehead and the Nose is divided. 10. The two first joints of the middle finger, are equal to the space between the Nose and the Chin.

XX. 1. The first joint of the middle finger whereon the nail grows, is the distance between the and Nose the Mouth. 2. The second joint answers to the first which is equal to the space between the mouth and the chin.

XXI. 3. The bigger joynt of the Thum is equal to the length of the mouth. 4. The space between the top of the Chin, and the dint under the lower lip, is equal to the lesser joint of the Thumb. 5. The least joint of each finger is double the length of the Nail.

XXII. 6. The spaces between the middle of the Eye-brows, and the outward corner of the Eyes, is equal to the spaces between the said corners and the Ears. 7. The height of the forehead, the length of the Nose, and the distance of the Nose from the Chin are equal.

XXIII. 8. The breadth of the Hand is equal to the breadth of the Foot. 9. The length of the Foot is equal to the measure round about the instep. 10. Twice the breadth of the hand, is equal to the length thereof.

XXIV. 1. The arches of the Eye-brows are equal to the arch of the upper lip, at the division of the mouth. 2. The breadth of the Nose is the length of the Eye, and are either of them equal to half the length of the Nose. 3. The Navel is in the middle between the Nose and the Knee.

XXV. 4. The space from the top of the shoulder to the elbow is equal to two Faces, and from them to the wrist one and a half. 5. The breadth of the Body at the broadest part of the shoulders is two faces and half, which is also equal to the distance between the elbow and the end of the middle finger. 6. The breadth of the body at the Privites is equal to two faces. 7. The Thighs at the thickest part near the Privities, are the distance of two Faces broad.

XXVI. 8. The thickest part of the Leg is equal to the space between the top of the Forehead and the end of the Nose. 9. The breadth of the back at the Arm-pits is equal to two faces, and so are the hips at the buttocks. 10. The length of the

middle finger is equal to the ſpace between its laſt joynt and the wriſt.

XXVII. *The proportions of a young man of nine Faces.*

A ſlender young body of nine heads, is equal to nine times the ſpace between the top of the head and the end of the chin, that being a ninth part of the length of the whole body. And thence back again to the root of the hair a tenth or eleventh part.

XXVIII. But which way ſoever you draw it, this ſpace is alſo divided into three equal parts, whereof the firſt makes the forehead, the ſecond the noſe, the third the chin. However, in a face for the eleventh part, is a tuft of hair, which is uſually expreſt, ſo that the forehead becomes lower by a third part, which rule the Ancient *Grecians* always obſerved.

XXIX. *The proportions of a man of eight Faces.*

Firſt draw a ſtraight perpendicular line of the length you deſign the Figure, which divide into eight equal parts; the uppermoſt part of which is the length of the head, in which it behoves you to be very exact, becauſe the whole body muſt anſwer in proportion to it.

XXX. That eight part make into an Oval, which divide into four equal ſpaces; the firſt ſhall be for the hair, the ſecond for the forehead, the third for the noſe, the fourth from the lower part of the noſe to the bottom of the chin. But drawing after the Life, you need not follow this Rule exactly, for nature is extreamly various in her Repreſentations.

XXXI. Having drawn the head, there remain ſeven parts more from the bottom of the chin to the ſoal of the foot. The diſtance of the chin to the breaſts is the length of the head. The third diviſion reaches to the ſmalleſt part of the waſte. The fourth to the Privities. The fifth to the middle part of the Thigh. The ſixth to the middle part of the Knee. The ſeventh to the ſmall of the Leg. The eight to the heel and ſole of the Foot. In the ſeveral parts all the other proportions anſwer.

XXXII. *The Proportion of a Body of ſeven Heads.*

The length from the crown of the Head to the ſole of the Foot is ſeven times the length of the head: this is a large Head, and all the Members and Limbs are anſwerable to it, *viz.* Strong, Sturdy, and Raiſed. Yet the Ancient *Græcians* painted only the Goddeſs *Veſta* with this proportion, it being grave and Matron-like.

XXXIII. But you may give it to any other Goddeſs, which has any kind of grave, or ſolid Reſemblance, as alſo to the

the more ſtaid and Ancient ſort of Women, to *Sibylls*, Propheteſſes and ſuch like, whom to draw with a ſlender and delicate proportion would be a great overſight: As alſo to draw a Prophet with the proportions of a young man.

XXXIV. To make a Child of Six Heads, you muſt divide the whole length of the Body into ſix parts, whereof the Head muſt be one. To draw a Child of five Heads, you muſt divide the whole length of the body into five parts, whereof the Head muſt be one. To figure out a Child of four Heads, you muſt divide the whole length of the Body into four equal parts, whereof the Head muſt be one.

CHAP. XV.

Of Drapery.

I. DRaw the out-lines of the Garment lightly, and herein be careful, for the whole grace of the picture lies there; then draw the greateſt folds firſt and ſtroke thoſe into leſſer; and be ſure they croſs one another.

II. Sute your garments to the body and make them bend with the body, according as it ſtands in or out, ſtraight or crooked, or turns one way or another: the cloſer the garment ſits to the Body, the narrower and ſmaller muſt the folds be.

III. All your folds muſt conſiſt of two lines and no more, which you may turn with the garment at pleaſure; ſhaddowing the innermoſt deeper, the outermoſt more light; and if the folds be never ſo curiouſly contrived, ſpare not to ſhaddow them (if they fall inward from the light) with a double or treble ſhadow, as the occaſion requires.

IV. The greater folds muſt be continued through the whole garment, the leſſer you may break off and ſhorten as you pleaſe.

V. The ſhades of ſilk and fine linnen are very thick and ſmall, which require little folds and a light and rare ſhadow, commonly but double at moſt; and ſo alſo fine Drapery requires more and ſharper folds than courſe.

VI. That part of a garment which ſits cloſe to the body muſt not be folded at all, but only ſweetly ſhaded, to repreſent the part of the body which lies under it.

VII. Observe the motion of the Wind and Air, for driving loose apparel all one way, drawing that part of the garment first, which lies highest and closest upon the body, before you draw the looser part that flies off from the body, *lest by drawing the loose part of the garment first you should be out, and so place the body crooked or awry.*

VIII. You ought also to examine the nature and disposition of light, especially as it has relation to the Sun, or any bright body; for that colours cannot be seen but in the light; and by the help thereof they appear with a grace.

IX. Suppose *Blue* be equally dispersed through all the parts of a Garment, so that there is no more in one part than in another; yet notwithstanding when it is illustrated by any light, it causeth one kind of brightness in that part where it striketh strongly; another kind of lustre where it strikes more weakly; and another in that part, where it yet shines less.

X. Now to imitate this *Blue*; you must take your Artificial *Blue* colour; and temper it one way to express the natural *Blue* of the Garment: but another way to express it in the light: *viz.* You must mix so much White with your Blue, as you find light in that part of the Garment, where the light strikes: more White where it strikes with less; and still in proportion less and less, till you come to the parts where the light shines not.

XI. Where the light shines not but by *Reflection*, there you shall only mix so much shaddow with your Blue, as shall be enough to express that counterfeit light, loosing it self as it were by degrees; always providing that you make your light and shadow to answer.

XII. The Folds or Plaits ought to run out every way like Branches or Arms from the body of a Tree; and to be so made that one plait may so rise from another, as one Branch or Bough, or one stream of Water, comes out from another, in such sort that there be no part of the Garment, wherein there appear not some of these folds.

XIII. Now these motions should be moderate, gentle, and free, without any interruption, more to be admired for their grace and facility, than for affected pains and industry: and because all sorts of cloths have their several motions, as well as Bodies; it must needs be, that they differ between themselves, according to the things wherein they disagree.

XIV.

XIV. For this cause, there must be more light in fine Cloth, as Sarcenet, Linnen, Cambrick, Cypress *&c.* in which the plaits are small, raised up, trembling, and as it were sweetly waving, somewhat puffed up, by extending and spreading themselves like a Sail, where the motion receiveth more strength by the Wind, they fall close upon the bare skin, as you may see in Womens Garments, upon whom by reason of their thinness, they fall close upon the parts on that side where the Wind bloweth, but are blown up on the contrary side: The same falls out in Mantles, the loose ends of Girdles and Garters; all which motions more fitly appertain unto the Apparel of Nymphs, Goddesses, *&c.* in respect of their lightness and airiness.

XV. Gross and dull shadows are found in stiff Cloths where the Plaits are few and gross, so that they are capable but of slow motion, and therefore they sink downwards, and can scarcely fall close to the bare skin, for that their own grossness sustains them; and these motions do mostly appear in cloth of Gold, thick Leather, course wollen Cloth, *&c.* upon which the air can have little or no force.

XVI. Moreover the Plaits or folds must have their motions accordingly as they are managed by the wearer, as under the arm, and under the knee, by opening and stretching out the arm and leg; ever making hard, stiff, and gross folds, without weakness or pliableness, in such sort, that by their appearance, the nature and quality of the Garment may be known.

XVII. But *mean motions*, which are neither too gross, nor too slight, are such as appear in the folds of Stuff, and other cloths of fine Wool; and these may easily enough be moved by the air, or become pliable to a mans limbs; and so make not only most sweet and pleasant folds, but follow the bare flesh very well, becoming moveable and nimble, and falling pliably about the loins, or any other part.

XVIII. But besides these, there are also other kinds of mixt motions, called turnings and crossings, which are proper unto Damasks, Taffataes, Sattins, Cloth of Gold, *&c.* in which *folds*, crossing and breaking one another, appear, from the various natures, qualities and conditions of the Drapery: but these things are so to be performed, that they may not savour of an over-affected imitation, without grace or order, to the scandal of the Artist and his designs.

CHAP. XVI.

Of mixed and uncertain Forms.

I. FOr the drawing the form of any beaſt, begin with your lead or coal at the forehead, drawing downward the noſe, mouth, upper and nether chop, ending your line at the throat.

II. Then viewing it again where you begun, from the forehead, over the head, ears, and neck, continuing till you have given the full compaſs of the buttock, then mark out the legs and feet.

III. Viewing it again, touch out the breaſt with the eminency thereof; Laſtly, finiſh the tail, paws, tongue, teeth, beard, and ſeveral ſhadows.

IV. In drawing Beaſts you muſt be well acquainted with their ſhape and action, without which you ſhall never perform any thing excellent in that kind: and here if you draw it in an Emblem or the like, you ought to ſhew the Landskip of the Country natural to that beaſt.

V. In Birds begin alſo the draught at the head (and beware of making it too big) then bring from under the throat the breaſt-line down to the legs, there ſtay and begin at the pinion to make the wing, which being joined to the back line will be preſently finiſhed.

VI. The eye, legs and train muſt be at laſt, letting always (in birds as in beaſts) the fartheſt leg be ſhorteſt; their feathers (as the hair in beaſts) muſt take their beginning at the head very ſmall, and fall in one way backwards in five ranks, greater and greater to the concluſion.

VII. Inſects, as flies, bees, waſps, graſhoppers, worms, and ſuch like, are eaſie to be drawn and not hard to be laid in Colours; in doing theſe, it will at firſt be abſolutely neceſſary to have the living pattern before your eyes.

VIII. To draw a flower, begin from the boſs tufft or wart in the middle; as in a Roſe or Marigold, with the yellow tufft, which being made, draw lines equally divided, from thence to the greateſt compaſs or extent of your flower.

IX.

IX. You may draw them either fully open, or in the bud, and laden with dew, wet and Worms, and then you may draw rudely with the coal or lead the leaves afterwards giving them their veins or jaggedneſs.

X. To take the natural and lively ſhape of the leaf of any Herb or Tree.

Firſt, take the leaf that you would have, and gently bruiſe the ribs and veins on the back-ſide of it: afterwards wet the ſide with linſeed Oyl, and then preſs it hard upon a piece of clean white Paper, and ſo you ſhall have the perfect figure of the ſaid leaf, with every vein thereof ſo exactly expreſt, as being lively coloured it will ſeem to be truly natural.

CHAP. XVII.

Of Landskip.

I. LAndskip is that which expreſſeth in lines the perfect viſion of the earth, and all things thereupon, placed above the Horzion, as Towns, Villages, Caſtles, Promontories, Mountains, Rocks, Valleys, Ruins, Rivers, Woods, Foreſts, Chaſes, Trees, Houſes and all other Buildings, both beautiful and ruinous.

II. Firſt, Always expreſs a fair Horizon, ſhewing the heavens cloudy or clear, more or leſs according to the occaſion, and if you expreſs the Sun, let it be either as riſing or ſetting, and as it were behind or over ſome hill or mountain.

The Moon and Stars are ſeldom or never depicted, unleſs it be in repreſentation of twi-light; becauſe all things are ſuppoſed to be ſeen by day.

III. Secondly, If you expreſs the Sun, make his light to reflect upon all the Trees, Hills, Mountains, Rocks, or buildings, ſhading the contrary ſide, after which manner alſo ſhadow clouds, miſts, and the like, making the ſhadows to fall all one way.

IV. Thirdly, be very careful to augment or leſſen every thing proportionably to their diſtance from the eye, making them either bigger or leſſer.

V. In expreſſing things at large diſtances, as ten, twenty or thirty miles off; where the object is hard to be diſcerned, as whether it be Temple, Caſtle, Houſe or the like, ſhew no particular ſigns thereof, or any eminent diſtinction; but rather as weakly, faintly, and confuſedly as the eye judgeth of it.

VI. If Landskips be laid in Colours, the farther you go, the more you muſt lighten it with a thin and airy blue, to make it ſeem as if it were afar off, beginning at firſt with a dark green, ſo driving it by degrees into a blue, according to the diſtance.

VII. Make your Landskip to ſhoot (as it were) away, one part lower than another, making the neareſt hill or place higheſt, and thoſe that are farther off, to ſhoot away under that, that the Landskip may appear to be taken from the top of an hill.

VIII. Let every thing have its proper motion, as *in Trees* when they are ſhaken with the wind, making the ſmaller boughs yielding; the ſtiffer leſs bending: *in Clouds* that they follow the Winds: *in Rivers*, the general current, and flaſhing of the Waters againſt the boat ſides.

IX. *In the Sea*, the waves and other proper agitations, the rowling of the Billows, the tumbling of Veſſels up and down; Ships floating, ſome dipt, ſome half-drown'd, ſome ſtanding almoſt an end, ſome hid almoſt with the Waves, through the uncertainty of the Surges, others endeavouring to live.

X. In the motion of Waters falling from an high place, but eſpecially when they fall upon Rocks or Stones, you muſt make it leaping up into the Air; and ſprinkling all about. And laſtly, *let every thing* which moveth, whether eſſentially or accidentally, have its proper repreſentation.

XI. Let your work imitate the ſeaſon you intend it for.

As if you intend it for a winter piece, repreſent felling of Wood; ſliding upon the Ice; fowling by night; hunting of Bears or Foxes in the Snow; making the Trees every where naked or laden with a hoar froſt; the Earth bear without greenneſs, Flowers or Cattle; the Air thickly Water frozen, with Carts paſſing over it, and Boys upon it, &c.

XII. Laſtly, let every ſite have its proper *parerga*, adjuncts, or aditional graces, as the Farm-houſe, Wind-mill, Water-mill, Woods, Flocks of Sheep, Herds of Cattle, Pilgrims, Ruines of Temples, Caſtles and Monuments; with a thouſand ſuch other only proper to particular ſubjects.

CHAP.

CHAP. XVIII.

Of Diapering and Antique.

I. Diapering, is a tracing or running over your work again when you have, as it were, quite done, with damask branches, and such like.

It is used to counterfeit cloth of Gold, Silver, Damask, Velvet, Chamlet and the like, with what branch and in what fashion you please: it is derived from the Greek word διαπερόω, transeo, *to pass over, and only signifies a light passing over the same again.*

II. If you Diaper upon folds, let your work be broken off accordingly, and taken as it were by the half.

For reason sheweth that the fold covereth something which cannot be seen by reason of it, which if it was drawn out at length would appear plain.

III. Let the whole work be *homogene*; that is, let the same work be continued throughout the whole garment, setting the faireſt branch in the most eminent and perspicuous place, causing it to run upwards, for else your work would be ridiculous.

IV. You may either shadow the ground and leave your work white; or shadow your work and leave the ground white; and as you shall please in this kind, your filling may be with small pricks, which will shew very fair.

V. *Antique (ab antes)* are buttereſſes whereon the building is stayed, as also the outwardmost ranges, used in fore-fronts of houses, in all manner of Compartments, curious Architecture, Armors, Jewels, and Columns.

VI. The form of it is (only for delights sake) a general or irregular composition of men, beasts, birds, fishes and flowers and such like, without either rule or reason.

VII. Lastly, observe the continuation of one and the same work, through the whole piece, without the least change or alteration.

As if it be naked Boys, playing, lying, sitting, or riding upon Goats, Eagles, Dolphins and the like; strings of Pearl, Satyrs, Tritons, Apes, Dogs, Oxen, bearing or drawing Fruits, Branches, or any wild fancy after your own invention, with a thousand such other idle toys; be sure you observe the continuation.

CHAP.

CHAP. XIX.

To take the perfect draught of any Picture.

I. TAke a ſheet of fine *Venice* Paper, wet it all over with linſeed oyl on one ſide thereof, which then wipe off as clean as you can; let the Paper dry, and lay it on any painted or printed Picture, then with a black-lead pen you may draw it over with eaſe: put this oyled paper upon a ſheet of clean white paper, and with a little pointed ſtick or feather out of a ſwallow's wing, draw over the ſtroaks which you drew upon the oyled paper; ſo ſhall you have the exact form upon the white paper, which may be ſet out with colours at pleaſure.

II. Or thus, The picture being drawn as before in the oyled paper, put it upon a ſheet of white paper, and prick over the drawing with a pen: then take ſome ſmall coal, powder it fine, and wrap it in a piece of ſome fine linnen, and bind it up therein looſely, and clap it lightly all over the pricked line by little and little, and afterwards draw it over again once or twice, with pen or pencil.

III. Or thus, Rub a ſheet of white paper all over on one ſide with black-lead, or elſe with vermillion mixed with freſh butter; lay the coloured ſide upon a ſheet of white paper, then lay the picture you would copy out upon the other ſide of the coloured paper, and with a ſmall pointed ſtick or ſwallows quill, go over all the ſtroaks of your picture, and it will be exact on the white paper.

IV. Or thus, Lay a piece of Lanthorn horn upon the picture, then draw the ſtroaks of your picture with a hard nibbed pen upon the horn; and when it is dry, breath upon the horn twice or thrice, and preſs it hard upon white paper a little moiſtned.

V. Or thus, Take an oyled ſheet (as at the firſt Section of this Chapter) rub one ſide of it with lamb-black or lake; lay it upon a ſheet of fair paper with the coloured ſide downwards, and upon it lay the picture you would copy out, and trace it over with a ſwallows feather.

VI.

VI. *Or thus*, Take fine lake mixed with linseed oyl, and draw with it, instead of Ink, all the out-stroaks of any picture, and other material parts; then wet the contrary side of the Picture and press it hard upon a sheet of paper, and it will leave behind it all that which you drew over.

VII. *Or thus*, Grind Printers black fine, and temper it with water, and with a Pen dipt in it, draw over the out-lines and master stroaks: wet then some white paper with a spunge or the like, and press it hard thereupon; and you shall have the stroaks you drew upon the white paper.

VIII. *Or thus*, Lay the print (the back-side of it) upon a clear glass, or oyled paper, then lay a clean paper upon the print; hold it up against the light, so will you see all the stroaks which you may draw out, and shadow also if you please.

IX. *To take the shape of any Leaf, Herb, or Plant.*

Hold a whole Leaf or Sprig (as of Nettles, Plantane, *&c.*) in the smoak of Gum Sandrack, Rosin, a Link, or Wax-candle, till it is well blackt, which place between the leaves of a sheet of white paper, and carefully press upon the Leaf with some smooth thing; so shall you have in a moment the print on the paper, (especially the backside thereof) with the very Ramifications of the Fibres dispersed through it. This may be of good use in Travelling, when we meet with strange Plants.

X. *To take the Picture of an Herb, from an old Picture.*

Take Venice Soap, dip it in water, and rub or moisten the old Picture all over, and very well with it: then put upon it a piece of white paper, with other paper over it, and rub hard thereupon, or press them strongly together, and the old Picture will come off exactly upon the white paper.

CHAP.

CHAP. XX.

To extend or contract a Picture keeping the proportion.

I. ENcompaſs your picture with one great ſquare, which divide into as many little ones as you pleaſe: this done, according as you would have your picture either greater or leſs, make another ſquare greater or leſs, which divide into as many equal ſquares which let be drawn with a black-lead plummet.

II. Take your black-lead pen, and draw the picture by little and little, paſſing from ſquare unto ſquare (by the example of the pattern) until you have gone all over with it: obſerving that in what part of the ſquare the picture lies, you draw the like part in the ſquare anſwerable thereto, till you have finiſhed the whole.

III. Then draw it over with a pen, in which ſecond drawing of it you may eaſily mend any fault, and ſhadow it at pleaſure.

IV. *Laſtly*, When it is throughly dry, rub it over with the crum of white-bread, and it will take off all the black-lead ſtroaks, ſo will your draught remain fair upon the paper.

CHAP. XXI.

Of Perſpective in general.

ΟΠΤΙΚΗ in Greek, *Perſpectiva* in Latin, the *Art of ſeeing* in Engliſh, is that by which we behold, contemplate, and draw the likeneſs of all magnitudes, juſt in form and manner as they appear to the Eye.

II. The matter to be ſeen or ſpeculated is a magnitude: the manner of ſpeculation is by radiations of Light, either direct, rectified or broken.

III. A magnitude is that which hath form; and it is either lineal, ſuperficial, or ſolid; that is, either a complication of points, a complication of lines, or a complication of ſuperficies.

IV.

IV. A line is a complication of points; that is (according to *Euclid*) a length only without either breadth or thickneſs.

V. A ſuperficies is a complication of lines; that is, a length having breadth without thickneſs.

For as the continuation of points makes a line; ſo the couching together of lines makes a ſuperficies: which is only the laying croſs wiſe,

VI. A ſolid is a complication of ſuperficies; that is, a length and breadth, having depth or thickneſs.

And indeed it is nothing but the continuation of points upon a ſuperficies either perpendicularly or bending.

VII. The Contemplation of the Object repreſents the matter to the mind, in the ſame manner as its outward appearance doth to the Eye.

And from hence comes Judgment where by the Artiſt is enabled to deſcribe the ſame in lines, and delineate it, according to its apparent or viſual proportions.

VIII. To draw or deſcribe the Appearance in lines is the active part of this Art, whereby the *Idea* conceived in the mind (by ſight and contemplation) is brought to light.

IX. A radiation is a beam of light, conveighing the likeneſs of the thing, to the Eyes, or ſight; and the knowledge thereof to the mind or underſtanding.

And this radiation is twofold, either external from the external light, or intelectual from its being and power.

X. *Direct radiations* are thoſe which conſider the direct or ſtreight beams, which paſs between the eye and the object.

And this is the firſt kind of perſpective; and is many times (alone) called the Opticks.

XI. *Rectified Radiations* are thoſe which conſider the reflection of beams, and their ſhape upon any poliſh'd body, as on a Globe, Cone, Cylinder, Pyramid, or any regular ſolid.

And this is the ſecond kind of Perſpective; which is called the Art Catoptrica.

XII. *Broken radiations* are thoſe which conſider the breaking of beams, as they are to be ſeen through a glaſs or a Cryſtal cut into ſeveral plains or ſuperficies.

And this is the third and laſt kind of Perſpective, which is called the Art Dioptrica.

CHAP.

CHAP. XXII.

Of the Active part of Perſpective.

I. THe active part of Perſpective is either *Ichnographical*, *Orthographical*, or *Scenographical*.

II. *Ichnographia*, is the deſcription of the plain baſe or bottom of any body or building. Or the Lines or figure on which the Subſtance ſtands.

III. And it is twofold, to wit, either *Geometrical* or *Scenographical*.

IV. *Ichnographia Geometrical*, is that which gives the ſight of the bottom or baſe of any body or building.

So a Circle is the baſe of a Column; and a ſquare is the baſe of a Pedeſtal, and the like; but this Geometrical Ichnography *is not ſeen in Section, or through a Glaſs, unleſs it lies parallel to the baſe; and ſo it makes no Section with it.*

V. *Ichnographia Scenographical* is the Appearance of the ſame baſe in Section, or through a Glaſs, erected upright on the ſame plain, on which the baſe ſtands.

And by this the ſaid baſe is extended in length but contracted in breadth, for ſo it appeareth to the eye.

VI. *Orthographia*, is the viſion of the foreright ſide of any plain; to wit, of that plain or ſuperficies which lies equidiſtant to a right line, paſſing through the outward or convex centers of both eyes, continued to a due length.

And therefore Perſpective Orthographia, *is the delineation of the apparent fore-right plain.*

VII. *Scenographia* is the deſcription of an oblique plain or other figure, that declines from the apparent or foreright plain; that is of that plain which makes *Oblique* Angels with the ſaid foreright plain, and the two ſtrait lines imagined to paſs thro' the two outward connex points of both your Eyes.

VIII. *The* Scenographick *viſion of any form, body or building is, of that ſide which declines from, or conſtitutes an Angle, with the right line, paſſing from the centers of both Eyes aforeſaid: this Artiſts calls the* return *of the foreright ſide.*

VIII.

IX. *Now the Difference between the* Orthographick *and* Scenographick *vision is this; the* Orrhographick *shews the side of a body or building as it is beheld when the plain of the Glass is placed equidistant to that side: but the* Scenographick *shews the side of a body or edifice as it appears through a glass raised obliquely to the said side, or making an angle therewith.*

CHAP. XXIII.

Of the Subjects to be seen.

I. THe *Base* of any thing is the plain, flat, or floor upon which any solid body, or object is placed, or raised.

II. The *Altitude* or *height* is the perpendicular space of place, between the base and eye, or height of the visual point above the base.

III. The *Visual point*, is a point in the Horizontal line, wherein all the beams of the eyes unite.

Exempli gratia. *If you look on a long straight River, the sides of which run parallel, yet by reason of the distance both sides of the River (although it be very broad) will seem to incline, touch and unite with each other in one common Point or Center: and so if you look on a long straight brick-wall, the several lays of Brick, and courses of Mortar, will (at a great distance) seem to incline each to other in one common Point or Center; this point reflected on a glass raised upright on the base, is called the visual point.*

IV. The *Horizontal line* is a line proceeding from the center of the Eye to the visual point, parallel to the Horizon of the Earth.

And this is, in men of ordinary height or stature, commonly about five foot from the ground or base.

V. The *Distance* is the space on the base between the Glass and point in the base which lies directly under the eyes.

VI. The *Section* is a plain of transparent or perlucid matter (as of Glass) raised upright upon the plain of the base standing before you, parallel to a straight line, passing through the convex centers of both Eyes.

Without the knowledge of this Section *or* Glass *it is utterly impossible to understand* perspective, *or know what it means: Or be able to give a reason for the difference between the* Orthographick *and* Scenographick *figure.*

VII.

VII. If the Glaſs is placed near the viſual point, and far from the object, the figure which is ſeen will be very ſmall: and the reaſon is, becauſe all rays comprehending the Orthographical and Scenographical figures (though more remote from the object) fall into the viſual point, as their common center.

VIII. If the viſual point be more elevated (though at the ſame diſtance) the Scenographick figure or form will appear of a much larger magnitude: becauſe the viſual radiations being higher, the various perpendiculars raiſed on the Section or Glaſs, cut them in wider diſtances, becauſe more remote from the Glaſs.

IX. If the Glaſs incline to the viſual point, the Scenographick viſion will be long-wiſe between the viſual point and the object.

And the reaſon is, becauſe the plain of the Glaſs heaps in more of the viſual Radiations.

X. If the Glaſs recline from the viſual point, the Scenographick figure will appear rounder, and begin to reſemble the Orthographick.

XI. But If the Glaſs is fixed equidiſtant to the baſe, or plain the object ſtands upon; the Scenographick and Orthographick reſemblance will be one and the ſame.

And the reaſon is, becauſe the form of the figure is loſt, or not viſible in the Section.

XII. The *Viſual Raies*, are thoſe lines which proceed from the viſual point, through the Glaſs, to any point higher or lower than the plain of the Horizon.

XIII. *Diagonals*, or lines of diſtance, are ſuch as are drawn from the point of diſtance to any other higher or lower than the Horizon.

XIV. The *Object*, is that form, figure, body or edifice intended to be expreſſed in *Perſpective* proportions.

CHAP.

CHAP. XXIV.

The General Practice of Perspective.

I. LEt every line which in the Object or Geometrical figure is straight, perpendicular, or parallel to its base, be so also in its Scenographick delineation.

II. Let the lines which in the object return at right Angels from the fore-right side, be drawn Scenographically from the Visual point.

III. Let all straight lines, which in the object return from the fore-right side, run in a Scenographick figure into the Horizontal line.

IV. Let the object you intend to delineate standing on your right hand, be placed also on the right hand of the visual point; and that on the left hand, on the left hand on the same point: and that which is just before, in the middle of it.

V. Let those lines which are (in the object) Equidistant to the returning line, be drawn in the Scenographick figure, from that point found in the Horizon.

VI. In setting off the altitude of Columns, Pedestals and the like, measure the height from the base-line upward in the front or foreright-side; and a visual ray down, that point in the front shall limit the altitude of the Column or Pillar, all the way behind the fore-right side or Orthographick appearance, even to the visual point.

This rule you must observe ***in all*** *figures, as well where there is a front or fore-right-side, as where there is none.*

VII. In delineating Ovals, Circles, Arches, Crosses, Spirals and Cross-arches, or any other figure, in the roof of any room; first draw Ichnographically, and so with perpendiculars, from the most eminent points thereof, carry it up unto the Ceiling, from which several points carry on the figure.

VIII. The center in any Scenographick regular figure is found by drawing cross-lines from opposite angels: for the point where the Diagonals cross is the Center.

IX. A ground plain of squares is alike, both above and below the Horizontal line; only the more it is distant above or beneath the Horizon, the squares will be so much the larger or wider.

X. In drawing a perſpective figure, where many lines come together, you may for the directing of your eye, draw the Diagonals in red; the viſual lines in black; the Perpendiculars in green, or other different colour from that which you intend the figure ſhall be of.

XI. Having conſidered the height, diſtance and poſition of the figure, and drawn it accordingly, with ſide or angle againſt the baſe; raiſe perpendiculars from the ſeveral Angels or deſigned Points in the figure, to the baſe, and transfer the length of each perpendicular, from the place where it touches the baſe, to the baſe on the ſide oppoſite to the point of diſtance, ſo will the Diametrals drawn to the perpendiculars in the baſe, by interſection with the Diagonals drawn to the ſeveral tranſferred diſtances, give the angels of the figure: and ſo lines drawn from point to point will circumſcribe the Scenographick figure.

XII. If in Landskip there be any ſtanding Waters, as Rivers, Ponds, and the like; place the Horizontal line level with the fartheſt ſight or appearance of it.

XIII. If there be any houſes or the like in the picture, conſider their poſition, that you may find from what point in the Horizontal line to draw the fronts and ſides thereof.

XIV. In deſcribing things at a great diſtance, obſerve the proportion (both in magnitude and diſtance) in draught, which appears from the object to the eye.

XV. In colouring and ſhadowing of every thing, you muſt do the ſame in your Picture, which you obſerve with your eye, eſpecially in objects lying near; but according as the diſtance grows greater and greater, ſo the colours muſt be fainter and fainter, till at laſt they loſe themſelves in a darkiſh sky colour.

XVI. The *Catoptricks* are beſt ſeen in a common looking-glaſs or other poliſh'd matter; where if the glaſs be exactly flat, the object is exactly like its original; but if the glaſs be not flat, the reſemblance alters from the original, and that more or leſs, according as the glaſs differs from an exact plain.

XVII. In drawing *Catoptrick* figures, the ſurface of the glaſs is to be conſidered, upon which you mean to have the reflexion; for which you muſt make a particular *Ichnographical* draught or projection; which on the glaſs muſt appear to be a plain full of ſquares, on which projection transfer what ſhall be drawn on a plain divided into the ſame number of like

ſquares;

squares where though the draught may appear very confused, yet the reflection thereof on the glass will be very regular, proportional and regularly composed.

XVIII. The *Dioptrick* or broken beam may be seen in a Tube, through a Crystal, or Glass, which hath its surface cut into many others, whereby the raies of the object are broken.

For to the flat of the Crystal or Water, the raies run streight; but then they break and make an Angle, the which also by the refracted beams is made and continued on the other side of the same flat.

XIX. When these faces on a Crystal are returned towards a plain placed directly before it, they separate themselves at a good distance on the plain; because they are all directed to various far distant places of the same.

XX. But for the assigning to each of them a place on the same plain, no Geometrick rule is yet invented.

APPENDIX.

CHAP. XXV.

Of the Uses of Perspective.

I. *Perspective* then is a Science, or rather an Art which is absolutely necessary to one who would Draw well, Engrave, Etch, Carve, or Paint, and which men of those professions ought not to want; yet they are not to be so wholly subject to its precepts, as to enslave these Arts to its rules.

II. You are to use it when it pleasingly leads you into the beauties of your work, and can be assistant to you in your design, but when those things cease, you are to leave it, lest it leads you to a precipice, or induces you to that which is repugnant to your peculiar Art.

III. Perspective cannot of it self be called a certain rule, but is to be used with judgment, prudence and discretion: for if you perfectly understand it, yet if you practise it too regularly, tho' you may do such things as may be within the rules of your Art, yet your work will be displeasing to the Sight.

IV. The greateſt Painters who have made uſe thereof, had they rigorouſly obſerv'd it in their deſignations, had much diminiſhed that Glory which they attained to, and which time will give a kind of Immortality to.

V. Such as too cloſely follow its Precepts, may indeed make things more regularly true, but they will be much wanting of that harmonious excellency, that exquiſite beauty, and that Charming Sweetneſs, which would otherwiſe have been found in them.

VI. Architects and Statuaries of Ancient times, did not alwaies find it to their purpoſe; it was not their prudence to trace the *Geometrical* part ſo exactly, as the rules of Perſpective require.

VII. If you would imitate the Frontiſpiece of the *Rotunda* as the rules of Perſpective require, you would wonderfully err; for the Columns which are at the Extremities, have more in Diameter than thoſe which are in the middle.

VIII. The Corniſh of the *Palazzo Farneſe*, which looks ſo beautifully if beheld from below, yet being more nerely viewed, is found to want very much of its juſt proportion.

IX. In the *Pillar of Trajan*, the higheſt figures are much greater than thoſe which are below; which by the rules of *Perſpective*, ſhould be quite contrary: here they increaſe according to the meaſure of their diſtance.

X. There is a rule which teaches the making of figures in that manner, but it is no rule of *Perſpective*, tho' it is found in ſome books of that Art, and it is never to be made uſe of, but when it is for our purpoſe: *viz.* when it may eaſe the ſight, and render the Object more agreeable to the mind.

XI. The *Farneſian Hercules* its Baſe is not on the level, but on an eaſy declivity on the advanc'd part; the reaſon of which is, that the feet of the figure may not be hidden from the ſight, but appear more pleaſing to the Eye.

XII. And this is the true reaſon that theſe Great men have ſometimes ſtept aſide from the Geometrical Rules of Perſpective, not in a Slight or Contempt of the Art, but for the abſolute pleaſing of the Viſive ſenſe.

CHAP.

CHAP. XXVI.

Measures of Humane Bodies.

I. THe face is that which begins at the bottom of the lowest hairs which are upon the fore head, and ends at bottom of the Chin.

II. Some of the Ancients allowed but seven heads or faces to their figures, but the most of them allowed eight: we for the most part allow Ten faces, *viz.* from the Crown of the head to the sole of the foot.

III. The face is divided into three parts, *viz.* 1. The Forehead. 2. The Nose. 3. The Mouth and Chin.

IV. From the Crown of the head to the forehead, is the third part of a face: from the Chin to the Pit between the Collar bones, are two lengths of a Nose.

V. From the Pit between the Collar bones to the bottom of the Brest, is one face: and from the bottom of the brest to the Navel is also one face.

VI. From the Navel to the share-bone or Genitals, is one face: and from the Genitals to the upper part of the Knee is two faces.

VII. The Knee it self contains half a face: and from the lower part of the Knee to the Anckle is two faces.

VIII. From the Anckle to the Sole of the Foot is half a face: The sole of the Foot is the Sixth part of the figure.

IX. When a mans Arms are Stretched out, it is from the tip of the middle finger of the right hand, to the tip of the middle finger of the left hand, the just length of the whole body.

X. From the one side of the Breasts, to the other side, is two faces: the two uppermost parts of the Teats, and the pit between the Collar bones in a Woman, make an Equilateral Triangle.

XI. The *Humerus*, or Great bone of the Arm, from the Shoulder to the Elbow, is the length of two faces: from the End of the Elbow to the root of the little finger, *viz.* the *Cubitus* and part of the hand is two faces.

XII. From the *Acetabulum* of the Shoulder blade, to the pit between the Collar-bones is one face: the hand also is the length of a face.

XIII. The inside of the Arm, from the place where the Muscle disappears, which makes the Breast, called the *Pectoral Muscle*, to the middle of the Arm, are four Noses.

XIV. From the middle of the Arm, to the beginning of the hand are five Noses: the Thumb, and longest Toe, are each of them a Nose long.

XV. Lastly, as to the breadth of the Limbs, no exact measure can be given; because the proportions are changeable, according to the Qualities or magnitude of the person, as being fat or lean; also according to the posture they are in, and the motion of the Muscles; all which every Artist is to regulate, according to his own Judgment, and as the occasion may require.

CHAP. XXVII.

General Observations.

I. IN drawing well, you must endeavour to make your Compositions conformable to those of the Ancients and their Customs, yet having respect also to the present times.

II. Avoid whatsoever has no relation to your Subject, or may be improper to it; things also having a less relation to it, are not to be put into the principal places; those being reserv'd for the minutes of the Principal design.

III. In pictures, neither the face, proportion, age, nor Colour, are to be alike in all; but they are to be as different, as are the true and living Objects.

IV. Your Subject ought to be beautiful and noble, furnished with Delight and Charms elegant and graceful, that it may not be said that the Artist has laboured in Vain; and so as it may tend to a Perfection or Consummation of Art, so far as relates to that designation; that it may be as well as excellent, able

able to instruct and enlighten the Understanding.

V. Your Invention ought to be good, and the Postures of your design agreeable and harmonious, in respect to light, and shadows, which the Colours which are afterwards to be added, taking from each, what may most conduce to the beauty of your work.

VI. The principal part of the Picture ought to appear in the middle of the Piece under the strongest light, that it may be more remarkable than the rest, and not by the other adjacent parts be-hid from our sight; yet so as all together may compose but one body, with the Draperie proper for the same.

VII. All the Members or Parts of the figure, are to be combined or knit together with a kind of Harmonie, as the portions of the same part are, that an apparent Chasm may not be made, which will be disgraceful in your work.

VIII. Where there are heaps of Objects, they ought to be distinguished by different postures and motions, which ought not to be alike any more than their parts, nor are they all to be on one side, but set as much as may be in opposition one to another.

IX. Among many figures, if some shew their foreparts, let other some shew their hinder parts, opposing as it were the back or buttocks to the belly.

X. Where also many figures are, let not one side of the piece be void or empty, whilst the other is filled to the borders; but let the parts and matter be so disposed, that both sides may equally participate of the amplitude of the design.

XI. Let your piece not consist of too many figures; for it will be impossible to dispose and introduce them into the work, with such a Grace, as may make the whole beautiful.

XII. Because many dispersed Objects breed confusion, detracting from the work that excellency and pleasingness, which ought to give satisfaction to the beholder.

XIII. But if your work must consist of many figures, you ought to apprehend the whole design in your mind together, that when it is performed, it may appear at first View, as the product of perfect harmony, and natures real work.

XIV. Such parts as are not easy to be seen, and are not natural, and all forc'd actions and motions, also uncomly postures and parts, are wholly to be avoided.

XV. You must also avoid all out lines, and other lines, which are either equal or Parallel, or constitute any pointed or Geometrical figure, whether Triangles, Squares, Quin-

quangles, Hexangles, &c. which by their exactneſs, or ſeeming exactneſs, ſpoil the natural beauty, and give diſpleaſure to the Eye.

XVI. Nor are you to be too ſtrictly tyed up to Nature, but ſometimes you are to give way to flights of Fancy, and your own Genius, by which many times things are added to make the deſign much more beautiful.

XVII. Yet you ought to imitate the Beauties of Nature, as all the Ancients have done before us: for which purpoſe the whole Univerſe is often to be viewed and contemplated on, that you may be furniſhed with great *Idea's*, wi h which your work being adorned, they may be as ſo many Charms upon the ſenſes and underſtanding of the Beholders.

XVIII. If your piece is but one ſingle figure, it ought to be perfectly finiſhed in all its parts, its drapery ſweetly ſpread over it, the folds large, and following the order and motion of the parts, that they may be ſeen as it were underneath by the lights and ſhadows appendent.

XIX. If the parts are too much diſtant from each other, ſo as there are void ſpaces, you are there to place ſome fold or folds, which are to be deeply ſhadowed, to conſtitute a ſeeming joyning (as it were of the parts.)

XX. The beauty of *Drapery* conſiſts not in the multitude of Folds, nor the beauty of Limbs in the quantity and riſing of the Muſcles, but rather in their natural Order and ſimplicity.

XXI. The management of the *Drapery* is to be taken from the Quality of the Perſons; if it is of a Clown or Slave, it ought to be conciſe and ſhort: if of Magiſtrates, bold and ample: if of Ladies, Light, Sweet, and Soft.

XXII. Folds are ſometimes to be drawn out from hollows and deep ſhadows, to which you are to give a ſwelling, that receiving the light, it may as it were extend the clearneſs to thoſe places where the body requires it, ſo will you avoid thoſe hard ſhadowings which are ever ungraceful.

XXIII. In laying the Scene of the Picture, you are to conſider the places ſuppoſed, the Countries where brought forth, the manner of their Actions, with the Uſe and Cuſtoms belonging to them.

XXIV. You are to follow the order of nature; as in drawing or painting Clouds, Lightning, Sun ſhine, &c. to place them towards the top of the piece, not towards the bottom; and contrariwiſe in putting Wells, Waters, Caves, Foundations, &c.

XXV.

XXV. The lights and ſhadows of round bodies ought to be lively and ſtrong, but in their turnings they ought to looſe themſelves inſenſibly, and confuſedly, without a ſudden or abrupt precipitation of the Light all of a ſudden into the ſhadow, or the ſhadow into the Light.

XXVI. But the Paſſage of one into the other ought to be eaſy, ſweet, and imperceptible, that is, they are to change gradatim, the Light to ſlide (as it were) into the ſhadow, and the ſhadow into the Light.

XXVII. In the ſame manner, as if you would manage a ſingle head or figure, you muſt (in conformity to theſe precepts) draw a heap of figures, compoſed of ſeveral parts.

XXVIII. And where you have ſeveral heaps of figures (which ought not to exceed three or four,) you muſt take heed ſo to place or ſeparate them from each other, that they may be plainly diſtinguiſhed by Lights, Shadows, or Colours.

XXIX. And theſe things are ſo dexterouſly to be managed, that you may make the Bodies to appear enlightned by the Shadows which bound the ſight, and permit it not ſuddenly to go farther; and contrarily, the ſhadows may be made evident by enlightning your ground.

XXX. You ought to draw a round body, in the ſame manner as we behold it in a Convex Mirror, in which the Figures and all other things, are ſeen to bear out with more Life and Strength, than even in nature it ſelf.

CHAP. XXVIII.

Of Light, Shadow and Colour.

I. THE Drawer, Engraver, and Painter, are all to purſue one and the ſame Intention, and to be under one and the ſame Conduct; what the Drawer or Engraver, makes round with the Crion or Steel Inſtrument, the Painter performs with his Pencil; caſting behind what is to be made leſs viſible, by Diminution, and breaking of his Colours: and drawing forwards by the moſt lively Colours, and ſtrongeſt Shadows, that which is directly oppoſite to the Sight, as being neareſt, or moſt to be diſtinguiſhed.

II.

II. If ſolid and dark bodies are placed on light and tranſparent grounds, as the Sky, Clouds, Waters, &c. thoſe dark bodies, &c. ought to be more rough, and more to be diſtinguiſhed than thoſe with which they are encompaſſed; that being ſtrengthned by the Lights and Shadows, or Colours, they may ſubſiſt and preſerve their Solidity upon thoſe tranſparent grounds.

III. In the mean ſeaſon thoſe light Grounds, as Sky, Clouds, Waters, being clearer and more united, are to be caſt off from the ſight, to a farther diſtance.

IV. You muſt never in one and the ſame Picture make two equal lights, but a greater and a leſſer: the greater to ſtrike forcibly on the middle, extending its greateſt clearneſs on thoſe places of the deſign; where the principal Figures of it are, and where the Strength of the Action ſeems to be; diminiſhing it gradually, as it comes nearer and nearer to the borders.

V. This is evident in Statues ſet up on high in publick places, their upper parts being more enlightned than the lower; the which you are to imitate in the diſtribution of Light.

VI. Strong ſhadows on the middle of the Limbs are to be avoided; leſt the abundance of black which compoſes thoſe Shadows ſhould ſeem to enter into them, and ſeem to cut them: rather place thoſe Shadowings round about them, thereby to heighten the parts; making after great Lights, great Shadows to ſucceed.

VII. On this Account *Titian* ſaid, he knew no better rule for diſtributions of lights and ſhadows, than his Obſervations drawn from a bunch of Grapes.

VIII. Pure White, either draws an object nearer, or ſets it off to a farther diſtance: it draws it nearer with black, and throws it backwards without it: but pure Black (above all other Colours) brings the Object nearer to the Sight.

IX. The light (being altered by ſome colour) never fails to communicate ſomething of that Colour, to the bodies on which it ſtrikes: and the ſame effect is perform'd by the *Medium* of the air, thro' which it paſſes.

X. Bodies which are cloſe together receive from, each other by reflexion, that Colour which is oppoſite to them: *viz.* they reflect on each other, their own proper Colours.

XI. If a deſign is filled with many figures, you muſt always endeavour a union of Colours, for fear, that being too different, they ſhould incumber the ſight by their confuſion, with

vvith the great numbers of their Members, ſeparated by certain folds.

XII. And for this reaſon, the *Venetians* paint their Draperies vvith colours vvhich are nearly related to each other, and ſcarcely diſtinguiſh them any other vvay, but by the diminution of lights and ſhadovvs.

XIII. Thoſe parts of a Picture vvhich are placed foremoſt or neareſt to the Vievv, ſhould alvvays be more finiſhed, than thoſe vvhich are caſt behind; and ought to be more manifeſt than thoſe things vvhich are tranſient and confuſed.

XIV. Things remov'd to a diſtance, though they are many, yet ought to be made but one *Maſs*, as the leaves on the Trees, a flight of birds, Billovvs in the Sea, *&c.*

XV. Objects vvhich ought to be ſeparated, let them be manifeſtly ſo, and that by a ſmall and pleaſing difference; but ſuch as ought to be contiguous, let them not be ſeparated: and vvhere two contrary extremities are, let them never touch each other either in Colour or light.

XVI. The various bodies are every vvhere to be of different Airs and Colours, that thoſe vvhich are ſeated behind may be united together, and thoſe which are ſeated foremoſt may be ſtrong and lively.

XVII. In painting a half figure, or a whole one, vvhich is to be ſet before other figures, you ought to place it nearer to the Eye, and next to the light: and if it is to be painted, in a great place, and at a diſtance from the Eyes, then you ought not to be ſparing of great lights, the ſtrongeſt ſhadovvs, and the moſt lively colours.

XVIII. But you ought not to put a Meridian light in your Picture, becauſe there are no colours, vvhich can ſufficiently expreſs it; but rather a weaker light, ſuch as is that of the morning or evening, vvhoſe vvhiteneſs is allayed, and the fields are gilded (as it vvere) by the ſun beams; or that vvhich appears after a ſhovver of rain, vvhich the Sun gives thro' the breaking of a Cloud.

XIX. The parts vvhich are neareſt to us, and are moſt raiſed, muſt be ſtrongly coloured, as it vvere ſparkling: but the parts more remote from the ſight, tovvards the borders, more faintly touched.

XX. The field or ground ought to be free, tranſcient, light, and vvell united with colours, which have a friendly agreement vvith each other; and of ſuch a mixture, that there may be ſomething in it of every colour that compoſes your work

vvork: and let the bodies mutually partake of the Colour of their ground.

XXI. Your vvhole Picture ought to be made of one piece, wherein you muſt avoid as much as you can poſſibly, to paint drily.

XXII. Your Colours ought to be lively, but not look as if they had been rubbed or ſprinkled with meal, *viz.* you are not to let them look pale.

XXIII. When you make a Picture by the life, you are exactly to follow nature, working at the ſame time on thoſe parts which are reſembling to each other. *Ex. gr.* the Eyes, the Cheeks, Noſtrils, and Lips; ſo that you are to touch the one, as ſoon as you have given a ſtroke of the Pencil to the other, leſt the interruption, and ſpace of time cauſe you to looſe the *Idea* of thoſe parts which nature has produced to reſemble the other.

XXIV. Thus by imitating nature, feature for feature, with juſt and harmonious lights and ſhadows, and proper colours, you will give to the Picture that livelineſs, that it will ſeem as if it were the living hand of Nature.

XXV. Smooth bodies, ſuch as Cryſtal, Glaſs, Gems, poliſh'd Metals, Stones, Bones, Woods, Japans, things covered with hair (as Skins, the Beard, Head;) alſo Feathers, Silks and Eyes, which are of a watery nature; and things which are liquid as water; and thoſe corporeal Species which are reflected by them: and all what touches them, or is near them, ſhould be painted and united on their lower parts, but touched above boldly by their proper lights and ſhadows.

XXVI. Let the parts of the Picture ſo much harmonize or conſent together, that all the ſhadows may appear as if they were but one: Embrace whatever is aſſiſting to you in your deſign, but avoid the things which may hurt it.

XXVII. Do not ſo much as touch with your Crion, Pencil, or Graver, till you have well conſidered your deſign, and have fixed your out lines, and till you have preſent in your mind a perfect *Idea* of your work.

XXVIII. By the help of a Looking Glaſs, you may be aſſiſted in many beauties, which you may obſerve from Nature; as alſo by thoſe objects which you may ſee in an Evening, where you have an ample field, or large proſpect.

XXIX. Thoſe things which are painted to be ſeen in little or ſmall places, muſt be very tenderly touched, and well united by gradual approaches and colours; the degrees of which ought to be more different, more unequal, more

ſtrong

ſtrong and vigorous, as the work is more diſtant.

XXX. If the Picture is to be placed where there is but little light, the colours ought to be very clear; but if it is ſtrongly enlightned or in the open air, the colours ought to be very brown.

XXXI. Large lights are to be painted the moſt nicely that may be, and you muſt endeavour to looſe them inſenſibly, in the ſhadows which ſucceed them, and encompaſs them about.

XXXII. The Eye is to be ſatisfied in the firſt place, even againſt and above all other reaſons, which may beget difficulties in the Art, which in it ſelf has none; the compaſs and deſign ought then rather to be in your Eyes and in your mind than in your hands.

XXXIII. Avoid objects which are full of hollows, which ſeem broken in pieces, or refracted, which are little, and are ſeparated, or in parcels, things which are rude, uneven, ill coloured, and are diſpleaſing to the Eye; or which are partly coloured, and have an equal force of light and ſhadow.

XXXIV. You ought alſo to avoid all things which are obſcene, impudent, cruel, poor and wretched, fantaſtical or unſeemly; things which are ſharp and rough to the feeling; and all things which corrupt their natural forms, by the confuſion of their parts, and are entangled in each other.

XXXV. But you are to chuſe thoſe things which are beautiful, even in the utmoſt degree of Perfection, which have ſomething of magnanimity or greatneſs in them, and whoſe Scetches or outlines will be noble, and magnificent; which will be diſtinguiſhed, pure, and without alteration, clean, and united together, compoſed of great parts, yet thoſe but few in number and diſtinguiſhed by bold colours, and ſuch as are related, and are harmonious to each other.

XXXVI. Tho' nature is to be followed in many things, and in moſt, yet beginners are not at firſt to be too ſedulous in following nature, leſt their works ſeem ſtarcht or Stiff, but they ought to begin with a certain careleſneſs, freedom, and boldneſs, which will accelerate, all their after endeavours, in order to the attaining the perfection of their Art.

XXXVII. In the mean time, they ought to learn proportions, the connexion of Parts, and fixing the Scetches or out lines: they ought often to view and Examine admirable Originals, and all the inſenſibilities and ſweetneſſes of the

Art,

Art which will be attained rather by a skilful Master, than by severe and only Practice.

XXXVIII. After you have done some part of your work, let it lye by you for some days or weeks, without looking on it, and then view it again; so by that intermission, you may chance to discover your faults, or the Errors or Excellencies of your piece, which you may either mend, avoid, or advance, according to your skill and discretion: it will be in vain for you continually to pore over your work, and dull your Genius, in spight of nature, and your present inclination.

XXXIX. As you walk abroad in the Streets, Fields, and Country, observe how nature plays and is disposed, and the particular Airs, of the various Objects, their postures, motions, and passions, and with what unconcern'd freedom they display themselves.

XL. And whatever you judge worthy to be observed (tho it is but the Image or remembrance of a Country Clown leaning with his brest upon his Club or Staff, as he is talking unconcernedly with his neighbour in the street or field) whether it be upon the Earth, or in the Air, in the fire, or upon the waters, whilst the Species or *Idea*'s of them are fresh with you, record the same, and so repleniſh your Imagination and Judgment.

XLI. Objects of divers natures which are aggroup'd or combin'd together, are agreeable and pleasant to the sight; as also such things as are perform'd with freedom and ease; because they seem to be full of Spirit, and to be animated with heat and fire.

XLII. But those things are not to be attained to, till after a long exercise and practice, and till they are throughly weighed and considered in your Judgment and understanding; tis an art to conceal from the beholders, the labour and pains you have taken.

XLIII. If you would prove excellent in your Mystery, you must aim at ready apprehension, discerning Judgment, Inclinations to learning, a noble heart, sublime sense, fervor of Soul, and a Greatness of Mind; to which add, youth, diligence, competency of fortune, a skilful Master, and a good affection to the Science, without which, it will be impossible for you to attain to any Excellency therein or arrive to the Honour and Glory of your Predecessors, who with indefatigable labour, pains and Industry, have brought the Art to its perfection.

CHAP.

CHAP. XXIX.

Terms of Arts Explicated.

I. *Air.* The *Air* of a figure or Picture, is taken for its *Look* or *Appearance*, in respect to its Mode, Sight, Light, Shadowing, and disposition of the same.

II. *Antique.* It signifies the Sculpture, Graving, Architecture, and Paintings of the Ancients, made in the Times of the Ancient *Greeks* and *Romans*, from the time of *Alexander the Great*, to *Phocas Imperator*, under whom the *Goths* and *Vandals* ravaged and spoiled all *Italy*. See *chap.* 18. *Sect.* 5. aforegoing.

III. *Aptitude.* It is said to come from the *Italian* word *Attitudine*, and signifies the mean or Posture, and Action, that any figure is represented in, or is capable of.

IV. *Aqua fortis.* It is a strong water, or Spirit made of Vitriol and Nitre, of great Medical and Chymical Use; but here of service chiefly for Etching Brass or Copper plates. See the making thereof in *lib.* 2. *cap.* 7. *Sect.* 18. & 19. following.

V. *Brush Pencil.* It is of use to cleanse the work, wipe off dust, and strike colours even, *&c.*

VI. *Burnisher.* It is an Iron used by Engravers, to rub out Scratches and Specks, or any thing which may blemish the work; and to make strokes or lines graved too deep, to appear fainter and smaller, by rubbing them over therewith.

VII. *Cartoon.* It is a *Design* made of many sheets of Paper pasted together, in which, the whole Story to be painted in *Fresco* or otherwise, is all of it first exactly drawn.

VIII. *Colouring.* It is one of the Parts of Painting, by which the Work or Piece receives its Tincture, Complexion, Lights, Shadows, and Beauty.

IX. *Chiaro Scuro.* It is twofold in Painting. 1. When there are only two colours used. 2. It is the Artful disposition of Lights and Shadows.

X. *Contouer.* The Contouers of a body, are the lines which environ it, and constitute its superficies.

XI. *Crions.* They are Pastils, or dry pencils, made of several Coloured Pasts, to draw withal upon coloured paper or

or parchmennt. See their various kinds and ways of making in *lib.* 1. *cap.* 2. *sect.* 8. *ad* 15.

XII. *Compasses.* They are a brass Instrument, made commonly with Steel points, to take in and out; that Ink, black, or red Lead, may be used at pleasure: they are chiefly of use to measure a distance, or strike a Circle, or portion of a Circle, where you would be exact.

XIII. Design. It signifies, 1. The just measures, Proportions, Scetchings, and outward forms that a figure or picture (taken from nature) ought to have. 2. The whole Composition of a piece of Painting; from whence, it is commonly said, *There is an excellent design in such a Piece.*

XIV. Distemper. It is the Exact mixing of Colours, one with another, or with Gum: the difference between that and *Miniature is,* this latter uses only the point of the Pencil; the former uses the Pencil in its full body.

XV. Drapery. It is used generally for all sorts of Clothing, with which Figures and Pieces are adorned, in the Modes and Air of its fallings, foldings, and disposition.

XVI. Drawing. It is the first Art, and the beginnings or first part of the Art of Painting, without which, nothing in this Mystery could be attained to.

XVII. Draught. It is the Copy of some *design* to be engraved, limned, or painted.

XVIII. Etching. It is an artificial way of Engraving upon Brass or Copper plates, by the help of *Spirit of Nitre,* or *Aqua fortis*: of which, see farther, in the following Book.

XIX. Easel. It is an Instrument or Frame made of Wood, much like a Ladder, with sides flat, and full of holes, to put in two pins, to set your work higher or lower at pleasure, for the *Ease* of the Artist, whence doubtless came the Name on the back side; there is a stay, by which it may be set more upright or sloping. See *lib.* 3. *cap.* 2. *sect* 3.

XX. Figure. It is a general word, but here is taken for any Engraved, Drawn, or Painted Object: but in *painting* it is mostly taken for *Humane Shape and Proportion.*

XXI. Fresco. It is a kind of *Painting,* where the Colours are applied upon fresh Mortar, that they may incorporate with the Sand and Lime.

XXII. Festoon. It is a singular Ornament of Flowers, and such like, which are put upon the borders and Decorations of large Pieces of engraved works or Paintings.

XXIII. Grotesk, or *Grotesco.* It is a kind of Painting found underground in the Ruines of *Rome*: but with us, it now

now signifies a sort of Painting, which gives odd or strange figures of Birds, Beasts, Serpents, Insects, Herbs, Leaves, Flowers, Fruits, &c. mixed together and continued in one Ornament or Border.

XXIV. *Graving.* It is an Art which teaches to transfer any figure, piece, or design upon Brass, Copper, Iron, Gold, Silver, Stone, or Wood, by the help of sharp pointed Steel Instruments.

XXV. *Graver.* An Instrument to grave withal, and it is of three sorts, *viz.* Round pointed, Square pointed, and Lozenge pointed. See *lib.* 2. *cap.* 1. *sect.* 3. following.

XXVI. *Gruppo.* It is a combination or knot of figures together either in the middle or sides of a Piece of Painting. Of these Gruppo's, *Carache* would not allow above three, nor above twelve *figures* for any piece.

XXVII. *History-painting.* It is the Joyning of many figures in one Piece, to represent any action of the Life, whether True or Fabulous, accompanied with all its Ornaments of Landskip and Perspective.

XXVIII. *Ichnographie.* It is a simple description of the plain base or bottom of any body or building; Or the Platform in lines or figure, upon which the body of a building stands.

XXIX. Kromatick or *Cromatick.* It is that which the Latins call *Pictura*, and we in English the *Art of Painting*, and consists chiefly in *Drawing*, *Engraving*, *Etching*, *Limning*, *Colouring*, and *painting in Oyl.*

XXX. Landskip. It is the design of expressing in figures, the perfect vision of a Country, and all things placed thereon, as the *Horizon*, *Towns*, *Villages*, *Castles*, *Promontories*, *Mountains*, *Rocks*, *Vallies*, *Ruins*, *Rivers*, *Forests*, *Woods*, *Closes*, *Trees*, *Houses*, and all other *accidents* attending the same.

XXXI. Manner. It is the habit of a *Painter*, not only of his *Hand*, but of his *mind*, viz. his way of Exposing himself in the three principal Parts of Painting, to wit, *Invention*, *Design*, and Colouring: It answers to *Stile* in Authors; for a *Painter* is known by his *Manner* or *Mode*, as an *Author* by his *Stile*; or a *Mans hand* by his *Writing.*

XXXII. Model. It the figure of the Design, which a Painter works by; and it is either according to Nature, or otherwise: but Generally it signifies that which *Architects*, *Carpenters*, *Joyners*, *Painters*, *and Sculptors*, frame or make to guide themselves by in performing their *Designs.*

XXXIII. Minature. It is the drawing a Great Figure or Piece, in small; as the making the figure of a mans Head, which is in a whole sheet of Paper in the bigness of an inch,

or inch and half, the bringing in of a Church, Palace, Caſtle, Fort, Field, or Country, into the bigneſs of an *Inch*, two, or three: but this is beſt performed by the help of *Diminiſhing Glaſſes* ground to an Exactneſs; the beſt of which kind are made by Mr. *John Yarwell*, living at the *Archimedes* and *three golden Proſpects* in *Ludgate ſtreet*, *London*.

XXXIV. Mezzo-Relievo. *It* is where the Figures riſe up, but not above half of them is ſeen; the reſt being ſuppoſed within the Marble, Stone, or Wood.

XXXV. Mezzo-Tincto. *It* is a Picture made half black, or with no other Colours but black and white: but now it is taken for a new Method of Transferring a deſign or picture upon a braſs or Copper plate, by the help of an *Ingine* or *Inſtrument* made for this purpoſe, which makes the poliſhed plate, every ways minutely rough; upon which, the Deſign or Figure being drawn with Chalk, and a ſharp *Stiff*, by the help of a *Burniſhing Iron*, the whole deſign according to its lights and ſhadows (burniſhing where you would have the light ſtrike; and that more or leſs, as you would have the light ſtronger or fainter,) you will have with little labour and trouble the whole piece transferred upon the Plate, with an admirable deal of Accuracy and Sweetneſs.

XXXVI. Nudity. *It* is any naked Figure of Man or Woman: but moſt commonly of a Woman: when we ſay, *It is a Nudity*, we mean, *It is the Figure of a naked Woman.*

XXXVII. Opticks. They are the Art of ſeeing rightly, and conſiſt of three parts: 1. *Opticks*, ſpecially ſo called; are the Viſion or Appearance of any viſible Object, whether *Animate* or *Inanimate* by Direct Radiations, or beams of Light; and theſe are the Direct or Streight beams, which paſs between the Eye and the Object. 2. *Catoptricks*, which are reflected Radiations, or Beauty upon any poliſhed body as Globe, Priſme, regular ſolid, Looking-Glaſs, *&c.* 3. *Dioptricks*, which are broken Radiations or Beams, as they are to be ſeen thro' a Glaſs or Cryſtal, cut into ſeveral plains or ſuperficies.

XXXVIII. Orthographie. *It* is a rectangular Viſion of the fore-right ſide of any plain, or upright building: where if a ſtraight line paſſes from your Eye to any part of the ſaid plain or building it makes with the ſaid plain or building four right Angles, *viz.* two upwards and downwards from the ſaid line, and the like two on the right and left hand of the ſaid line.

XXXIX. Pallet. *It* is a flat, thin, ſmooth piece of Wood (either Walnut-tree, or Pear-tree) about twelve *Inches* long, and ten inches broad, almoſt Oval, at the narroweſt end of which

which is made a hole to put in the Thumb of the left hand and near to that a circular Notch in the edge thereof, that so you may hold it in your hand: its use is to temper your Colours upon.

XL. *Pastils.* They are made of various coloured Pastes or Clay, and are the same with *Crions.*

XLI. Pencils. They are made either of *black* or *red Lead*, shaved to a sharp point, or of hair, and are of several bignesses, from a *Pin*, to the bigness of a *Finger*, and called by several Names, as Ducks Quill fitch'd, and pointed; Goose Quill fitch'd and pointed; Swan's Quill fitch'd and pointed; Jewelling Pencils; Brush Pencils; some in *Quills*; some in *Tin Cases*; and some in Sticks.

XLII. Parallel-lines. They are such lines, (whether straight or crooked) as are every where equally distant from another.

XLIII. Pentagon. It is a Geometrical plain figure of five equal Sides; and five equal Angles.

XLIV. Polygon. It is a plain Geometrical Figure, consisting of many Sides and Angles; at least exceeding four, as a Hexagon, Heptagon, Octagon, Nonagon, Decagon, *&c.*

XLV. Perpendicular. It is a falling Line, which falls upon another Line, or a Plain at right Angles on each side the line, and round about the Plain.

XLVI. Pedestal. It is a Square Body, or Foundation upon which a Column is to be placed.

XLVII. Pilasters. They are Square Pillars, which usually stand behind Columns, to bear up Arches.

XLVIII. Print. It is the Impression of an engraved Plate of Brass or Copper, or a Cut or Carved piece of Wood, upon Paper, Parchment, Silk, or Linnen Cloth, representing some Piece that it had been graved after.

49. *Quadrat.* It is a figure of 4 equal Sides, & 4 equal Angles.

L. *Quadrant.* It is the fourth or quarter part of a Circle; but is chiefly taken for a *Mathematical*, or *Astronomical* Instrument.

LI. Relievo. It is properly any Embossed *Sculpture*, which rises from a Flat *Superficies.* It is said likewise of *Painting*, that it has a Great *Relievo*, when it is strong, and that the figures appear round, as it were, out of the Piece or Plane.

LII. Relievo-Basso, or *Basso-Relievo.* It is, when figures are little more than *Designed*, and do rise but very little above the Plain: and such are those Figures of the Ancients, which they placed about their Cups and other Vessels.

LIII. Section. It is a plain of perlucid or transparent matter (as of Glass) raised upright upon the plain of the Base stand-

ing before you, parallel to a ſtraight line paſſing thrô the Convex center of both Eyes.

LIV. Scenographie. It is the deſcription of an Oblique upright, inclining, or reclining plain, declining from the Orthographick Viſion, or fore-right plain, *viz.* of that plain which makes Oblique *Angles*, with the ſaid fore-right plain, and the two ſtraight Lines imagined to paſs thrô the two outward convex Points of both your Eyes.

LV. *Size.* 1. *Gold Size.* Take prepared yellow Oker, what you pleaſe, add to it a little prepared Oil, and grind them together, till they are fine, even as the Oil it ſelf. Note, you muſt put no more Oil to the Oker, than may make it of a good ſtifneſs to work well; and to be of ſuch a body, that the Leaf-Gold being laid on; it may ſettle it ſelf Smooth and Gloſſy. *See lib. 3. cap. 16. ſect. 33.* following, 2. *Size-Water.* Take Glew, Steep it all Night in Water; then melt it over the fire, to ſee that it be neither too ſtrong nor too weak, and ſo let it cool: if it is too ſtiff when Cold, put in more water; but if too weak more Glue.

LVI. Stiff. It is a needle like Inſtrument uſed to draw thrô all the outmoſt Lines or Circumferences of the Print, Pattern, or drawing, you Etch after.

LVII. Shortning, or *Fore-ſhortning.* It is when a Figure ſeems of a greater quantity than really it is: as if it ſhould ſeem to be three feet long, when it is but one.

LVIII. Schizzo. It is the firſt *Attempt* or *Deſign* of a Painter, expreſſing his fancy upon any Subject. Theſe Schizzo's are commonly reduced into *Cartoons* in *Freſco Painting*: Or Coppied and enlarged in *Oil painting.*

LIX. Stucco-Work. It is a Piece made of figures of all ſorts, in a kind of Plaiſter, and uſed to adorn a Room, either under the *Corniſhes*, or round the Ceiling; or in Compartments or Diviſions. If it is on the Ceiling it ſelf, it is commonly called *Fret-work.*

LX. *Tinto.* It is when a thing is done only with One Colour, and that generally Black.

LXI. Varniſh. It is a thick ſort of Liquor made by diſſolving certain Roſins, or Gums, as that of Juniper, Benjamin, Maſtick, Olibanum, Roſin, Gum-Lack, &c. in Spirit of Wine, or Linſeed Oil (according to the uſe you have for it) for the Preſerving and Adorning of Timber, Boards, Wooden-Works, &c. or to imitate and repreſent the natural forms of ſeveral bodies Animate and inanimate, as the ſeveral and various productions of Vegetables, Minerals and Animals.

Explicit liber primus.

POLYGRAPHICES

LIBER SECUNDUS.

OfENGRAVING, ETCHING, and LIMNING.

Shewing the *Inſtruments* belonging to the Work; the Matter of the Work, the way and manner of performing the ſame; together with all other Requiſites and Ornaments.

CHAP. I.

Of Graving, *and the Inſtruments thereof.*

I. *Graving* is an Art which teacheth how to transfer any deſign upon Copper, Braſs, or Wood, by help of ſharp pointed and cutting Inſtruments.

II. The chief Inſtruments are four, 1. Gravers, 2. An Oyl ſtone, 3. A Cuſhion, 4. A Burniſher.

III. Gravers are of three ſorts, round pointed, ſquare pointed, and Lozenge pointed. *The round is beſt to ſcratch withal: the ſquare Graver is to make the largeſt ſtroaks: the Lozenge is to make ſtroaks more fine and delicate; but a Graver of a middle ſize betwixt the ſquare and Lozenge pointed, will make*

the ſtroaks or hatches ſhew with more life and vigour, according as you manage it in working.

IV. The Oyl-ſtone is to whet the Gravers upon, which muſt be very ſmooth, not too ſoft, nor too hard, and without pin-holes.

The uſe is thus: *Put a few drops of Oil Olive upon the ſtone, and laying that ſide of it, which you intend ſhall cut the Copper, flat upon the ſtone, whet it very flat and even, and therefore be ſure to carry your hand ſtedfaſt with an equal ſtrength, placing the forefinger firmly, upon the oppoſite ſide of the Graver. Then turn the next ſide of your Graver, and whet that in like manner, that you may have a very ſharp edge for an inch or more. Laſtly, turning uppermoſt that edge which you have ſo whetted, and ſetting the end of the Graver obliquely upon the ſtone, whet it very flat and ſloping in form of a Lozenge (with an exact and even hand) making to the edge thereof a ſharp point. It is impoſſible that the work ſhould be with the neatneſs and curioſity deſired, if the Graver be not, not only very good, but alſo exactly and carefully whetted.*

V. The Cuſhion is a leather bag filled with fine ſand, to lay the plate upon, on which you may turn it every way at eaſe.

You muſt turn your plate with your left hand, according as the ſtroaks which you grave do turn, which muſt be attained with diligent care and practice.

VI. The burniſhing Iron is of uſe to rub out ſcratches and ſpecks or other things which may fault your work in the plate; as alſo if any ſtroaks be graved too deep or groſs, to make them appear leſs and fainter by rubbing them therewith.

VII. To make your Gravers.

Provide ſome croſs-bow ſteel, and cauſe it to be beaten out into ſmall rods, and ſoftned, then with a good file you may ſhape them at pleaſure: when you have done, heat them red hot, and ſtraight dip it into Soap, and by ſo doing it will be very hard: where note, that in dipping them into the Soap, if you turn your hand never ſo little awry, the Graver will be crooked. *If your Graver be too hard, take a red-hot Charcoal and lay the end of your Graver upon it till it begins to wax yellowiſh, and then dip it into tallow (ſome ſay water) and it will be tougher.*

VIII. Have by you a piece of Box or hard wood, that after you have ſharpned your Graver, by ſtriking the point of it into the ſaid Box or hard wood, you may take off all the roughneſs about the points, which was cauſed by whetting it upon the oyl-ſtone.

IX.

IX. Laſtly, take a file and touch the edge of the Graver therewith; if the file cut it, it is too ſoft, and will do no good: but if it will not touch it, it is fit for your work.

If it ſhould break on the point, it is a ſign it is tempered too hard; which oftentimes after a little uſe by whetting will come into a good condition.

CHAP. II.

Of Poliſhing the Copper Plate.

I. TAke a plate of Braſs or Copper of what bigneſs you pleaſe, and of a reaſonable thickneſs, taking heed that it be free from fire-flaws.

II. Beat it as ſmooth as you can with a hammer, and then rub it as ſmooth as you can, with a pumice-ſtone void of Gravel (leſt it ſcarch it, and ſo cauſe as much labour to get them out) and a little water.

III. Then drop a few drops of oyl Olive upon the plate, and burniſh it with your burniſhing Iron; and then rub it with Charcoal made of Beech wood quenched in Urine.

IV. Laſtly, with a roul made of a piece of a black Felt, Caſtor, or Beaver, dipt in oyl Olive, rub it well for an hour, ſo ſhall your plate be exactly poliſhed.

CHAP. III.

Of holding the Graver.

I. IT will be neceſſary to cut off that part of the knob of the handle of the Graver which is upon the ſame line with the edge of the Graver; thereby making that lower ſide next to the plate flat, that it may be no hindrance in graving.

II. *For working upon a large plate, that part of the handle (if not cut away) will ſo reſt upon the Copper, that it will hinder the ſmooth and even carriage of your hand in making your ſtroaks, and will cauſe your Graver to run into your Copper deeper than it ſhould do.* This done,

III. Place the knob at the end of the handle of the Graver in the hollow of your hand, and having extended your fore-finger towards the point of the Graver, laying it a top, or oppoſite to the edge which ſhould cut the plate; place your thumb on the one ſide of the Graver, and your other fingers on the other ſide, ſo as that you may guide the Graver flat and parallel with the plate.

IV. Be wary that your fingers interpoſe not between the plate and the Graver, for they will hinder you in carrying your Graver level with the plate, and cauſe your lines to be more deep, groſs and rugged, than otherwiſe they would be.

CHAP. IV.

Of the way and manner of Engraving.

I. HAving a Cuſhion filled with Sand about nine inches long and ſix broad, and three or four thick, and a plate well poliſhed; lay the plate upon the Cuſhion, which place upon a firm Table.

II. Holding the Graver (as aforeſaid) according to Art, in making ſtraight ſtroaks be ſure to hold your plate firm upon the Cuſhion, moving your hand, leaning lightly where the ſtroak ſhould be fine; and harder where you would have the ſtroak broader.

III. But in making circular or crooked ſtroaks, hold your hand and Graver, ſtedfaſt, your arm and elbow reſting upon the Table, and move the plate againſt the Graver; for otherwiſe it is impoſſible to make thoſe crooked or winding ſtroaks with that neatneſs and command that you ought to do.

IV. Learn to carry your hand with ſuch a ſlight, that you may end your ſtroak as finely as you begin it; and if you have occaſion to make one part deeper or blacker than another, do it by degrees; and that you may do it the more exactly, obſerve that your ſtroaks be not too cloſe, nor too wide.

For your more exact obſervation, practice by ſuch prints which are more looſly ſhadowed, leſt by imitating the more dark, you ſhould not know where to begin or end.

V.

V. After you have graved part of your work, it will be needful to ſcrape it with the ſharp edge of a burniſher or other Graver, carrying it along even with the plate, to take off the roughneſs of the ſtroaks; but in doing it, beware of making ſcratches.

VI. And that you may the better ſee that which is Engraven, with the piece of Felt or Caſtor (at the fourth Section of the ſecond Chapter) dipt in oyl rub the places graven.

VII. Laſtly, whatſoever appears to be amiſs, you may rub out with the burniſher, and very exactly poliſh it with your piece of Felt or Caſtor and oyl; which done, to cleanſe the plate you may boil it a little in Wine-vinegar, and rub it gently with a bruſh of ſmall Braſs-wire or Hogs briſtles.

CHAP. V.

Of the Imitation of Copies or Prints.

I. HAving a piece of Bees wax tyed up in a fine holland rag, heat the plate over the fire, till it may be hot enough to melt the wax; then rub the plate with the wax tyed up in the rag, till you ſee it covered all over with wax, (which let be very thin:) if it be not even, heat it again by the fire, and wipe it over gently with a feather.

II. If you would copy a printed picture, to have it print off the ſame way; then clap the print which you would imitate with the printed ſide next to the plate; and having placed it very exactly, rub the backſide of the print with a burniſher, or any thing that is hard, ſmooth and round, which will cauſe it to ſtick to the wax upon the plate: then take off the print (beginning at one corner) gently and with care, leſt you tear it (which may be cauſed alſo by putting too much wax upon the plate) and it will leave upon the wax the perfect proportion in every part.

Where note, if it be an old picture, before you place it upon the wax, is will be good to track it over in every limb with a black-lead pencil.

III. But if you would have it print the contrary way, take the duſt of black-lead, and rub the backſide put upon the waxed plate; and with your needle or drawing point, draw all

the

the out-lines of the design or print, all which you will find upon the wax. This done.

IV. Take a long Graver either Lozenge or round (which is better) very sharp, and with the point thereof scratch over every particular limb in the out-stroak; which done, it will not be difficult to mark out all the shadows as you Engrave, having the proportion before you.

V. Lastly, for Copies of Letters, go over every letter with black-lead, or write them with ungum'd Ink, and clap the paper over the waxed plate as before.

See Chap. 9. Sect. 20. ad 25. following.

CHAP. VI.

Of Engraving in Wood, called Cutting and Carving.

I. THe figures that are to be carved or graven in Wood must first be drawn, traced, or pasted upon the wood; and afterwards all the other standing of the wood (except the figure) must be cut away with little narrow pointed knives made for that purpose.

This graving in wood is far more tedious and difficult than that in Brass or Copper; because you must cut it, and be careful in picking it out, lest you should break any part of the work, which would deface it.

II. For the kind of the wood let it be hard and tough: the best for this purpose is Beech and Box or Pear-tree; let it be plained inch thick; which you may have cut into pieces according to the bigness of the figure you grave.

III. To draw the figures upon the wood.

Grind white lead very fine, and temper it with fair water; dip a cloth therein, and rub over one side of the wood and let it dry throughly: This keepeth the Ink (if you draw therewith) that it run not about, nor sink. and if you draw with Pastils, it makes the stroaks appear more plain and bright.

IV. Having whited the wood as before (if it is a figure you would copy,) black or red the blank side of the print or copy, and with a little stick or swallow's quill, trace or draw over the stroaks of the figure

V.

V. But if you paſte the figure upon the wood, you muſt not then white it over (for then the figure will pill off) but only ſee the wood be well plained: then wipe over the printed ſide of the figure with Gum-Tragacanth diſſolved in fair water, and clap it ſmooth upon the wood, which let dry throughly: then wet it a little all over, and fret off the paper gently, till you can ſee perfectly every ſtroak of the figure: dry it again, and fall to cutting or carving it.

CHAP. VII.

Of Etching, *and the Materials thereof.*

I. *Etching* is an artificial Engraving of Braſs or Copper plates with *Aqua fortis*.

II. The Inſtruments of Etching (beſides the plate) are thirteen. 1. *Hard Varniſh.* 2. *Soft Varniſh.* 3. *Prepared Oyl.* 4. *Aqua fortis.* 5 *Needles.* 6. *Oyl-ſtone.* 7. *Bruſh-Pencil.* 8. *Burniſher.* 9. *A Scraper.* 10. *Compaſſes.* 11. *Ruler.* 12. *Stift.* 13. *The Frame and Trough.*

III. *To poliſh the Plate.*

Although in Chap. 2 of this Book, we have ſufficiently taught how to poliſh the plate, yet nevertheleſs we think it convenient to ſubjoyn theſe following words. Firſt, the plate being well planiſhed or forged, chooſe the ſmootheſt ſide to poliſh; then fix it upon a board a little declining, and rub it firmly and evenly all over with a piece of Grindſtone, throwing water often on it, ſo long till there be no dints, flaws, or marks of the hammer.

IV. Waſh it clean, and with a piece of good Pumice-ſtone, rub it croſwiſe to the former, ſo long till there be no rough ſtroaks or marks of the Grindſtone.

V. Waſh it clean again, and rub it with a fine Hoan and water croſwiſe to the former, till the marks of the Pumice-ſtone are rubbed out.

VI. Waſh it again, and with a piece of Charcoal without knots (being heat red hot and quenched in Urine, the outſide being pared off) rub the plate with water, till all the ſmall ſtroaks of the Hoan be vaniſhed.

VII.

VII. Laſtly, if yet there remain any ſmall ſtroaks or ſcratches, rub them out with the end of the burniſhing Iron; but in caſe they are very deep, you muſt make uſe of your Scraper, and ſcrape them out, and burniſh them afterwards; and then laſtly take a Charcoal prepared as aforeſaid, and rub therewith, with water, till the plate is glaſed, ſo ſhall the plate be fitted for work.

VIII. To make the hard Varniſh for Etching.

Take Greek or Burgundy-pitch, Colophonium or Rozin, of each five ounces, Nut-Oyl four ounces; melt the Pitch or Rozin in an earthen pot upon a gentle fire; then put in the Oyl, and let them boil for the ſpace of half an hour: cool it a little upon a ſofter fire till it appear like a Glewy Syrup; cool it a little more, ſtrain it, and being almoſt cold, put it into a glaſed pot for uſe. Being thus made, it will keep at leaſt twenty years.

IX. To make the ſoft Varniſh for Etching.

Take Virgin-wax three ounces, Maſtich in drops two ounces, Aſphaltum one ounce: grind the Maſtich and Aſphaltum ſeverally very fine: then in an earthen pot melt the wax, and ſtrew in the Maſtich and Aſphaltum, ſtirring all upon the fire till they be well diſſolved and mixed, which will be in about half a quarter of an hour; then cooling it a little, pour it into a baſon of fair water (all except the dregs) and with your hands wet (before it is cold) form it into rouls.

X. Or thus, *Take Virgin Wax, four ounces: Aſphaltum, two ounces: Amber, Maſtich, of each one ounce: the three laſt being in fine Pouder, mix it over a gentle fire, that it may not be burnt; then taking it from the fire, put it into a pot of fair water, and make it up into Balls or Rouls, and preſerve it from the duſt; when you uſe it, take a quantity of it, and bind it up in a piece of Taffaty or Silk, and uſe it as hereafter we ſhall direct.*

XI. Or thus, for a Red Ground. *Take Red Lead, grind it very well, and temper it with varniſh.*

XII. Or thus, for a White Ground. *Take Roſin, two ounces: Wax, one ounce: melt them together, adding Venice Ceruſe finely ground, two drams.*

XIII. Or thus, for a Black Ground. *Take Aſphaltum four ounces; Bees Wax, two ounces; melt them together, being warm, lay it thinly on with a Lawn Rag.*

XIV. Or thus, for another Red Ground. *Take Red Lead or Vermillion, grind it very well, then grind it with Linſeed Oyl; lay it on very thin.*

XV.

XV. Or thus, out of a Manuscript. *Take Virgin Wax, four ounces: Asphaltum, Amber, Mastick, of each two ounces (but if cold weather, but one ounce of Mastick) Rosin, Shoomakers Pitch, of each an ounce: Common Varnish, half an ounce: melting the Wax in an Earthen Pot, put in the other things by degrees, which then well mixed, make it up into Balls or Rouls, and keep it from dust for use.*

XVI. Or thus, from Rinebrant. *Take Asphaltum burnt, Mastick, Amber, of each half an ounce: Virgin Wax, an ounce: melt the Wax and mix therewith the former things in Pouder, then make it into Balls or Rouls for use: when you use it, heat not the plate too hot, and lay your Black Ground very thin, and the White Ground upon it.*

XVII. To make the prepared Oyl.

Take Oyl Olive, make it hot in an earthen pot, and put into it a sufficient quantity of tried Sheeps Suet (so much as being dropped upon a cold thing, the oyl may be a little hardened and firm) boil them together for an hour, till they be of a reddish colour, lest they should separate when you use them. This mixture is to make the fat more liquid, and not cool so fast, for the fat alone would be no sooner on the pencil, but it would grow cold; and be sure to put in more oyl in Winter than in Summer.

XVIII. To make the Aqua fortis.

Take distilled White-wine Vinegar three pints; Sal-Armoniack, Bay-salt, of each six ounces; Verdigrease four ounces. Put all together into a large well glazed earthen pot (that they may not boil over) cover the pot close, and put it on a quick fire, and let it speedily boil two or three great walms and no more; when it is ready to boil, uncover the pot, and stir it sometimes with a stick, taking heed that it boil not over; having boiled, take it from the fire, and let it cool, being close covered, and when it is cold, put it into a Glass bottle with a Glass stopple: If it be too strong in Etching, weaken it with a glass or two of the same Vinegar you made it of.

XIX. There is another sort of *Aqua fortis*, which is called Common, which is exhibited in our *Pharmacopeia Londinensis & Doron. Medicum.* But because those Books may not be in every mans hand, we will here insert it; it is thus: Take dried Vitriol two pound, Salt-peter, one pound, mix them and distil by a Retort, in open fire by degrees.

XX. To make the Etching Needles.

Choose

Chooſe Needles of ſeveral ſizes ſuch as will break without bending, and of a fine grain; then take good round ſticks of firm wood (not apt to ſplit) about ſix inches long, and as thick as a large Gooſe-quill, at the ends of which fix your Needles, ſo that they may ſtand out of the ſticks about a quarter of an inch or ſomething more. You ought to have twenty Needles at leaſt; which you may fix in ſuch ſticks, as to have a pencil at the other end.

XXI. *To whet the points of the Needles with the Oyl-ſtone.*

If you would have them whetted round, you muſt whet their points ſhort upon the Oyl-ſtone (not as ſowing Needles are) turning them round whilſt you whet them, as Turners do. If you whet them ſloping, firſt make them blunt upon the Oyl-ſtone, then holding them firm and ſteady, whet them ſloping upon one ſide only, till they come to a ſhort and roundiſh oval.

XXII. The *bruſh pencil* is to cleanſe the work, wipe off duſt, and to ſtrike the colours even over the ground or varniſh, when laid upon the plate.

XXIII. The *burniſher* is a well hardened piece of ſteel ſomewhat roundiſh at the end. Its uſes are what we have ſpoken at the ſixth Section of the firſt Chapter, and the third Section of the ſecond Chapter.

XXIV. The *Scraper* is one of the Inſtruments fitted for clearing the plate of all deep ſcratches or ſtroaks which the burniſher will not take away; you are firſt to ſcrape them out with the ſcraper, (carrying your hand evenly, that you make not more work) and then afterwards to burniſh upon what you have ſcraped.

XXV. The *Compaſſes* are chiefly of uſe to meaſure a diſtance, or ſtrike a Circle, or ſome part or portion of a Circle, where you deſire your work to be exact.

XXVI. The *Ruler* is of ſervice chiefly, to draw all the ſtraight hatches or lines of your deſign, upon plate; or, to mark out diſtances upon a ſtraight line.

XXVII. The *Stift* is uſed to draw through all the outmoſt Lines or Circumferences of the Print, Pattern, or Drawing, which you Etch after.

XXVIII. *To make the Frame and Trough.*

The Frame is an entire board, about whoſe top and ſides is faſtened a ledge two inches broad, to keep the *Aqua fortis* from running off from the ſides when you pour it on: the lower end of this board muſt be placed in the Trough, leaning

ſloping

ſloping againſt a wall or ſome other thing, wherein you muſt fix ſeveral pegs of wood to reſt the plate upon.

XXIX. The Trough is made of a firm piece of Elm or Oak ſet upon four legs, whoſe hollow is four inches wide; and ſo long as may beſt fit your uſe: the hollow muſt be ſomething deeper in the middle, that the water running thither may fall through a hole (there made for that purpoſe) into an earthen pan well Leaded. *The inſide of this board and trough muſt be covered over with a thick oyl colour, to hinder the* Aqua fortis *from eating or rotting the board.*

CHAP. VIII.

The way and manner of uſing the Hard Varniſh.

I. HAving well heat the poliſhed plate over a Chafing diſh of coals, take ſome of the firſt varniſh with a little ſtick, and put a drop of it on the top of your finger, with which lightly touch the plate at equal diſtances, laying on the varniſh equally, and heating the plate again as it grows cold, keeping it carefully from duſt or filth; then with the ball of your thumb tap it upon the plate; ſtill wiping your hand over all, to make it more ſmooth and equal.

And here beware that neither the varniſh be too thick upon the plate, nor your hand ſweaty.

II. Then take a great lighted candle burning clear, with a ſhort ſnuff, (placing the corner of the plate againſt a wall) hold the varniſhed ſide downward over the candle, as cloſe as you can, ſo it touch not the varniſh, guiding the flame all over, till it is all perfectly black, which you muſt keep from duſt or filth till it is dry.

III. Over a fire of Charcoals hang the varniſhed plate to dry with the varniſh upwards, which will ſmoak; when the ſmoak abates, take away the plate, and with a pointed ſtick ſcratch near the ſide thereof, and if the varniſh eaſily comes off, hang it over the fire again a little, ſo long till the varniſh will not too eaſily come off; then take it from the fire and let it cool,

If

If the varnish should be too hard, cast cold water on the back-side of the plate to cool it, that the heat may not make it too hard and brittle. This done,

IV. Place it upon a low desk, or some such like thing, and cover that part which you do not work on, with a sheet of fine white paper, and over that a sheet of brown paper, on which may rest your hand, to keep it from the varnish.

V. If you use a ruler, lay some part of it upon the paper, that it may not rub off the varnish; and have an especial care, that no dust or filth get in between the paper and the varnish for that will hurt it.

CHAP. IX.

The way and manner of Etching.

I. IN making lines or hatches, some bigger, some lesser, straight or crooked, you must use several sorts of Needles, bigger or lesser, as the work requires.

II. The great lines are made by leaning hard on the Needle; its point being short and thick, (but a round point will not cut the varnish clear:) or by making divers lines; or hatches, one very close to another, and then by passing over them again with a thicker needle; or by making them with an indifferent large needle, and letting the *Aqua fortis* lie the longer thereon.

The best Needles for this work are such as are whet sloping with an oval, because their sides will cut that which the round ones will not.

III. If your lines or hatches ought to be of an equal thickness from end to end, lean on the needle with an equal force; leaning lightly where you would have the lines or stroaks fine or small; and more heavy where you would have the lines appear deep or large; thereby the needle may have some Impression in the Copper.

IV. If your lines or hatches be too small, pass over them again with a short round point of such a bigness as you would have the line of, leaning strongly where you would have the line deep.

V.

V. The manner of holding the needle with oval points (which are moſt proper to make large and deep ſtroaks) is much like that of a pen, only the flat ſide whetted is uſually held towards the thumb: but they may be uſed with the face of the oval turned toward the middle finger.

VI. If you would end with a fine ſtroak, you ought to do that with a very fine needle.

VII. In uſing the oval points, hold them as upright and ſtraight in your hand as you can, ſtriking your ſtroaks firmly and freely, for that will add much to their beauty and clearneſs.

VIII. In Landskips, in places fartheſt from the ſight, as alſo neareſt the light, uſe a very ſlender point, leaning ſo lightly with your hand as to make a ſmall faint ſtroak.

IX. In working be careful to bruſh off all the duſt which you work off with the needles.

X. But this you are to obſerve, that you be able to copy any Drawing or print exactly, and to draw after good heads of Plaſter, or Figures, according to your own fancy, and skilful in ſhadowing every thing exactly according to art: And therefore when you imitate Plaſter, be ſure to take the true out-lines or circumferences, and taking notice how the ſhadow falls, to do it very faint and ſoft as the deſign requires.

XI. Therefore it is convenient that you be able to batch with the Pen, exactly after good Prints or Copies, and when you can perfectly do that, and draw after Plaſter, then to imitate the life; but before you draw after the life, you muſt be very exact and true in your out-lines or circumferences.

XII. Now to take the outmoſt lines in any Drawing or Print, upon the ground of the plate, you muſt ſcrape a little white lead upon the back ſide of it, then take a feather, and rub it over every where alike, and ſhake off that which remains looſe. This done, take the print and lay it upon the Plate, on that ſide the ground is, and faſten the four corners thereof to the plate with a little ſoft Wax: and take the *Stift*, and draw upon the Print all the outmoſt lines or circumferences exactly; which done, take off the print from the plate, and all the ſame out-lines and circumferences; which you drew upon the print with the Stift, will be exactly found upon the ground.

XIII. Then obſerve exactly how your original or pattern is ſhadowed, and how cloſe the hatches joyn, how they are laid, and which way the light falls or comes in: and be ſure to make the light to fall all one way; if the light falls ſideways in the Print; you muſt hatch the other ſide darkeſt, which is fartheſt from the light, and ſo place your lights altogether on one ſide, and not confuſedly, part on one ſide, and part on another.

XIV. Obſerve how cloſe all the hatches joyn, how they incline, and which way they twiſt and wind; which follow as exactly as poſſibly you can: but before you begin to hatch or ſhadow, you muſt be ſure to draw all the outmoſt lines with a Needle upon the ground as artificially as you can, which ſhadow with your Needles of ſeveral ſorts according to your Original.

XV. When you are to make a broad ſtroak, then break off the point of your Needle, and whet it upon the oyl ſtone, four ſquare till it comes to a point; if you hatch fine ſtrokes then you muſt uſe fine pointed Needles: if middle ſized ſtrokes, then break off the point of a middle ſized Needle, and whet it as aforeſaid; and ſo in like manner according to all the ſizes: but ſome Artiſts, in making a bold or broad-ſtroke, hatch it firſt fine, and ſo by degrees make it broader.

Etching Land-skips.

XVI. When you etch Land-skips, hatch that which is neareſt to the eye darkeſt, and ſo let it looſe or decline its ſhadows by degrees, making that which is fartheſt off fainteſt.

XVII. The ſame thing you muſt obſerve in etching of the sky. For that which is neareſt to the eye, muſt be darkeſt ſhadowed, but in general as faint and ſoft as may be, looſing it ſelf by degrees as is before directed; and the nearer the sky comes to the ground, the more it muſt looſe and be fainter: when they both meet as it were together, the sky muſt be quite loſt.

XVIII. When you have hatched it as exactly as you can poſſible with your Needles, after the Print or Drawing, then compare them exactly together, that you may ſupply any defect, or mend what is done amiſs.

XIX. In etching a piece of *Perſpective* after a Draught or Print, beware of Perfection at a diſtance, and be ſure to ſhadow that which is neareſt to the eye, perfecteſt and ſtrongeſt,

ſtrongeſt, and the farther from the eye, it muſt decline in length, breadth, and heighth according to Art and Proportion; letting the ſhadows looſe, and grow fainter and fainter, *gradatim*, till they are nearly loſt.

Etching or Engraving of Letters.

XX. Screw the Copper plate (being fit for etching, by one of its corners) to a hand Vice, which hold over a Charcoal fire till it be warm: then take a piece of Virgin Wax, and rub it all over the plate, until it is covered every where alike.

XXI. This done, take a ſtiff Ducks-wing feather (not rufled) and therewith drive the Wax even and ſmooth, every where alike, and ſo let it cool.

XXII. Then write the Letters or Hand, which you intend to put upon the plate, on a piece of Paper with ungum'd Ink: this paper thus written, lay with the written ſide downwards, upon the waxed plate, and faſten the four corners with a little ſoft Wax; the writing being ſo placed that the lines may run ſtraight.

XXIII. Then take a Dogs tooth, and rub the paper all over with it, not miſſing any place; which done take off the Paper from the plate, ſo will all the letters which you wrote on the papers be left exactly upon the Wax.

XXIV. Take now a *Stift*, and draw all the letters through the Wax upon the plate, and take a linnen rag, or Pencil bruſh, with which cleanſe the work from the looſe Wax; ſo will all the letters be drawn upon the Copper.

XXV. This, if you pour upon it good *Aqua fortis*, will be etched: but if you take away all the Wax, you may better and more commendably perform it by Graving, with good Gravers well ground, and made ſharp towards the points; then whetted very ſmooth and ſharp upon a good Oyl-ſtone.

CHAP. X.

Of using the Aqua fortis.

I. IF there be any ſtroaks which you would not have the *Aqua fortis* eat into; or any places where the varniſh is rubbed off, melt ſome prepared Oyl, and with a pencil, cover thoſe places pretty thick.

II. Then take a bruſh pencil, or rag, and dip it in the prepared oyl, and rub the bak-ſide of the plate all over, that the *Aqua fortis* may not hurt it, if by chance any ſhould fall thereon.

III. Before you put *Aqua fortis* to the plate, gently warm or dry the plate by a fire to dry up the humidity, which it might contract by reaſon of the Air; and to prevent the breaking up the varniſh upon the firſt pouring the *Aqua fortis* thereon.

IV. Place the plate by the 12th. Section of the 7th. Chapter of this Book, and with the *Aqua fortis* in an earthen pot pour upon the plate, beginning at the top, ſo moving your hand that it may run all over the plate, which do for eight or ten times: then turn it corner-wiſe, and pour the *Aqua fortis* on it that way ten or twelve times; and then turn it again corner-wiſe the other way, pouring on the *Aqua fortis* eight or ten times as before; doing thus ſeveral times for the ſpace of half a quarter of an hour or more, according to the ſtrength of the water, and nature of the Copper.

For there muſt be leſs time allowed to hard and brittle Copper for pouring on the Aqua fortis, *but more to the ſoft.*

V. But you muſt have ſpecial regard to caſt on the *Aqua fortis* as occaſion ſhall require, and as the work is; caſting it on at ſeveral times, and on ſeveral places; where you would have it very deep, often; where leſs deep, fewer times: where light, leſs yet; where lighter, leſſer yet: and where ſo light as it can ſcarcely be ſeen, once or twice: waſh it with water, and cover it where you would have it lighter.

VI

VI. Having thus covered your plates as occasion requires for the second time, place the plate on the frame as aforesaid and pour on it your *Aqua fortis* for a full half hour.

VII. Then wash it with water, and dry it, covering the places which require lightness or faintness (that they may be proportionable to the design) then pour on the *Aqua fortis* for the last time more or less according to the nature of your work, and the deepness that it requires.

VIII. You may rub off the varnish or ground, as occasion in your work requires with a Charcoal, to see whether the water hath eaten deep enough; by which you may judge of the space of time, that you are after to imploy in pouring on the *Aqua fortis*, in the works you will have to do, which if the shadows require much depth, or ought to be very black, the water ought to be poured on (at the least time) for an hour or better; yet know, *no certain rule of time can be limited for this.*

CHAP. XI.

Of Finishing the work.

I. ALL the former operations being done, wash the plate with fair water; and put it wet upon the fire, till the mixture be well melted, and then wipe it very clean on both sides with a linnen cloth, till you have cleansed it of all the mixture.

II. Take Charcoal of Willow, take off the rind of it, and putting fair water on the plate, rub it with the Charcoal, as if you were to polish it, and it will take off the varnish.

Where note, that the Coal must be free from all knots and roughness, and that no sand or filth fall upon the plate.

III. Take ordinary *Aqua fortis*, to which add two third parts of water, and with some linnen rags dipped therein rub the plate all over, so will you take away its discolouring, and recover its former beauty.

IV. Then take dry linnen rags, and wipe the plate so as to take off all the aforesaid water, and then holding it a little to the fire, put upon it a little Oyl Olive, and with a

piece of an old Beaver rolled up, rub the plate well all over, and laſtly, wipe it well with a dry cloath.

V. Then if any places need touching with the Graver, as ſometimes it happens, eſpecially where it is to be very deep or black, perfect them with care; which done, the plate is ready for the Rolling-Preſs.

CHAP. XII.

The way of uſing the ſoft Varniſh.

I. THe plate being prepared by cleanſing it with a Charcoal and clean water, waſh it well and dry it, then with fine white Chalk ſcraped and a fine rag, rub it well over, not touching it with your fingers.

II. Lay down you plate over a Chafing diſh of ſmall-coal, yet ſo as the fire may have air; then take the ground or ſoft varniſh (it being tied up in a fine rag) and rub it up and down the Copper, ſo as it may ſufficiently cover it, (not too thin nor too thick:) then take a ſtiff Ducks feather, and ſmooth it as well as poſſibly you can all one way, and then croſs it till it lie very well.

But you muſt take heed that the plate be not too hot, for if it lie till the ground ſmoak, the moiſture will be dried up, and that will ſpoil the work, and make the ground break or fly up.

III. Then grind ſome Ceruſe or White-lead with Gum-water, ſo that it may be of a convenient thickneſs to ſpread on the Copper; and with a large pencil, or ſmall bruſh, ſtrike the plate croſs over, twice or thrice till it is ſmooth; and then with a larger bruſh (made of Squirrels tails) gently ſmooth the white, and then let it lie till it is dry.

IV. Or you may black the varniſh with a candle, as we taught at the Second Section of the Eighth Chapter, and then if it be cold, warm it over the fire, till the varniſh begin to melt, that the ſmoak may melt into the ground, ſo that you rub it not off with your hand.

CHAP.

CHAP. XIII.

The way of Etching upon the soft Varnish.

I. THe way of Etching is the same with that in the hard varnish, only you must be careful not to hurt your varnish, which you may do by placing on the sides of your plate two little boards, and laying cross over them another thin one, so as that it may not touch the plate, on which you must rest your hand whilst you work.

II. Then place the plate on a Desk (if you so please) for by that means the superfluous matter will fall away of it self.

III. But if you have any design to transfer upon the plate from any Copy or Print, scrape on the backside thereof some red Chalk all over; then go over that, by scraping some soft Charcoal, till it mingle with the Chalk; and with a large stiff pencil rub it all over till it be fine and even, and so lay down the design upon the plate: with a blunt Needle draw over the out strokes: *and as you work, you need not scratch hard into the Copper, only so as you may see the Needle go through the Varnish to the Copper.*

IV. Always be sure when you leave the work, to wrap the plate up in Paper, to keep it from hurt, and corrupting in the air, which may dry the varnish: and in Winter time wrap the plate up in a piece of Woollen, as well as paper, for if the frost get to it, it will cause the Varnish to rise from the Copper in the eating.

An inconveniency also will accrew, by letting the Varnish lie too long upon the Plate before the work is finished; for three or four months will consume the moisture and so spoil all.

V. The marking of the design upon the soft varnish, is best done with Black-lead or Chalk, if the ground is white; but with red Chalk, if the ground is black.

VI. Having Graved what you intend upon the varnish, take some fair water, a little warm, and cast it upon the Plate; and then with a soft clean Spunge, rub upon the White-lead to moisten it all over; and then wash the plate to take away the whiting, and dry it.

VII. Or Laſtly, with *Aqua fortis* mixed with fair water, waſh it all over, and by this means you may take away the whiting, which then waſh with common water and dry it; and thus have you the plate prepared for the *Aqua fortis*.

CHAP. XIV.

Of uſing the Aqua fortis, *and finiſhing the Work.*

I. PUt ſoft wax (red or green) round the brims of the plate, (being firſt drawn into a long ſlender roul or ſtring) and let it be raiſed above the varniſh about half a Barley Corns length; ſo that placing the plate level, the water being poured upon the plate may by this means be retained. But that you may be ſure that the *Aqua fortis* ſhall not run out, you muſt take a knife and heat it in the fire, and ſear the wax round about under the plate, very cloſe: and be ſure to faſten the Wax as near to the edges of the plate, as you can conveniently. This done,

II. Take ſingle or common *Aqua fortis* ſix ounces, common water two ounces; mix them, and pour it gently upon the plate, ſo that it may cover it fully all over; ſo will the ſtronger hatchings be full of bubbles, while the fainter will appear clear for a while, not making any ſudden operations to the view.

Note, to weaken the Aqua fortis, *you may alſo mix it with Vinegar, or a little of that* Aqua fortis *which has been uſed formerly: for if your liquor be too ſtrong, it will make the work very hard, and ſometimes make the ground to break up. The deeper the* Aqua fortis *lies, the harder it will eat.*

III. When you perceive the water to operate a ſmall time, pour it off into a glazed earthen diſh, keeping it to uſe with ſome other, and throw fair water upon the plate, to waſh away the *Aqua fortis*, then dry the plate.

IV. And where you would have the Cut to be faint, tender or ſweet, cover it with the prepared Oyl, and then cover the plate again with *Aqua fortis* as before, leaving it on for eight or ten minutes or longer: then put off the *Aqua fortis* as before, waſhing and drying the plate, and covering with the prepared

prepared Oyl other places which you would not have so deep as the rest.

V. Lastly, put on the *Aqua fortis* again, for the space of half an hour (more or less) and then pour it off, washing the plate with fair water as before.

VI. *As you would have your lines or stroaks to be deeper and deeper, so cover the sweeter or fainter parts by degrees with the prepared Oyl, that the* Aqua fortis *may lie the longer on the deep stroaks.* Then,

VII. Take off the border of wax, and heat the plate, so that the Oyl and varnish may throughly melt; which wipe away well with a linnen cloth: then rub the plate over with Oyl Olive, and a piece of an old Beaver roll'd up, which done, touch it with the Graver where need is.

VIII. But if any thing be (at last) forgotten; then rub the plate aforesaid with crums of bread, so well that no filth or oyl remain upon the plate.

IX. Then heat the Plate upon a Charcoal fire, and spread the soft varnish with a feather upon it (as before) so that the hatchings may be filled with varnish; black it, and then touch it over again, or add what you intend.

X. Let your hatchings be made by means of the Needles, according as the manner of the Work shall require, being careful before you put on the *Aqua fortis*, to cover the first graving on the Plate with the prepared Oyl, (lest the varnish should not have covered all over:) then cause the *Aqua fortis* to eat into the work; and lastly cleanse the Plate as before.

XI. Your plate being cleansed, if you perceive that the *Aqua fortis* has not eaten as deep in some places, as it should have done, you must help those defects with a Graver.

XII. To know when the *Aqua fortis* has eat deep enough after it has layen a quarter or half an hour, pour off the *Aqua fortis* from the Plate into a Glass, wash it with a little fair water, and with a knife scrape off a little bit of the ground, where it is hatcht, and may be least prejudicial to your work; and if you find it not deep enough, cover the bare place of your Plate with your prepared Oyl, and put the *Aqua fortis* upon it again, letting it lye till you think it deep enough.

XIII. Or mix it with some new *Aqua fortis*, if you think what you have used to be too weak; by many Tryals and Practice, you will at length come to a certainty.

XIV.

XIV. Or you may make the Tryal upon a waſte piece of Copper rudely hatched; pouring the *Aqua fortis* both upon the Plate, and that at one and the ſame time: after a ſufficient ſeaſon, with a knife take off a little piece of the ground from the waſte piece of Copper where it is hatched, and if it be not deep enough, cover it again with your prepared Oyl, and make a new Tryal, and ſo proceed on, till you find the *Aqua fortis* has eaten deeep enough.

XV. Obſerve to waſh the Plate with a little fair water, before you warm it, for otherwiſe, the *Aqua fortis* will ſtain the Plate.

XVI. If the ground be broken up in any place, put off the *Aqua fortis* from the Plate, waſh it with fair water, and cover it with your prepared Oyl, then pour on the *Aqua fortis* again, thus will you preſerve your Plate from injury.

XVII. To make your *Aqua fortis* work harder or ſofter, you muſt cover thoſe places of your Plate which you would have to be faint (after that the *Aqua fortis* has been once poured off your Plate) with your prepared Oyl, which Oyl you muſt uſe by degrees, as you would have your work fainter: this in Etching Landskips you will find neceſſary, for that they muſt loſe and ſtand at a diſtance *gradatim*.

CHAP. XV.

Of Limning, and the Materials thereof.

I. LImning is an Art whereby in water Colours, we ſtrive to reſemble Nature in every thing to the Life.

II. The Inſtruments and Materials thereof are chiefly theſe 1. *Gum.* 2. *Colours.* 3. *Liquid Gold and Silver.* 4. *The Grind-ſtone and Muller.* 5. *Pencils.* 6. *Tables to Limn in.* 7. *Little Glaſſes, or Horeſmuſcle-ſhells.*

III. The *Gums* are chiefly theſe four, Gum-Arabick' Gum-Lake, Gum-Hedera, Gum-Armoniack.

IV. The principal *Colours* are theſe ſeven, *White*, *Black*, *Red*, *Green*, *Yellow*, *Blue*, *Brown*: out of which are made mixt or compound Colours.

V. The *Liquid Gold and Silver* is either natural or artificial.

The

The natural is that which is produced of the Metals themselves: the artificial is that which is formed of other colours.

VI. The *Grindstone, Muller, Pencils, Tables, and Shells, or little Glasses*, are only the necessary instruments and attendants, which belong to the practice of Limning.

VII. Chuse such Pencils as are clear and sharp pointed, not dividing into parts: of these you must have many in a readiness, a several Pencil at least, for every several Colour.

CHAP. XVI.

Of the Gums, and their Use.

I. THe chief of all is Gum-Arabick, that which is white, clear and brittle; the Gum-water of it is made thus.

Take Gum-Arabick, bruise it and tye it up in a fine clean linnen cloath, and put it into a convenient quantity of pure spring-water, in a glass or earthen vessel; letting the Gum remain there till it is dissolved; which done, if the water is not stiff enough, put more Gum into the cloath; but if too stiff, add more water: of which Gum-water have two sorts by you, the one strong, the other weak; of which you may make a third at pleasure.

II. But if you be where Gum-Arabick is not to be got, you may instead of that use the preparation of Sheeps leather or parchment following:

Take of the shreds of white Sheep-Skins (which are to be had, plentifully at Glovers) or else of parchments, one pound; Conduit or running water two quarts, boil it to a thin gelly, then strain it whilst hot through a fine strainer, and so use it.

III. Gum-Lake, it is made of whites of Eggs beaten and strained a pint, Honey, Gum-Hedera, of each two Drams, strong wort four spoonfuls, mix them, and strain them with a piece of spunge till they run like a clear Oyl, which keep in a clean vessel till it grows hard.

This Gum will dissolve in water like Gum-Arabick, of which Gum-water is made in like manner; it is a good ordinary varnish for Pictures.

IV.

IV. Gum-Hedera, or Gum of Ivy; it is gotten out of Ivy; by cutting with an Axe a great branch thereof, climbing upon an Oak-tree, and bruising the ends of it with the head of the Axe; at a Months end, or thereabouts, you may take from it a very clear, and pure fine Gum, like Oyl.

V. *It is good to put into Gold-size and other Colours, for these three reasons: 1. It abates the ill scent of the size: 2. It will prevent bubbles in Gold-size and other Colours: 3. Lastly, it takes away the fat and clamminess of Colours: besides which it is of use in making Pomanders.*

VI. Gum-Amoniacum, It is a Foreign Gum, and ought to be bought strained. Grind it very fine with juice of Garlick and a little Gum-Arabick water, so that it may not be too thick, but that you may write with it what you will.

VII. *When you use it, draw what you will with it, and let it dry, and when you gild upon it, cut your Gold or Silver to the fashion which you drew with the size or gum, then breath upon the size, and lay the Gold upon it gently taken up, which press down hard with a piece of wool; and then let it well dry; being dryed, with a fine linnen cloth strike off the loose Gold; so will what was drawn be fairly gilded if it were as fine as a hair: it is called Gold-Armoniack.*

CHAP. XVII.

Of the Seven Colours in General.

I. THE chief *Whites* are these, Spodium, Ceruse, White-lead, *Spanish*-white, Egg-shells burnt.

II. This Colour is called in *Greek* λευκὸς of λεύσσω, *video* to see, because λευκοτὴς ὄτι διακριτικὸν ὄψεως, whiteness (as *Aristotle* said) is the object of sight, in Latin *Albus*, from whence the *Alps* had their name, by reason of their continual whiteness with Snow.

III. The *Spanish-white is thus made.* Take fine Chalk three ounces, Alum one ounce, grind them together with fair water till it be like pap; roul it up into balls, which dry leisurely: then put them into the fire till they are red hot; take them out, and let them cool: *it is the best white of all, to garnish with, being ground with weak Gum-water.*

IV.

IV. The chief *Blacks* are these, Harts-horn burnt, Ivory burnt, Cherry-stones burnt, Lamp-black, Charcoal, Sea-coal, Verditer burnt, Mummy burnt.

V. *Black, in Latin* Niger, *is so called from the Greek word* νεκρὸς, *which signifies dead, because putrefied and dead things are generally of that colour.* Lamp-black *is the smoak, of a Link, Torch, or Lamp gathered together.*

VI. The chief *Reds* are these, Carmine, Vermilion, Red-lead, Indian-lake, native Cinnabar, Red-Oker, Yellow-Oker burnt, Indian Red.

VII. It is called in Latin *Ruber* παρὰ τὴν ῥοὴν *à corticibus vel granis mali punici*; from the Rinds or Seeds of Pomegrantes, as *Scaliger* saith.

VIII. The chief *Greens* are these, Green Bice, Green Pink, Verdigrise, Verditer, Sapgreen, Pink mixt with Bice.

IX. This Colour is called in Latin *Viridis* from *Vires*: in Greek χλωρὸν ἀ χλοή, Grass or Green Herb, which is of this Colour.

X. The chief *Yellows* are these, Orpiment, Masticot deep and light, Saffron, Pink-yellow, dark and light, Oker de Luce, English-Oker, Roman-Oker, Gall-stone.

XI. This Colour is called in Latin *Flavus, Luteus*, in Greek ξανθὸς, which is *Homer*'s Epithete for *Menelaus*, where he calls him ξανθὸς Μενελάϑ.

XII. The chief *Blews* are Ultramarine, Indico, Smalt, Blue Bice.

XIII. This colour is called in Latin *Cæruleus*, in Greek Κυάνεϑ à Κυάνϑ, *the name of a stone which yields* Ultramarine.

XIV. The chief *Browns* are Umber, Spanish-brown, Colens Earth, Gallstone, rust of Iron, Mummy. It is called in Latin *Fuscus, quasi* φῶς σκιᾶται, from darkning the Light, in Greek φαιός.

XV. This is to be noted, that of the aforenamed colours, *Vermillion, Verdigriese, Orpiment* and some others are too course and gritty to be used in water Colours; unless they be purified and prepared.

XVI. And *Turnsole, Litmose blue, Roset, Brasil, Logwood, and Saffron,* are more fit for washing Prints, than curious limning.

CHAP.

CHAP. XVIII.

Of Colours in Particular.

I. *Ceruſe*, Grind it with glair of Eggs, and it will make a very good white. It is too yellow for ſome purpoſes, courſe and gritty.

II. *White-lead*, Grind it with a weak water of Gum-lake, and let it ſtand three or four days, after which if you mix with it Roſet and Vermillion, it makes a fair Carnation.

III. *To make that your White-lead ſhall neither* ruſt nor ſhine (*both which are great faults in the Art of* Limning) *before you grind it lay it in the Sun two or three days, to exhale that greaſy and ſalt matter that poyſons and ſtarves the colour; ſcraping away alſo the outſide that is foul or dirty, which then grind with fair Water, or Lavender, or Roſemary water upon a Porphyre. When it is ground have in a readineſs a chalk ſtone, with furrows in it, into which furrows put the colour whilſt it is wet, and ſo let it dry in the Sun, and it will be very clean and white.*

IV. Being through dry, let it be waſht in this manner. *Take of the former cleanſed Lead a pound, put it into a baſon of ſpring water, ſtir it a while together till the water is all very white, then let it ſtand, and a kind of greaſie ſcum will ariſe, which blow off, and pour the white water, (being ſtirred afreſh, and a little ſettled again) into a clean Baſon, leaving the groſſer body at the bottom behind (not fit for our purpoſe:) let this water ſtand an hour or two, till it is quite ſettled.*

V. *Then decant the clear water, and put to the ſediment freſh water, ſtir it as before mentioned, then let it ſettle half the time it did at firſt, and pour off the white water into another clean baſon, leaving again the courſer part behind; let this water ſettle, and decant away the clear water from it: the remaining Lead dry, and then put it up into papers for your uſe.* Thus refined five or ſix times, it will be moſt pure, and beſt for uſe.

VI. When you have occaſion for it, ſpread a little of it about a ſhell with your finger, and temper it with Gum-water. In the ſame manner muſt *Ceruſe* be waſhed. Obſerve alſo in grinding of White, that you grind it not too much, leſt it prove greaſy or Oyly, or of a dirty colour.

VII.

VII. *Spaniſh-white*, It is the beſt white of all, to garniſh with, ground with Gum-water.

VIII. *Lamp-black*, ground with Gum-water, it makes a good black.

IX. *Vermilion*, Grind it with the glair of an Egg, and in the grinding put a little clarified honey, to make its colour bright and perfect. *Native Cinnabar is better and a briſker colour.*

X. Cinnabar-lake, it makes a deep and beautiful red, or rather purple, almoſt like unto a Red-roſe. Grind it with Gum-lake and Turnſole-water: if you will have it light, add a little Ceruſe, and it will make it a bright Crimſon; if to Diaper, add only Turnſole water.

XI. Red lead, Grind it with ſome Saffron, and ſtiff Gum-lake; for the Saffron makes it orient, and of a Marigold colour.

XII. Turnſole, Lay it in a Sawcer of Vinegar, and ſet it over a Chafing-diſh of coals; let it boil, then take it off, and wring it into a ſhell, adding a little Gum-Arabick, let it ſtand till it is diſſolved: It is good to ſhadow Carnation, and all Yellows.

XIII. Roſet, Grind it with Brazil-water, and it will make a deep purple: put Ceruſe to it, and it will be lighter; grind it with Litmoſe, and it will make a fair Violet.

XIV. Spaniſh-brown, Grind it with Brazil-water: mingle it with Ceruſe, and it makes a horſe-fleſh Colour. *It is not ſo briſk and lively as Indian Red.*

XV. Bole-Armoniack, It is a faint colour; its chief uſe is, in making ſize for burniſh'd gold.

XVI. Green-bice. Order it as you do Blue bice; when it is moiſt, and not through dry, you may Diaper upon it with the water of deep green.

XVII. Verdigriſe, Grind it with juyce of Rue, and a little weak Gum-water, and you will have a moſt pure green: if you will Diaper with it, grind it with Lye of Rue (or elſe the decoction thereof) and there will be a hoary green.

XVIII. Diaper upon Verdigriſe green with Sap-green: alſo Verdigriſe ground with white Tartar, and then tempered with gum-water, gives a moſt perfect green.

XIX. It is extreamly courſe unleſs it be purified as I have taught in my Doron, lib. 3. cap. 4. Sect. 13. § 2. *Being ſo prepared one ounce will be worth Ten of the Courſe, or that which is bought in the ſhops. It is done with ſpirit of Vinegar.*

XX.

XX. *Verditer*, grind it with a weak Gum-Arabick water: it is the faintest green that is, but is good to lay upon black, in any kind of Drapery.

XXI. *Sap-green*; lay it in sharp Vinegar all night; put into it a little Alom to raise its colour, and you will have a good green to Diaper upon other greens. *It is a shining but a fading colour*, use green Pink instead of it; for it has neither of those faults.

XXII. *Orpiment*, *Arsenicum* or *Auripigmentum* grind it with a stiff water of Gum lake, because it is the best colour of it self, it will lie upon no green, for all greens, White and Red-lead, and Ceruse stain it: Wherefore you must deepen your colours so that the Orpiment may be highest, and so it may agree with all Colours. *It is of a Venomous property, and some of it is course.*

XXIII. *Masticot*, Grind it with a small quantity of Saffron in gum-water, and never make it lighter than it is: it will endure to lie upon all colours and metals.

XXIV. *Saffron*, Steep it in glair: it may be ground with Vermilion.

XXV. *Pink-yellow*, If you would have it sad coloured, grind it with Saffron; if light, with Cerse: mix it with weak gum-water, and so use it.

XXVI *Oker de Luce*, grind it with pure Brazil water: it makes a passing hair colour; and is a natural shadow for gold. *Roman Oker is the more glowing of all the Okers.*

XXVII. *Umber*, It is a more sad brown colour. Grind it with gum-water, or gum-lake; and lighten it (if you please) with a little Ceruse and a blade of Saffron; to cleanse it, burn it in a Crucible, then grind it, and it will be good, and when you temper it in your shell, use a drop or two of Onion-water, and it will preserve it from crackling.

XXVIII. *Ultramarine*, If you would have it deep, grind it with Litmose-water; but if light, with fine Ceruse and a weak Gum-Arabick water.

XXIX. *In grinding Ultramarine* and other colours, let not your motion be too swift, but grind it gently and slow, because the swiftness of the motion, causeth the stones to hear, which will cause your colour to starve or loose somewhat of its Lustre, especially if it be a colour of no great body, as Pink, Indico, &c.

XXX. *Indico*, Grind it with water of Gum-Arabick, as Ultramarine.

XXXI.

XXXI. *Blue-Bice*, Grind it with clean water, as small as you can, then put it into a shell, and wash it thus: put as much water to it as will fill up the vessel or shell, and stir it well, let it stand an hour, and the filth and dirty water cast away; then put in more clean water, do thus four or five times.

XXXII. At last put in Gum-Arabick water somewhat weak, that the Bice may fall to the bottom; pour off the gum-water, and put more to it, wash it again, dry it, and mix it with weak gum-water (if you would have it rise of the same colour) but with a stiff water of Gum-lake, if you would have a most perfect blue; if a light blue, grind it with a little Ceruse; but if a most deep blue, add water of Litmose.

XXXIII. *Smalt*, Grind it with a little fine Roset, and it will make a deep Violet: and by putting in a quantity of Ceruse, it will make a light Violet.

XXXIV. *Litmose-blue*, Grind it with Ceruse: with too much Litmose it makes a deep blue; with too much Ceruse, a light blew: grind it with the weak water of Gum-Arabick.

XXXV. *Take fine Litmose, cut it in pieces, lay it in weak water of Gum-lake for twenty four hours, and you shall have a water of a most perfect Azure; with which water you may Diaper and Damask upon all other blues, to make them shew more fair and beautiful.*

XXXVI. *Orchal*, Grind it with unslak'd Lime and Urine, it makes a pure Violet: by putting to more or less Lime, you may make the Violet light or deep as you please.

XXXVII. Mummy burnt, makes a good black: but otherwise it is ill conditioned, hard, and will not flow from the pencil, you may burn it in a Crucible well luted.

XXXVIII. English Oker, It is a yellow colour, and lies even in the shell, of it self: it is of great use being well ground.

XXXIX. Pink mixed with Bice, It is a good Green, the faireft Pink is best, well ground and tempered with blue Bice, allowing one quantity of Pink, to three of blue Bice. To deepen this colour in Landskip or Drapery, mix with it a little *Indico* finely ground.

XL. *Indian Lake.* It makes a delicate Purple, grind it with a little Gum-water, and when it is ground fine, before you put it into the shell, mix a little pouder of white Sugar-candy with it, which will preserve it from crackling; then may

you ſpread it thinly with your finger about the ſhell.

XLI. *Indian Red.* It makes a dark Red, becauſe this colour is very courſe, you may uſe *Umber*, and a little *Lake* tempered, which is as good.

XLII. *Ivory black.* Grind it with a little white Sugar-candy, it will preſerve it from crackling out of your ſhell: it makes a black.

XLIII. *Cherry ſtone.* It is burnt in a Crucible (as is the former) and ſo ground. It is good for Drapery, and for a black Sattin. Temper it with a *little white*, *Indian-Lake*, *and Indico.* Heighten it with a lighter mixture, deepen it with Ivory black; this was *Hilliards* way.

XLIV. *Caput mortuum of Vitriol,* Firſt grind it well upon a Porphyry; then carefully waſh it, as we have taught you to waſh White-lead in *Chap.* 18. *Sect.* 2. aforegoing; after grind it with a weak Gum-lake-water: it makes a deep red, or almoſt a purple color.

XLV. *Obſervations upon ſome of the preceding Colors, and firſt of REDS.*

1. *Vermillion.* It is a moſt perfect Scarlet color; it is ſo fine that it needs no grinding, but may be tempered with your Finger with Glair or Gum-water and ſo uſed mixt with a little yellow Berries, it makes it the lighter and brighter Color, and is then principally uſed for Garments.

XLVI. 2. *Red Lead,* It is the neareſt to an Orange Color; and mixt with yellow Berries, it makes a perfect Orange. It is uſed for Buildings and high ways in Landskips, being mixt with a little White. It is the only bright Color to ſhadow yellow Garments with, to make them ſhew like changeable Taffety, and to color any light Ground in a Picture, and ſeveral other uſes, as you ſee occaſion.

XLVII. 3. *Cinnabar Lake.* You may ſhadow with it yellow Garments in the darkeſt places, as alſo Vermillion mixt with white only, it makes a *Sky Color.* With white and red Lead, a *Fleſh Color*; and is an excellent Color of it ſelf to colour Garments with. This Color is dear, and therefore inſtead thereof, for ordinary uſes, you may uſe *Red Ink*, thickned upon the Fire, which will ſerve very well; and better than *Lake*, unleſs it be very good.

XLVIII. 4 *Red Ink.* It is made by boyling *Brazil* in Pouder in Vinegar mixt with Beer adding a little Alum to heighten the Color: boyl it till it taſts ſtrong on the Tongue, then ſtrain it out, and keep it cloſe ſtopt for uſe. If you mix it with

with a Flesh Color, or make a Sky Color thereof, you must not thicken it.

XLIX. *Observations on BROWN Colors.*

1. *Spanish Brown.* It is a dirty Brown Color, but of great use; as also to shadow Vermillion, or lay upon a dark Ground behind a Picture. You may shadow yellow Berries with it in the darkest places, when you want *Lake* or thick *Red Ink*. Color not Garments therewith, unless it be old Men's Gowns.

L. 2. *Umber.* It is a Hair Color, and the best and brightest when it is calcined red hot. But to color any Hare, Horse, Dog, &c. with it, you must not burn it; but for other uses it is best calcined or burnt, as to color Posts, bodies of Trees, Timber-work, or any dark Ground in a Picture.

LI. Use it not in Garments, unless in old Men's Gowns, or Caps standing together, for that they must not be all of a Color. But for distinction and variety sake, you may use it unburnt in many cases.

LII. *Observations on GREEN Colors.*

1. *Verdigrise.* It is a good Green, but subject to decay: being dry upon Paper, it will be of a higher Color than when it was first laid on; therefore to preserve it from that fault, dissolve *Sap-Green* in it, and it will keep its Color. You may make it fine by extracting its Tincture with Spirit of Vinegar, and then evaporating to dryness; an ounce of that will be worth ten ounces of the other.

LIII. 2. *Verditer.* It is a light Green, seldom used in any thing but coloring Land-skips, which seem afar off; and it is good for such a purpose, because it is inclining to blew.

LIV. 3. *Sap-Green.* It is a dark dirty Green, never used but to shadow other Greens in the darkest places; or to lay upon some dark ground behind a Picture, which ought to be of a dark Green: but you may do without this Color, for Indico mixt with yellow Berries make just such another Color.

LV. 4. *Copper Green.* It is an excellent transparent Color, of a shining nature, if thickned in the Sun, or over a gentle Fire. It is most used of any Green in washing of Prints or Maps, especially in coloring of Trees, Ground, Grass, &c. for it is a *most perfect Grass-green.*

LVI. *Observations on YELLOW Colors.*

1. *Saffron.* It is a deep Yellow if it stands long, and is good principally to shadow yellow Berries with instead of Red Lead,

but is somewhat a brighter shadow: Red Lead and yellow Berries, make just the like Color.

LVII. 2. *Masticote.* It is a light Yellow, just like yellow Berries mixt with White: it is used to color a light Ground in a Picture, and then to shadow it with the Water, *viz.* the thinnest part of the Color of burnt Umber or red Lead.

LVIII. 3. *Yellow Berries* It is most used in washing of Maps, Pictures, &c. of all other Colors it is bright and transparent, fit for all uses, and sufficient without the use of any other Yellow.

LIX. *Observations on BLEW Colors.*

1. *Blew Bice.* It is the most excellent *Blew* next to Ultramarine, and may serve instead thereof. *It* is too good a Color to use upon all occasions: and for more ordinary uses, you may use *Smalt* in stead of either of them, but it will not work so well as *Bice*, when you intend to bestow some cost and pains upon a piece, you may use *Bice*; otherwise you need use no other Blew in your Work than *Blew Verditer*; with which in ordinary Works, you may make a pretty good shift, though all the other *Blews* be wanting.

LX. 2. *Indico.* It is a dark Blew, and principally used to shadow with upon other Blews. Mixt with yellow Berries, it makes a dark Green, to shadow other Greens with in the darkest places.

LXI. 3. *Blew Verditer.* It is a very bright pleasant Blew, and the easiest to work with in Water: it is somewhat inclining to a Green, and the Blew which is the most of all used mixed with yellow Berries it makes a good Green.

LXII. Observations on WHITE Colors.

1. *Cerusse.* It is the best White, next to Spanish White, and better than white Lead, if it be good and finely ground, as you may have it ready prepared at the Colour-Shops; being only white Lead cleansed and made more pure.

LXIII. 2. *White Lead.* It will serve in place of the former, if washt as before is directed; either of them will serve the same occasion, and being mixed with another Color they make it lighter, the which you may vary in proportion as you see occasion.

LXIV. Observations on BLACK Colors.

1. *Lamp Black* or *Printers Black.* It is the most used, because it is the easiest to be had, and is good in Washing. But you must never put Black amongst other Colors, to make them dark, for so they will become dirty; neither shadow any Color

lor with Black, unless it be *Spanish Brown*, when you would color an old Mans Gown, which ought to be done of a sad Color; all other Colors shadowed with Black, look dirtily, not bright, fair or beautiful.

LXV. 2. *Ivory Black.* It is the deepest Black that is; and is thus made. Take pieces of *Ivory* put it into a Furnace till it be throughly burned, then take it out, and let it cool; pare off the outside, and take the blackest in the middle.

LXVI. A glorious Color of East-India Cakes.

In using of these Cakes, you may take one, or a part of one of them, and put it into a Horse-Muscle-Shell, which is very clean, adding a little fair Water; just enough to wet it all over, letting it lie so about a quarter of an hour: then squeez it hard against the Shell, or wring it out between your Fingers, and there will come forth an admirable transparent Color, which will serve instead of *Lake*, if your *Red Cake* be good.

LXVII. These Cakes are commonly counterfeit and good for little, but you may know them by cutting a little way into them: if they be good they are as red within as they are without; if naught, they look pale and whitish within.

CHAP. XIX.

Of mixt and compound Colors.

I. *Murry*, It is a wonderful beautiful color, composed of purple and white: it is made thus. *Take Cinnabar-lake two ounces; White-lead one ounce, grind them together.* See the twenty fourth Section following.

II. *A glass gray*, mingle Ceruse with a little Azure.

III. *A bay color*, mingle Vermillion with a little Spanish brown and black.

IV. *A deep purple*, It is made of Indico, Spanish-brown and white.

It is called in Latin Purpureus, *in Greek* πορφύρεος *from* πόρφυρα, *a kind of shell-fish that yields a liquor of that color.*

V. *An Ash-color, or Gray*, It is made by mixing White and Lamp-black; or white with Sinaper; Indico and black make an Ash-color.

It is called in Latin Cæſius, *and* color Cinereus ; *in Greek* Γλαυκὸς *and* τεφρώδης.

VI. *Light Green*, It is made of Pink and Smalt ; with white to make it lighter if need require.

VII. *Saffron Color*, It is made of Saffron alone by infuſion.

VIII. Flame Color, *It* is made of Vermilion and Orpiment, mixed deep or light at pleaſure: or thus, Take Red-lead and mix it with Maſticot, which heighten with white.

IX. *A Violet color*, Indico, White and Cinnaber-lake. make a good Violet. So alſo Ceruſe and Litmoſe, of each equal parts.

X. *Lead color*, It is made of White mixed with Indico.

XI. *Scarlet color*, It is made of Red-lead, Lake, Vermilion : yet Vermilion in this caſe is not very uſeful.

XII. *To make Vermilion.*

Take Brimſtone in pouder four ounces, mix it with Quickſilver a pound, put it into a Crucible well lured, and upon a Charcoal-fire heat it till it is red hot ; then take it off and let it cool. You have a better way to do this in my *Pharmacopœia Londinenſis lib.* 3. *cap.* 7. *Sect.* 54. to which I refer you.

XIII. *To make a bright Crimſon.*

Mix tincture of Brazil with a little Ceruſe ground with fair water.

XIV. *To make a ſad Crimſon.*

Mix the aforeſaid light Crimſon with a little Indico ground with fair water.

XV. *To make a pure Lake.*

Take Urine twenty pound, boil it in a Kettle and ſcum it with an Iron ſcummer till it comes to ſixteen pound ; to which add Gum-Lake one pound, Alom five ounces ; boil all till it is well colored, which you may try by dipping therein a piece of linnen cloth ; then add ſweet Alom in pouder a ſufficient quantity, ſtrain it and let it ſtand : ſtrain it again through a dry cloth till the liquor be clear : that which remains in the cloth or bag is the pure Lake.

XVI. *To make a Crimſon-Lake.*

Its uſually made of the floks ſhorn off from Crimſoncloth by a Lye made of Salt-peter, which extracts the colour ; which precipitate, edulcorate, and dry in the Sun or a Stove.

XVII. *A pear green.*

Take

Take white Tartar and Viridigrise, temper them with strong White-wine Vinegar, in which a little Gum-Arabick hath been dissolved.

XVIII. *A pure Violet.*

Take a little Indico and tincture of Brazil, grind them with a little Ceruse.

XIX. *A pure Purple Color.*

Take fine brimstone an ounce and an half, Quick-silver, Sal-Armoniack, Jupiter, of each one ounce; beat the Brimstone and Salt into pouder, and make an Amalgama with the Quick-silver and Tin, mix all together, which put into a great glass goard; make under it an ordinary fire, and keep it in a constant heat for the space of six hours.

XX. *To make a Yellow color.*

Take the Yellow chives in white Lillies, steep them in gum-water, and it will make a perfect Yellow; the same from Saffron and Tartar tempered with gum-water.

XXI. *To make a Red Color.*

Take the roots of the lesser Burgloss, *viz.* *Alkanet*, and beat them, and strain out the juyce, and mixt it with Alom-water.

XXII. *To make excellent good Greens.*

The Liver of a Lamprey makes an excellent and durable grass green: and yellow laid upon blue will change into green; so likewise the juyce of a blue Flower de Luce, mixed with gum-water, will be a perfect and durable green or blue, according as it is used.

XXIII. *To make a Purple color.*

Take the juyce of Bilberries, and mix it with Alom and Galls, and so paint with it.

XXIV. *To make a good Murry.*

Temper Roset with a little Rose-water, in which a little gum hath been dissolved, and it will be good, but not exceeding that at the first Section of this Chapter.

XXV. *To make Azure or Blew.*

Mix the Azure with glew-water, and not with gum-water.

XXVI. *To make a Yellow Green or Purple.*

Buck-thorn berries gathered green and steeped in Alom-water yield a good yellow: but being through ripe and black they yield a good green: and lastly, being gathered when they are ready to drop off, which is about the mid-

dle or end of *November*, their juice mixt with Alom-water yields a good Purple color.

XXVII. To make a Purple color.

Take Log-wood, boyl it in Vinegar and Beer, in a glased earthen Vessel, adding thereto a little Alum, till you taste it to be strong on your Tongue: being sufficiently boiled, strain out the Liquor through a Cloth, and keep it in a Glass close stopt for use.

XXVIII. Another Purple Color.

Mix *Blew Bice* and *Lake* together; or if you want *Bice*, take *Blew Verditer* (but that is not altogether so good:) mix them well together and it is done. If you want *Lake*, you may instead thereof use *thick red Ink*, which will do as well as *Lake* in *Washing*.

XXIX. To make a Flesh Color.

Mix with *White* a little Lake and Red Lead; a very small quantity of each; you may make it as light or as red as you please, by putting more or less White in it. If you would have a swarthy Complexion, to distinguish a Man's Flesh from a Womans, put a little *yellow Oaker* among your Flesh Color; and for your shadow put a little more *Lake*, and a small quantity of *burnt Umber*.

XXX. To make Cloud Colors.

You may sometimes take *Blew Verditer*; or *White* shadowed with *Blew Verditer*: sometimes *light Masticote* shadowed with *blew Verditer*; or *Lake* and *White*, or *red Ink* and *White* shadowed with *blew Verditer*, as aforesaid.

XXXI. To make Sky Color.

Mix *White* with light *Masticote* or yellow Berries for the lowest and lightest places: *red Ink* not thickned and *White*, for the next degree: *blew Bice* and *White* for a higher degree; and *blew Bice* alone for the highest of all. Instead of *Bice* you may use *Verditer*; all which must be laid on, and so wrought one into another, that there be no sharpness or sensible beginning in the edge of your Colors, but that they be as it were one drowned in another.

XXXII. *To make Colors of all kinds of Metals.*

Take a piece of Crystal, beat it by it self in an Iron or Brass Mortar, and grind it dry, on a Marble or Porphyry Stone, till the Pouder be very fine; then grind it again on the same Stone with good Glair of Eggs, and lay it on the Work with a Pen or Pencil; being well dryed rub it over with

with Leaf Gold, or any other Metal, and it will be of the same Color that the Metal is of.

XXXIII. If *Quick-silver* two ounces be amalgamated with Tin one ounce, then melted, and after ground on a Painters stone very small, it will be a pouder of a Silver Color.

CHAP. XX.

Of Colors for Drapery.

I. *For Yellow Garments.* Take Masticot deepned with Brown-Oker and Red-Lead.

II. For Scarlet. Take Vermilion deepened with Cinnaber-lake, and heightened with touches of Masticot.

III. For Crimson. Lay on Lake very thin, and deepen with the same.

IV. For Purple. Grind Lake and Smalt together: or take Blue-bice, and mix it with Red and White-Lead.

V. *For an Orient Violet.* Grind Litmose, Blew-Smalt, and Ceruse, but in mixture let the Blew have the upper hand.

VI. *For Blew.* Take Azure deepned with Indy-Blew or Lake heightened with white.

VII. *For black Velvet.* Lay the garment first over with Ivory black, then heighten it with Cherrystone black, and a little white.

VIII. *For black Sattin.* Take Cherry-stone black; then white deepned with Cherry-stone black; and then lastly, Ivory black.

IX. *For a pure Green.* Take Verdigrise, bruise it, and steep it in Muscadine for twelve hours, then strain it into a shell, to which add a little Sap-green: (but put no gum thereto.)

X. *For a Carnation.* Grind Ceruse, well washed, with Red-lead; or Ceruse and Vermilion.

XI. *For Cloth of Gold;* Take brown Oker, and liquid Gold water, and heighten upon the same with small streaks of Gold.

XII. For white Sattin. Take first fine Ceruse, which deepen with Cherry-stone-black, then heighten again with Ceruse, and fine touches where the light falleth.

XIII. For a Ruſſet Sattin. Take Indy-blew and Lake, firſt thin, and then deepned with Indy again.

XIV. For a hair Colour. It is made out of Maſticot, Umber, Yellow Oker, Ceruſe, Oker de luce, and Sea-coal.

XV. For a Popenjay Green. Take a perfect Green mingled with Maſticot.

XVI. For changeable Silk. Take water of Maſticot and Red-lead: which deepen with Sap-green.

XVII. For a light Blew. Take Blew bice, heightened with Ceruſe or Spodium.

XVIII. For to ſhaddow Ruſſet. Take Cherryſtone-black and white; lay a light Ruſſet, then ſhadow it with white.

XIX. For a Skie Colour. Take Blew-bice and Venice Ceruſe: but if you would have it dark, take ſome blew and white.

XX. For a Straw Colour. Take Maſticot, then white heightened with Maſticot, and deepned with Pink. Or thus, Take Red-lead deepned with Lake.

XXI. For Yellowiſh. Thin Pink deepned with Pink and Green: Orpiment burned makes a Marigold colour.

XXII. *For a Peach Colour.* Take Brazil water, Log-wood-water and Ceruſe.

XXIII. *For a light Purple.* Mingle Ceruſe with Logwood water: or take Turnſole mingled with a little Lake, Smalt and Bice.

XXIV. *For a Walnut Colour.* Take Red-lead thinly laid, and ſhadowed with Spaniſh brown.

XXV. *For a Fire Colour.* Take Maſticot, and deepen it with Maſticot for the flame.

XXVI. *For a Tree.* Take Umber and white, wrought with Umber, deepned with black.

XXVII. *For the Leaves.* Take Sap-green and green Bice, heighten it with Verditer and white.

XXVIII. *For Water.* Take Blew and White, deepned with blew, and heightned with white.

XXIX. *For Banks.* Take thin Umber, deepned with Umber and black.

XXX. *For Feathers.* Take Lake frizled with Red-lead. See Chap. 26. following.

CHAP.

CHAP. XXI.

Of Liquid Gold and Silver.

I. *Liquid Gold and Silver.*

Take five or six leaves of Gold or Silver, which grind (with a ſtiff Gum-lake water) and a good quantity of Salt) as ſmall as you can; then put it into a vial or glazed veſſel; add ſo much fair water as may diſſolve the ſtiff gum-water; then let it ſtand four hours, that the Gold may ſettle: decant the water, and put in more, till the Gold is clean waſhed: to the Gold put more fair water, a little Sal-Armoniack and common Salt, digeſting it cloſe for four days: then put all into a piece of thin Glovers leather (whoſe grain is peeled off) and hang it up, ſo will the Sal-Armoniack fret away, and the Gold remain behind, which keep.

II. Or thus. *Grind fine leaf Gold with ſtrong or thick gum-water very fine; and as you grind add more thick gum-water being very fine, waſh it in a great ſhell, as you do Bice, then temper it with a little quantity of Mercury ſublimate, and a little diſſolved gum to bind it in the ſhell; ſhake it, and ſpread the Gold about the ſides thereof, that it may be all of one colour and fineneſs, which uſe with fair water, as you do other colours.*

III. *The ſame obſerve in liquid Silver; with this obſervation, That if your Silver, by length of time, or humidity of the air become ruſty; then cover the place with juyce of Garlick before you lay on the Silver, which will preſerve it.*

IV. *When you uſe it, temper it with glair of Eggs, and ſo uſe it with pen or pencil. Glair of Eggs is thus made. Take the whites and beat them with a ſpoon, till that riſe all in a foam; then let them ſtand all night, and by morning they will be turned into clear water, which is good glair.*

V. *Argentum Muſicum.*

Take one ounce of Tin, melt it, and put thereto of Tartar and Quickſilver of each one ounce, ſtir them well together until they be cold, then beat it in a Mortar, and grind it on a ſtone; mix it with gum water, write therewith, and afterwards poliſh it. See my *Ars Chyrurgica. lib.* 1, *Cap.* 75. *ſect.* 1. *pag.* 318. where

where you have an other way of making it.

VI. *Burnished Gold or Silver.*

Take Gum-lake and dissolve it into a stiff water; then grind a blade or two of Saffron therewith, and you shall have a fair Gold: when you have set it, being throughly dry, burnish it with a dogs tooth. *Or thus*, having writ with your pen or pencil what you please, cut the leaf Gold or Silver into pieces, according to the draught, which take up with a feather, and lay it upon the drawing, which press down with a piece of wool; and being dry, burnish it.

VII. *Gold Armoniack.*

This is nothing but that which we have taught at the fifth Section of the sixteenth Chapter of this Book.

VIII. *Size for burnishing Gold.*

Take fine Bole-Armoniack three drams, fine Chalk one dram; grind them as small as you can together with fair water, three or four times, letting it dry after every time: then take glair, and strain it as short as water, with which grind the Bole and Chalk, adding a little Gum-Hedera, and a few blades of Saffron: grind all as small as possible, and put them into an Ox horn (I judge a glass vessel better) and set it to rot in horse-dung for six weeks; then take it up, and let it have air, and keep it for use.

IX. *Its use is for gilding parchments, book-covers, and leather, thus lay this size first upon the parchments, then with a feather lay the Gold or Silver upon it, which when dry, burnish it.*

X. *To Diaper on Gold or Silver.*

You must Diaper on Gold with Lake and Yellow Oker, but upon Silver with Ceruse.

XI. *Aurum Musicum.*

Take fine Crystal, Orpiment, of each one ounce, beat each severally into a fine pouder, then grind them together well with glair.

You may write with it, with pen or pencil, and your letter or draught will be of a good Gold color.

XII. *Another way to do the same.*

Take of the best English Tin, of the best Spanish Quick-silver, of each an ounce: make an Amalgama, by putting the Crude Mercury to the melted Tin, and stirring it together: then pouder them well, and mix them with flowers of Sal-Armoniack, flowers of Sulphur, of each an ounce: Calcine gently till the Sulphur is consumed, so will the *Aurum* stick to the upper Crust or Scoria.

XIII.

XIII. *This poudered fine, and ground with glair, will with Pen or Pencil give your Figure or Picture a Golden color.* See the second Edition of my *Pharmacopœia Bataeana*, lib. 1. cap. 9. sect. 28. § 2. ad. 10. pag. 339. where you have five other several ways of making it.

CHAP. XXII.

Of Preparing the Colors.

I. COlors, according to their natures have each a particular way of preparation: to wit, by grinding, washing or steeping.

II. The chief *Colors to be ground* are these; White-lead, Ceruse, Cinnaber-lake, Oker yellow and brown, Pink, Indico, Umber, Colens Earth, Spanish-brown, Ivory-black, Cherry-stone-black, Lamp-black, Indian-Red, Indian-Lake.

III. The chief *Colors to be wash'd* are Red-lead, Masticot, Green Bice, Cedar Green, Ultramarine, Blue Bice, Smalt, Verditer.

IV. The chief *Colors to be steep'd*, are Sap-green, Saffron, Turnsole, Stone-Blue, Venice Berries.

V. *To grind Colors.*

Take the Color you would grind, and scrape off from it all the filth, then lay it upon the stone, and with the muller bruise it a little; then put thereto a little spring water, and grind all together very well, till the color is very fine; which done, pour it out into certain hollows or furrows cut in Chalk-stone, and there let it lie till it is dry, which reserve in paper or glasses.

VI. *In grinding your Colors, put not too much water to them, upon the stone for they ought to be ground somewhat thick, like pulp or pap: and they ought not to be left too moist, but thick and clammy.*

VII. *If after your Color is dry in the shell, you can rub it off with your fingers, it must be better bound with Gum; and if there is too much Gum, it will shine, and be apt to crackle off after it is used*

VIII. *To wash Colors.*

Put the color into a glazed vessel, and put thereto fair water plentifully, wash it well, and decant (after a while) the water

water; do this six or seven times; at last put the water (being just troubled) into another glazed vessel, leaving the dregs at bottom: then into this second vessel put more fair water, washing it as before, till the water (being settled) be clear, and the color remain fine at bottom: we have taught another way at the twenty fourth Section of the eighteenth Chapter of this Book.

IX. *Before you take the Color out of the Vessel, spread it very thin, about the sides thereof, and when it is dry, some of it will fall to the bottom, which keep by it self: but the remainder which sticks to the side of the Bason, is the best of all, which with a feather strike off from the sides of the Vessel, for it will be finer than any flower.*

X. *To steep Colors.*

Take a quantity thereof, and put it into a shell, and fill the shell with fair water, to which add some fine pouder of Alum, to raise the color; let it thus steep a day and night, and you will have a good color.

XI. *Where note, Saffron steeped in Vinegar gives a good color; and the Venice Berries in fair water and a little Alum, or a drop or two of oyl of Vitriol makes a fair yellow.*

XII. *But some colors are to be boyled, as* Brasil, Logwood, Turnsole, Rinds of Walnuts, Woodsoot, *&c. these when boyled are to be kept close stopt in Glasses, till you have occasion to use them.*

XIII. *To temper the Colors.*

Take a little of any color, and put it into a clean shell, and add thereto a few drops of gum-water, and with your fingers work it about the shell, then let it dry; when dry, touch it with your fingers, if any color comes off, you must add stronger gum-water: but being dry, if the color glister or shine, it is a sign there is too much gum in it, which you may remedy by puting in fair water.

XIV. *To help the defects.*

Some colors, as Lake, Umber, and others which are hard, will crack when they are dry; in this case, in tempering them add a little white Sugar-candy in very fine pouder, which mix with the color and fair water in the shell, till the Sugar-candy is dissolved.

XV. These colors, Umber, Spanish-brown, Colen Earth, Cherry-stone, and Ivory-black, are to be burnt before they be ground or wash'd.

XVI. *To burn or calcine Colors.*

This

This is done in a crucible, covering the mouth thereof with clay, and setting it in a hot fire, till you are sure it is red hot through: which done, being cold, wash or grind it as aforesaid.

XVII. *To prepare shadows for Colors.*

White is shaded with Black, and contrariwise: Yellow with Umber and the Okers: Vermillion with Lake: Bluebice with Indie: Black-coal with Rosel, *&c.*

XVIII. *The several temperatures for coloring and shadowing of Histories.*

They are twenty in number, *viz.* Sea-cole mixt with Lake. 2. Umber with Masticot. 3. Yellow Oker burnt with white. 4. Umber with Ultramarine. 5. Yellow with Umber. 6. Umber with Lake. 7. Verditer burnt with Red-lead and White. 8. Ultramarine with Lake. 9. Ultramarine with Red-lead. 10. Ultramarine with white. 11. Indico with white. 12. Indico and Lake with white. 13. Indico, Pink with white. 14. Indico with Oker and white. 15. Indico with Masticot and white. 16. Cherrystone burnt with White and Red-lead. 17. Burnt Ivory with Lake. 18. Indico and Pink with the best Rust of Iron. 19. Lake and Rust of Iron with light Pink. 20. Rust of Iron and Lake, *for the deeper shadows.*

XIX. The several temperatures or mixtures for shadowing Heads after the Life.

The principle mixtures are twelve in number, *viz.* 1. Lake with Indian Red. 2. Red-lead with Roman Oker. 3. Indian Red vvith Ultramarine. 4. Indian Red vvith Pink and Gall-stone. 5. Yellovv Oker vvith Indico. 6. Red-lead vvith Pink and Indico. 7. Red-lead vvith Roman Oker and Indico. 8. Red-lead vvith Pink, Yellovv Oker and Lake. 9. Indico, Lake and Roman Oker with white. 10. Indico. Pink, and Roman Oker with Indian Red. 11. Red-lead with Umber, Masticote, and Pink. 12. Pink with Roman Oker.

XX. *The several mixtures for shadowing hair.*

1. White and Roman Oker *for light hair.* 2. White and Yellow Oker *for lighter hair.* 3. White with Rust and Roman Oker. 4. Light Pink with Sea-Cole and Yellow Oker. 5. Dark Pink with Rust and Roman Oker. 6. Pink with the best Rust and Gall-stone. 7. Florence Pink with Lake and burnt Ivory, *a good shadow for hair and face.* 8. White with Umber and Yellow Oker, *for light hair.* 9. The last mixture with more Umber and Cherrystone black *for a deeper hair*

hair. 10. Yellow Oker with Umber and Cherryſtone-black *for dark hair.* 11. The laſt mixture with Umber and Cherryſtone-black *for a darker hair.*

XXI. To do theſe things artificially, you may temper the natural Colors with your pencil upon your pallat, being firſt placed in order, then wet your pencil in water, and temper upon the color you intend to make uſe of firſt in your mixture; then rub your Pencil in a clean place of your Pallat, leaving part of the color upon the place.

XXII. And in the ſame manner take from as many of the other as ſhall be directed for ſuch and ſuch temperatures or mixtures. Or thus, Dip your finger in water, and temper or mix your colors as you did with your Pencil, placing your colors ſo mixed upon your pallat in order.

CHAP. XXIII.

Of the Manual Inſtruments.

I. THe manual Inſtruments are four (by the ſecond Section of the fifteenth Chapter of this Book) to wit, The *Grinding-ſtone* and *Muller*, *Pencils*, *Tables* to Limn on, and ſhells or little glaſſes to hold your colors.

II. The *Grinding-ſtone* may be of Porphyry, Serpentine or Marble, but rather a Pebble, for that is the beſt of all others: The *Muller* only of Pebble, which keep very clean.

Theſe may be eaſily got of Marblers or Stone-cutters in London.

III. Chooſe your pencils thus, by their faſtneſs in the quills, and their ſharp points after you have drawn or wetted them in your mouth two or three times; ſo that although larger, yet their points will come ſo as ſmall as a hair, which then are good; but if they ſpread or have any extravagant hairs they are naught.

IV. To waſh your pencils.

After uſing them, rub the ends of them well with Soap, then lay them a while in warm water to ſteep, then take them out and waſh them well in other fair water.

V. *To prepare the Table.*

It

It must be made of pure fine paste-board, such as Cards are made of (of what thickness you please) very finely slick'd and glazed with a Dogs tooth. Take a piece of this paste-board of the bigness you intend the Picture, and a piece of the finest and whitest parchment you can get (virgin parchment) which cut of equal bigness with the paste-board; with thin, white, new made starch, paste the parchment to the paste-board, with the outside of the skin out ward-most: lay on the starch very thin and even, being thus pasted let it dry throughly.

VI. Then the grinding stone being clean, lay the Card thereon with the parchment side downwards, and as hard as you can, rub the other side of the paste-board with a Boars-tooth set in a stick; then let it be thorow dry, and it will be fit to work or Limn any curious thing upon.

VII. The shells holding or containing your colours, ought to be Horse-muscle shells, which may be got in *July* about Rivers sides; but the next to these are small Muscle shells, or instead thereof little glass vessels in the same form if possible.

VIII. Your Table or Card being thus prepared, you are to lay a ground of flesh color, before you begin your work, and that must be tempered according to the complexion of the face to be drawn.

IX. If the complexion be fair, *Temper white Red lead and lake together.* If any hard, swarthy complexion, *Temper with your White and Red a little fine Mastico, or English Oker.* But note that your ground ought always to be fairer than the face you draw: for it is an easiy matter to darken a light color, but a difficult to lighten a deep one.

X. Your ground thus prepared, lay it upon your Card, with a Pencil full of color, and rather thin and waterish, than thick and gross, and with two or three daubs of your great Pencil, lay it on in an instant, the nimbler it is laid on, the e-vener the color will lye.

XI. Cover also rather too much of your Card, than too little, with this prime color; somewhat more of the Card with the ground color, than you shall use for the face.

XII. This done, take a pretty large Pillar of Ivory or Cocus-wood, and before you begin to work, temper certain little heaps of several shadows for the face, which you must mix with your finger, about the Pallat.

CHAP. XXIV.

Of Preparations for Limning.

I. HAve two ſhells or ſmall glaſſes, in either of which muſt be pure clean water, the one to waſh the pencils in being foul; the other to temper the colors with, when there is occaſion.

II. Beſides the pencils you Limn with; a large, clean and dry pencil, to cleanſe the work from any kind of duſt, that may fall upon it, which are called Fitch-pencils.

III. A ſharp Pen-knife to take off hairs that may come from your pencil, either among the colors or upon the work; or to take out ſpots that may fall upon the Card or Table.

IV. A paper with a hole cut therein to lay over the Card, to keep it from duſt and filth, to reſt your hand upon, and to keep the ſoil and ſweat of your hand from ſullying the parchment, as alſo to try your pencils on before you uſe them.

Let the ſhells or ſmall glaſſes, water, pencils and pen-knife lie all on the right hand.

V. Have ready a quantity of light Carnation or fleſh color temper'd up in a ſhell by it ſelf with a weak gum-water, if it be a fair complexion, mix White and Red-lead together; if a brown or ſwarthy, add to the former, Maſticot, or Engliſh Oker, or both.

VI. But be ſure the fleſh color be always lighter than the complexion you would Limn; for by working on it you may bring it to its true color.

VII. In a large Horſe-muſcle ſhell place your ſeveral ſhadows (for the fleſh color) in little places one diſtinct from another.

VIII. In all ſhadowings have ready ſome white, and lay a good quantity of it by it ſelf beſides what the ſhadows are firſt mixed with.

IX. For Red for the cheeks and lips, temper Lake and Red-lead together: for blew ſhadows (as under the eyes and in veins) Indico or Ultramarine and white.

X.

X. For gray faint ſhadows, white, Engliſh Oker, ſometimes Maſticot: for deep ſhadows, white, Engliſh Oker, Umber: for dark ſhadows, Lake and Pink, which make a good fleſhy ſhadow.

XI. to make choice of the light.

Let it be fair and large and free from ſhadows of Trees or Houſes, but all clear Skie-light, and let it be direct from above, and not tranſverſe; let it be Northerly and not Southerly: and let the room be cloſe and clean, and free from the Sun-beams.

XII. Of the manner of ſitting.

Let your desk on which you work be ſo ſituate, that ſitting before it, your left arm may be towards the light, that the light may ſtrike ſidling upon your work. Let the party that is to be Limned, be in what poſture themſelves will deſign, but not above two yards off you at moſt, and level with you.

XIII. Wherein obſerve their motion, if never ſo ſmall, for the leaſt motion, if not recalled, may in ſhort time bring on you many errors.

XIV. Laſtly, the face being finiſhed, let the party ſtand (not ſit) at a farther diſtance (four or five yards off) to draw the poſture of his cloths.

XV. *If you deſign to Limn upon Sattin*; you muſt take Iſing-glaſs, and ſteep it four and twenty hours in water, then boyl it in ſpirit of Wine, until it be very clammy, which you will perceive by diping your finger into it: then after your out-lines are drawn upon the Sattin, take an indifferent large pencil, and waſh it thin over, as far as your out-lines are, which will prevent your colors from ſinking or flowing.

XVI. To prevent your colors from ſinking into your Card, Paper, or Parchment, you deſign to Limn on.

Take Roch-Alum, boyl it in ſpring water, then take a bit of a ſponge, and wet the back-ſide of your paper, that you intend to draw on very thin, whilſt the Water is hot, be as quick in wetting of it as you can; this will prevent the colors ſinking.

XVII. *Laſtly, theſe general things are to be obſerved;*

1. That if your colors peel, or by reaſon of the greaſineſs of your Parchment, will not lie on, you muſt mix with them a very little ear Wax, or Civet, and it will help them. 2. That ſit you not above two yards from that you draw by. 3. That the perſon you draw, ſit in a higher ſeat, than you that draw.

XVIII. 4. That you draw not any part in the face of a Picture, exactly at firſt; neither finiſh an Eye, Noſe, or Mouth,

till the reſt of your work come up, and be wrought together with it. 5. That when you have finiſhed the Face, let the party ſtand up, to draw the Drapery by.

XIX. 6. That blew Bice is never uſed in a Face. 7. That black muſt not by any means be uſed: for other ſhadows, your own obſervation muſt direct you, it being impoſſible to give a general Rule for the ſhadows in all Faces.

CHAP. XXV.

Of the Practice of Limning in Miniture, or Drawing of a face in Colors.

I. *To begin the work.*

Have all things in a readineſs (as before) then on the Card lay the prepared color (anſwerable to the complexion preſented) even and thin, free from hairs and ſpots, over the place where the Picture is to be.

II. The ground thus laid, begin the work, the party being ſet, which muſt be done at three ſittings: at the firſt ſitting the face is only dead colored, which takes up about two hours time.

III. At the ſecond ſitting, go over the work more curiouſly, adding its particular graces or deformities, ſweetly couching the colors, which will take up about five hours time.

IV. At the third ſitting, finiſh the face, in which you muſt perfect all that is imperfect and rough putting the deep ſhadows in the face, as in the eyes, eye-brows, and ears, which are the laſt of the work, and not to be done till the hair, curtain, or backſide of the Picture, and the drapery be wholly finiſhed.

V. The operation or work at firſt ſitting.

The ground for the complexion being laid, draw the outlines of the face, which do with Lake and white mingled; draw faintly, that if you miſs in proportion or color you may alter it.

VI. This done, add to the former color Red-lead, for the cheeks and lips; let it be but faint (for you cannot lighten

a

a deep color) and make the shadows in their due places, as in the cheek, lips, tip of the chin and ears, the eyes and roots of the hair: shadow not with a flat pencil, but by small touches (as in hatching) and so go over the face.

VII. In this dead coloring rather than to be curious, strive as near as may be to imitate nature.

VIII. The red shadows being put in their due places; shadow with a faint blew, about the corners and balls of the eyes; and with a grayish blew under the eyes and about the temples, heightening the shadows as the light falls, also the harder shadows in the dark side of the face, under the eyebrows, chin and neck.

IX. Bring all the work to an equality, but add perfection to no particular part at this time; but imitate the life in likeness, roundness, boldness, posture, color, and the like.

X. Lastly, touch at the hair with a suitable color in such curls, folds and form, as may either agree with the life, or grace the Picture: fill the empty places with color, and deepen it more strongly, than in the deepest shadowed before.

XI. *The operation or work at second sitting.*

As before rudely, so now you must sweeten those varieties which Nature affords, with the same colors and in the same places driving them one into another, yet so as that no lump or spot of color, or rough edge may appear in the whole work; and this must be done with a pencil sharper than that which was used before.

XII. This done, go to the backside of the Picture which may be Landskip, or a curtain of Blew or red Sattin: if of blew, temper as much Bice as will cover a Card, and let it be well mixed with gum; with a pencil draw the out-lines of the curtain: as also of the whole Picture; then with a large pencil lay thinly or airily over the whole ground, on which you mean to Limn the blew; and then with a large pencil lay over the same a substantial body of color; in doing of which be nimble, keeping the color moist, letting no part thereof be dry till the whole be covered.

XIII. If the curtain be Crimson, trace it out with *Indian*-Lake; lay the ground with a thin color; and lay the light with a thin and waterish color, where they fall; and while the ground is yet wet, with a strong dark color tempered something thick, lay the strong and hard shadows close by the other lights.

XIV. Then lay the linnen with faint white, and the drapery flat of the color you intend it.

XV. In the face, see what shadows are too light or too deep, for the curtain behind, and drapery, and reduce each to their due perfection; draw the lines of the eye-lids, and shadow the entrance into the ear, deepness of the eye-brows, and eminent marks in the face, with a very sharp pencil.

XVI. Lastly, go over the hair, coloring it as it appears in the life, casting over the ground some loose locks or hairs, which will make the Picture stand as it were at a distance from the curtain.

XVII. Shadow the linnen with white, black, and a little yellow and blew; and deepen your black, with Ivory-black mixed with a little Lake and Indico.

XVIII. The operation or work at third sitting.

This third work is wholly spent in giving strong touches where you see cause, in rounding smoothing and coloring the face, which you better see to do, now the curtain and drapery is limned, than before.

XIX. And now observe whatsoever may conduce to the perfection of your work, as gesture, scars or moles, casts of the eyes, windings of the mouth, and the like; and be sure never to make your deepest shadows so deep as they appear in the life.

XX. *The ground color for hair, and how to heighten and deepen it.*

You must lay on the hair in miniture, of a Color not so light as the lightest, nor so deep as the deepest shadow, but in a middle proportion between both, on which you may either heighten or deepen at pleasure.

XXI. If you lay it on with the lightest color, it will require a long time to work it down; and if so dark as the deepest, you cannot deepen it lower with the same color.

XXII. Moreover you must lay this Ground color, extreamly even and smooth, and the speedier you are in doing it, the better.

XXIII. In doing of it, use a Goose-quil-pencil, and let the temper thereof not be too thin, because the Perchment will appear then through the ground, which it ought to cover; and rather than it should so appear, when the first laid Ground is dry, go over the same again, with the same colors.

CHAP.

CHAP. XXVI.

Of Limning Drapery.

I. A Full and ſubſtantial ground being laid all over where you intend the Drapery; as if blew, with Bice ſmoothly laid, deepen it with Lake and Indico; lightning it with a fine faint white, in the extreme light places, the which underſtand of other colors.

II. If the body you draw be in *Armour*, lay liquid Silver all over for a ground, which being well dried and burniſhed: ſhadow it with Silver, Indico, Litmoſe and Umber, according as the life directs you.

III. For *Gold Armour* lay liquid Gold as you did the Silver, and ſhadow upon it with Lake, Engliſh Oker, and a little Gold.

IV. Or thus, *Take the fineſt ſhell Gold, and lay it flat and ſmooth on the place you intend for Armour: when it is dry, burniſh it all over with a ſmall Weeſels or Dogs tooth, ſet in the end of a Pencil ſtick, but ſomething longer.*

V. *For the ſhadows, temper lake, Roman Oker, and gall ſtone with a little ſhell Gold.*

VI. *The Heightnings being burniſhed, are to be left bright.*

VII. *In the fainter parts of the ſhadows, uſe a little ſhell Gold, and alſo in the deepeſt, which muſt be neatly and ſweetly wrought into the Gold.*

VIII. *Alſo take Gall ſtone, and temper it with ſhell Gold, it gives an excellent luſture to all Gold works.*

IX. *In the darkeſt and deepeſt ſhadows, mix a little black. The heightnings are only the firſt Gold burniſhed very bright.* See how to do Silver Armour at Sect. 52. following.

X. For *Pearls*, your ground muſt be Indico and white; the ſhadows black and pink. To expreſs the roundneſs and luſture of a *Pearl*, ſhadow it with Indico, Cherry-ſtone black, and Pink.

XI. Or your *Pearl* may be laid with a white mixed with a little black, a little Indico and Maſtick, but very little in compariſon of the White, ſcarcely to the hundredth part: this being

being dry, give the light of the *Pearl* with a little Silver, somewhat more to the light than the shadowed side.

XII. Then take a White allayed with Masticot, and underneath the shadowed side, give it a compassing stroke, which shews a reflection, then without that, a small shadow of Sea-cole, undermost of all; but note, your Silver must be laid round and full.

XIII. For *Diamonds*, lay a ground of liquid Silver, and deepen it with Cherry-stone-black and Ivory-black: the deeper the shadow, the fairer the Diamond.

XIV. For *Rubies*, lay a Silver ground, which burnish to the brigness of a Ruby; then with pure Turpentine temper'd with Indian Lake, from a small wire heated in a Candle drop upon the burnished place, fashioning it as you please with your Instruments, which let lie a day or two to dry; and if it be too long in drying add to the composition a little powder of Mastick.

XV. For *Emeraulds*, or any green stone, temper Turpentine with Verdigrise, and a little Turmerick root, first scraped, with Vinegar, drying it, grind it to fine pouder and mix it.

XVI For *Saphires*, mix or temper Ultramarine with pure Turpentine, which lay upon a ground of liquid Silver polisht: which must be the ground for all these stones.

To make liquid Gold or Silver: see the first Section of the twenty first Chapter of this Book.

XVII. For Scarlet, Temper Carmine, and deepen it with Indian-Lake. *Or thus*, Temper native Cinnabar and a little Red-lead, and shadow it with Indian-Lake.

XVIII. *For Crimson*, Temper Cinnabar, Lake and White: deepen it with Lake.

XIX. *For Carnation*, Temper Lake and White, and deepen or shadow it with Lake. *For a Peach Color*, Temper Carmine and a little White; and deepen or shadow it with Lake.

XX. *For a Violet*, Temper fine Dutch-Bice and Lake; and deepen it with Indico. *For a Purple*, Temper Bice and Lake, and a little White; and deepen it with Lake and Indico.

XXI. *For an Orange*: Temper the best Red-Lead, and a little fine yellow Masticote; shadow it with Gall-stone and Lake. *For an Orange Tawney*: Temper Cinnabar, light Pink,

Pink, and a little yellow Masticote; shadow it with Gall-stone and Lake.

XXII. For a Sea-green: Temper Bice, Pink, and White; and deepen it with Green Pink. *For a French Green:* Temper light Pink one part, with Dutch bice six parts; and deepen with green Pink.

XXIII. For Sky: Temper Ultramarine with a little White; and deepen with Indico. *For Poppinjay:* Temper Pink, and a little Indico: and deepen it with Indico.

XXIV. For Straw: Temper yellow Masticote with a very little Cinnabar; and deepen it with dark Pink. *For a Lyon Tawney:* Temper Red-lead and Masticote, and deepen it with Umber.

XXV. For Ash colour, Temper Cherry-stone and White; and deepen it with Ivory black. *For a bright Red:* Temper Indian Lake with native Cinnabar: The *Indian-Lake* is the best of all other Lakes; but it being very scarce and dear, you may use *Florence-Lake* instead thereof.

XXVI. For all colors where Dutch-Bice is used, be sure to make choice of that which is very fine, or else you will find, that in working, it will lye very rough and uneven, and not cover well.

XXVII. And be sure that when you temper any of these colors for a *Complexion* or *Garment,* you temper it on your Pallat or shell with your finger; and temper them very well to mix them altogether, to make a good mixture and not too waterish.

XXVIII. Be sure also to preserve all your colors from dust, and before you temper either in the shell or upon your pallat, to brush it off with a large Pencil or Hairs foot, or to blow it off.

XXIX In drawing of Cloths, be extream careful in habiting every one, according to the degrees and Functions of the person described, giving them also their right and proper colors.

XXX. For Example, the *Virgin Mary* is commonly represented in Purple and Azure. *John* the *Evangelist* in Scarlet. *John Baptist* in a Hairy Mantle. The rest of the Apostles in Green or Crimson.

XXXI. There are two ways of working Drapery, *The first way* is that which the *Italians* use; which is done with the point of a Pencil and hatching it.

XXXII.

XXXII. Some places are touched all over alike, yet so, as when it is finished, you may perceive the Parchment appear in several places, quite through the work, which is indeed too slight a way, and ought not to be called Limning, but Washing.

XXXIII. *The second way*, which is the best. First lay a good full flat ground all over where you design your Drapery, of what color you would have it: this done, you will find it much easier to work upon; and you may either heighten or deepen it, according as your ingenuity or the Life shall direct you.

XXXIV. If you would have the Drapery blew, you may take an indifferent large Pencil with Ultramarine, or instead of that, Dutch-Bice well prepared; let your Pencil be almost full of either of these colors, and therewith lay the color even and smooth, all over the place you intend for Drapery: this you may deepen with Lake and Indico. Heighten very faintly, and fair in the extreamest lights: the like observe in all other colors of Drapery whatsoever.

XXXV. Crimson Velvet, Red, Green, and Blew, may be heightned with fine shell Gold, it gives a most admirable ornament in cloth of Gold, especially if you mix some of the Gold, with the ground color it self, which will make it much the fairer. Thus great Painters heightned all their works of Architecture and Buildings, especially in stately Rooms and Palaces.

XXXVI. Be sure that you draw the out-lines of the Garment very true and faint, because the whole grace of a picture consists much in the outmost draught, and more than in the curious work within.

XXXVII. To do this, you must suite the Garments to the body, and make them bend and yield with it, and not strait and stiff where it bendeth.

XXXVIII. To fit the Garments rightly to the body; observe which part of the body bends in or out, that the Garments may answer to the body upon the least turning any way.

XXXIX. That the Garment may turn with it, you must observe where the body should be, if it were bare, and there form the Garments in the right places, making them to bend or fit out, according to the Joynts and Limbs, and sometimes plainly to appear through the Garments, and especially where they are driven by the wind, or any other action to lye loose from

from the body. In this case express them lightly, and with a kind of transparency.

XL. Begin at the upper part of the Garment, and so draw down that part of the Garment (on both sides) that lies close to the body, before you draw the loose parts, that fly off from the body.

XLI. For if you draw the loose parts first, before you have finished those parts which lye close to the body or its parts, you will be presently out, and be apt to draw the body awry.

XLII. Therefore some great Artists draw lightly the naked body first, and put on the Garments afterwards, by which means they can better see to place the Cloathing rightly, and to hang even upon the body.

XLIII. You must also draw the greatest folds first, and so strike the greater folds into the less; and be sure that you make not one fold to cross another, Break also some of the folds into less; and make them the narrower, where the Garments sit closer.

XLIV. Observe also to order your Drapery so, that the folds may fall all one way, especially in a standing Figure, though it will be otherwise sometimes in a Figure that is drawn sitting.

XLV. For the Garments of a standing Figure, are lyable to be driven by the Air and therefore must be placed one way.

XLVI. Be sure also not to make folds, where the Garment should sit streight and close, as the Breasts, Knees, Thighs, *&c.* which beat them out, and therefore in such places ought always to sit plain.

XLVII. *To shadow in Linnen*: use black, white, a little yellow, and less blew: the black must be deepned with burnt Ivory, with which mix a little Lake and Indico, or Litmose-blue. For greater variety of Colours and Mixtures, *see Chap.* 20. beforegoing.

XLVIII. As for Sattens and Silks, and all other shining Stuffs, they ought to have certain bright reflections, exceeding bright, with sudden light Glances, especially where the light falls brightest; And so by how much the Garment falls the more inward from the light, by so much the Reflexions will be the less bright.

XLIX. The like is seen in Armour, Brass-Pots and Kettles, or any Glistring Metal, where you see a sudden brightness in the

the middle or Center of the light, from the ſhining quality and diſpoſition of thoſe things.

L. *Chaſed, Emboſſed or ſhining Armour.* The lighter places of it muſt be ſparkling, which you may expreſs by raiſing the high and round places, with a Temper of Gall-ſtone, and Roman Oker, by touching with your pencil full of the Color of it, over and over, in one and the ſame place, till the Touches be raiſed above the other work.

LI. Then cover over the raiſed work, with the fineſt ſhell Gold, (that is made at *Antwerp*) and burniſh it with a Weeſels Tooth; and the like if it be Silver Emboſſed.

LII. *Silver Armour.* Take ſhell Silver, and lay it on, as you did the Gold (at Sect. 3. above,) and burniſh it alſo when it is dry, as you did the Gold.

LIII. For the ſhadows, temper Lake and Indico, with a very little Umber: work all the ſhadows down even and ſmooth, according to what you obſerve in the Life.

LIV. The heightnings are to be left (the Silver being brightly burniſhed) as in the Gold. The thinner part of the ſhadows, being part of the depth of the ſhadows, muſt be tempered with a little ſhell Silver, and ſweetly and neatly wrought into the Silver, being laid very flat and even as before mentioned.

LV. Cherryſtone burnt, Dark, Pink, and Ruſt of Iron, are a very good ſhadow for Emboſſed Silver Armour: ſo alſo is Ivory Black mixt with Dark Pink.

CHAP. XXVII.

Of Limning Landskip.

ALL the variable expreſſions of Landskip are innumerable, they being as many as there are men and fancies; the general rules follow.

I. Always begin with the Sky, Sun-beams or lighteſt parts firſt; next the yellowiſh beams (which make of Maſticot and white) next the blewneſs of the Sky, (which make of Ultramarine or Smalt only:) for purple Clouds, only mix Lake and white.

II.

II. At first working, dead Color all the Piece over, leave no part of the ground uncovered, but lay the Colors smooth all over.

III. Work the Sky downwards, towards the Horizon fainter and fainter, as it draws nearer and nearer the earth, except in tempestuous Skies: the tops of mountains far remote, work so faint that they may appear as lost in the Air.

IV. Let places low, and near the ground be of the color of the earth, of a dark yellowish, or brown, or green; the next lighter green; and so successively as they lose in distance, let them abate in color.

V. Make nothing which you see at a distance perfect, by expressing any particular sign which it hath, but express it in colors, as weakly and faintly as the eye judgeth of it.

VI. Always place light against darkness and darkness against light, by which means you may extend the prospect as a very far off.

VII. Let all shadows loose their force as they remove from the eye; always letting the strongest shadow be neareſt hand.

VIII. Lastly, Take Isinglass in small pieces half an ounce, fair Conduit-water two quarts, boil it till the glass is dissolved, which save for use: with which mix spirit or oyl of Cloves, Roses, Cinnamon or Ambergrieſe, and lay it on and about the Picture where it is not colored (lest it should change the colors: but upon the colors use it without the perfumes) so it will varnish your Pictures, and give them a gloss, retaining the glory of their colors, and take from them any ill scent which they might otherwise retain.

See the way of tempering Colors for Shadowing, in Chap. 22. Sect. 13. aforegoing.

IX. For Trees you must have a dark Green, which you may make by mixing *Verditer* with *Pink* and *Indico*: the deepest shadows of all *in Green*, are made with *Sap-green* and *Indico*.

X. *To preserve your Colors in Limning.*

Take Rosemary-water double distilled, or pure Spirit of Rosemary, and with a few drops of it, temper your shell of white. However dead and faded it was before, it will instantly become perfect white. This Water or Spirit hinders also the Bubbles in *White* and *Umber*, which are troublesome in Grinding.

CHAP.

CHAP. XXVIII.

Of Light and Shadow.

I. Lights and ſhades ſet in their proper places in ſuch a juſt and equal proportion, as Nature doth give, or the life require, give a true Idea of the thing we would repreſent; ſo that 'tis not any color whatſoever, nor any ſingle ſtroak or ſtroaks which is the cauſe thereof, but that excellent Symmetry of Light and Shadow, which gives the true reſemblance of the light.

II. *In* ſhadowing, be careful you ſpoil not your work by too groſs a darkneſs, whether it be hard or ſoft.

III. This Obſervation of light and dark is that which cauſeth all things contained in your work to come forward or fall backward, and makes every thing from the firſt to the laſt to ſtand in their juſt places, whereby the diſtance between thing and thing ſeems to go from you or come to you as if it were the work of Nature it ſelf.

IV. Suppoſe it were a plaiſter Figure, take good notice what appears forwards and what backwards, or how things ſucceed one another; then conſider the cauſe which makes them in appearance either to incline or recline, and conſider the degrees of light and darkneſs, and whether they fall forward or backward, accordingly in your draught give firſt gentle touches, and after that heighten by degrees according as the example and your own ingenuity ſhall direct.

V. Thoſe parts are to be heightn'd in your work which appear higheſt in your Patern: The greateſt life which we can give on white paper is the paper it ſelf, all leſſer lights muſt be faintly ſhadowed in proportion to their reſpective degrees.

VI. But on colored paper white Crions and Tobaccopipe-clay are uſed for the firſt and ſecond heightenings, putting each in their proper places, as more or leſs light is required, which is a ſingular obſervation in this manner of drawing.

VII. Then you muſt take heed you heighten not too many places, nor heighten any thing more than what is needful, nor too near the dark or ſhadows, or any out-line, (except where

where you intend some reflexion,) left your work shew hard and rough.

VIII. In heightening, or such figures as require great light, put the greatest light in the middle, and the lesser towards the edges for the better perspicuity of your work.

IX. Lastly, leave sufficient faint places on the ground of your paper between your lights and shades, that they may appear pleasantly with a singular plainness and smoothness.

X. Reflection, is to be used in delineating, glittering, or shining bodies, as Glass, Pearl, Silver, *&c.* let the cause of the reflection, be it more or less, be seen in the thing it self.

XI. In plain drawing, lay all your shades smooth, whether it be in hatching or smutching, keeping every thing within its own bounds, and this is done by not making your shades at first too hard, or putting one shadow upon another too dark.

XII. Observe that the greater parts of light and shadows, and the small parts intermixt in the same, may always so correspond as thereby to make more appearent the greater.

XIII. In Pictures, let the highest light of the whole, (if any darkness stand in the middle of it) appear more dark than indeed it is: and in working always compare light with light, and dark with dark, by which you will find the power of each, and the general use thereof in all operations.

XIV. Let all your lights be placed one way in the whole work, whether in the Figure, Face, or Garments.

XV. If the light fall sideways on the Picture, you must make the other side which is farthest from the light darkest, and let the lights be placed all together on the other side, and not confusedly on both sides, as if it stood in the midst of many lights, for the body cannot be lightned equally in all places.

XVI. But when you express a Dungeon or Prison with a Torch lighted in it, you must observe that every thing in it, as well as the Garments, must receive their lights from it, and therefore must be shadowed all on the contrary side, which observe in all shadowings of the same kind.

XVII. The true and natural disposition of light, is that which gives the principal grace to a Picture, for that without its due light, is clearly another thing.

XVIII. And although so, it may be beautiful in its kind, so far as it is wrought; but if afterwards it shall be shadowed without judgment and Art, so that the *shadows* be

be confusedly placed, where the *lights* ought to be; or contrariwise, the *lights* where the *shadows* should be; and the *Concavities* and *Convexities* out of their natural situations, the work will not only be confused, but wholly spoiled.

XIX Whereas on the contrary having *lights* rightly disposed, it so mightily adds to the perfection of the Figure, that it makes the *Flat* or *Plane* seem to be *imbossed.*

XX. And thus *light* rightly disposed, does that in the *Painters* work, which *substance* or *matter* does in the *Carvers* work; insomuch that they seem to be Imbossed outwards, such is the force of *light* and *shadow.*

XXI. And herein you will find admirable *scenes* and *foreshortnings*, proceeding purely from the true disposition of the *light*; without which the Figure would not only be imperfect, but lose also much of its grace; though otherwise well proportioned and placed.

XXII. This *light* is the cause or formal reason whereby colored things are seen, whose Shapes and Images pass to the Phantasy, and especially inlighten the eyes in which the Image is formed; which first passeth to the Common-sense, afterwards to the Phantasy, and last of all to the understanding; whereby every thing is discovered to be what indeed it is.

XXIII. In respect of this light, three things occurr to our visive faculty, *viz.* the visual lines, the colored body, and the faculty of seeing, which is in the eye.

XXIV. *The Visual lines lightned*, (which are the proper subject of *Perspective*) come to the eye in a Pyramidal form, the base of which Pyramis resteth in the object; and the Cone or Angle thereof comes to the eye more blunt or obtuse, if the said object be near; but more sharp or acute, if it be farther off, whereby it is not so clearly or easily discerned, as otherwise it would.

XXV. *The colored Object or Body*, comes not to the eye, but its visible species or shapes are diffused through the clearness of the Air unto the Eye; which species are only certain Images like those we see in a Glass.

XXVI. And if the colored body stand near to this Image, it comes to our eye in the same quantity and bigness of the Angel of the Pyramis, which being obtuse or blunt, makes the Image seem as great as indeed it is, and so discerned the more distinctly.

XXVII.

XXVII. But if far off, the visible species appears less, according to the proportion of the distance and acuteness of the Pyramidal Angle.

XXVIII. *The faculty of seeing* is formed by the Concurrence of the other two things, *viz.* the visual lines, and the colored body; which informeth the eye by reducing it from meer Ability into Act, and so performing its operations, and causing the thing also to be seen more apparently and distinctly.

XXIX. From hence it is apparent, that the self-same body cannot be equally lightned in all places. 1. Because the light doth not directly illuminate any more than that part which is directly opposite to it; the other parts which are oblique to it are illustrated more imperfectly, by reason of the interception or obliquity of an opake body, through which its beams cannot pierce.

XXX. 2. From the several distances of the eye to the parts of the same body; for as the first part of the body is seen and placed neareſt the eye, and so comes to it with a more obtuse Angle, so being more lightned, it is also seen more distinctly, whereas the other parts being farther off, come to the eye in a more acute Angle, and being lesser lightned, cannot be so plainly seen.

XXXI. If two, three, or four men stood one behind another, all of them equally receiving the light; yet in respect of your eye they do not; and therefore by the former Doctrine, you must paint the second which is farthest off from the eye darker, the third darker than that, and the fourth darkest of all, and so on if there be more, till the eye can see no farther.

XXXII. The reason is, because the second standing farther off, comes to the eye with a lesser Angle (as aforesaid) whereby it cannot be seen so evidently as the first, the same reason is for the third, fourth, fifth, &c.

XXXIII. The same thing is also to be understood, if the visible species of one or many objects be seen sideways, for according to their distance and obliquity to the eye, so you must shadow them.

XXXIV. That part of the body must be made lightest, which has the light most opposite to it: if the light be placed above the head descending; then the top of the head must be made lightest, the shoulder next lightest, and

ſo you muſt ſhadow, by loſing the light by degrees.

XXXV. That part of the body which ſtands fartheſt out, muſt be made lighteſt, becauſe it comes neareſt to the light, and the light loſes ſo much of its brightneſs, by how much any part of the body bends inward, becauſe thoſe parts which ſtick out, do hinder the Glory and full Brightneſs of the light from thoſe parts that fall any thing more hollow.

XXXVI. Therefore, by how much one part of the body ſticks out beyond another, by ſo much it muſt be made lighter than the other, and *è contrario*, ſo much the darker.

CHAP. XXIX.

Of Colors more particularly.

I. *Oker* is a good color, and much in uſe for ſhadows, in Pictures of the life, both for Hair and Drapery: In Landskips it is uſed for Rocks and High-ways.

II. *Pink*, the faireſt, with blew, makes the faſteſt greens for Landskip and Drapery.

III. Sap-green and green-bice are good in their kind; but the firſt is ſo tranſparent and thin, the other of ſo courſe and groſs body, that in many things they will be uſeleſs, eſpecially where a beautiful green (made of Pink and Bice mixed with Indico) is required.

IV. *Umber*, is a greaſie foul color; but being calcined and ground, it works ſharp and neat.

V. *Spaniſh-brown*, is exceeding courſe and full of gravel; being prepared, it is uſed for a mixture made of Red-lead mixt with a little Umber, which makes the ſame color.

VI. *Colens earth* or *Terra Lemnia*, it is uſed to cloſe up the laſt and deepeſt touches in the ſhadows of Pictures of the life, and in Landskips; uſe it when new ground.

VII. *Cherry ſtone-black*, is very good for Drapery and black apparel: mixt with Indico, it is excellent for Sattin; it appears more beautiful or ſhining if mixed with a little white: if deepned with Ivory-black, in hard reflections, and ſtrong deep touches, it is wonderful fair.

VIII. *Ivory black*, it ſerves for a deep black, but is not eaſie to work without it be well tempered with Sugar-candy, to prevent peeling.

IX. *Red-lead*, well waſh'd, is a good color, but *Vermilion* for thoſe pieces which require an exquiſite redneſs.

X. *Indian-Lake*, is the deareſt and moſt beautiful of all ordinary reds; it is to be ground as white-lead, and mixt with a little white Sugar-candy and fair water, till the color and Sugar-candy be throughly diſſolved, which being dry will lie very faſt, without danger of cracking or peeling.

CHAP. XXX.

Obſervations of making ſome Original Colors.

I. *To make white-lead.*

Put into an earthen pot or Crucible ſeveral plates of fine Lead, cover them with White-wine Vinegar, covering the top of the pot cloſe with clay, bury it in a Cellar for ſeven or eight weeks, and you will have good white lead upon the plates, which wipe off.

II. *To make Verdigriſe.*

This is made by hanging plates of Copper over the fumes of *Aqua fortis*, or ſpirit of Nitre, or by dipping them in the ſame or in Vinegar.

III. *To make an Emerald Color.*

Take Verdigriſe in fine pouder, which temper with varniſh, and lay it upon a ground of liquid Silver burniſht, and you have a fair Emerald.

IV. *To make a Ruby colour.*

Mix the ſame with Florence Lake, and you ſhall have a very fair color.

V. *To make a Saphire color.*

The ſame, *viz.* Verdigriſe mixt with Ultramarine, makes a glorious Saphire.

VI. *To make a Crimſon Velvet.*

Take Turnſole and mix it with Indian-lake (well ground with gum and Sugar-candy) lay it full, and when it is wet wipe away the color with a dry pencil, where you would,

have the heightning of the Crimson Velvet appear, and the stronger reflections will be well expressed.

VI. *To make a Silver black.*

Take fine Silver filings or plates, which dissolve in spirit of Nitre or *Aqua fortis*, and evaporate to driness, or precipitate *cum Oleo Sulphuris* or Salt-water, and you shall have a snow-white precipitate, which mixt with water makes the best black in the world, to dy all manner of Hair, Horns, Bones, Wood, Metals, &c.

VIII. *To make a Murry or Amethyst.*

It is made of Indian Lake ground with Gum-Arabick water only.

IX. *To make a Red or Ruby for Limning.*

It is made of Indian-Lake (which breaks of a Scarlet color) ground with Gum-water and Sugar-candy.

X. *To make Azure blew, or Saphire.*

It is made of Ultramarine of *Venice* (which is best) the best blew Smalt, or blew bice ground with gum-water only: you may make good shadowing blews of Indico, Flory and Litmose, all which need no washing, nor Litmose no grinding, but only infused in a Lixivium of Soap-ashes.

XI. *To make a Green or Emerald.*

It is made of Cedar green: in place whereof, take Green-Bice to draw with: Pink is good also for Landskips, mixed with Bice-ashes; as also with Masticot and Ceruse.

XII. *To make a Yellow or Topaz.*

It is made of Masticot which is the best, of which there are divers sorts, *viz.* deeper and paler: Yellow-Oker also for want of better may do. Shadow Masticot with Yellow-Oker deepen it with Oker de Luce.

XIII. *To make Ultramarine.*

Take the deepest colored *Lapis Lazuli* (having few veins of Gold upon it) heat it red-hot in a Crucible close covered, then quench it in Urine, Vinegar or Water in a Leaded earthen pot, dry it well, then with a pair of pinsers nip off the hard, gray, and whitest part from it, and grind the remainder with honied water as fine as may be, then dry it for use. The honied water is made of water a quart, boiled with honey two spoonfuls.

CHAP.

CHAP. XXXI.

The sum of the Observations of Limning to the life in general.

I. LET the Table be prepared very exactly by the fifth rule of the twenty third Chapter of this second Book.

II. Let the ground be of flesh color, tempering it according to the complexion to be painted.

III. If it be a fair complexion, mix a good quantity of Red and White-Lead together somewhat thick.

IV. If swarthy or brown, mix with the former a little fine Masticot or English Oker, or both, always observing that your ground be fairer than the complexion painted.

For fairness may be shadowed or darkened at pleasure; but if it be sad or dark, you can never heighten it, for in Limning, the picture is always wrought down to its exact color.

V. Lay the ground upon the Card or Tablet, with a larger pencil than ordinary, free from spots, scratches of the pencil, or dust, and as even as possible may be; and let the color be rather thin and waterish than too thick, doing it very quick and nimbly with two or three dashes of the pencil.

VI. This done, prepare your shadows in order, by the seventh rule of the four and twentieth Chapter of this second Book.

VII. Then draw the out-lines of the face with Lake and white mingled together very fine; so that if you should mistake in your first draught, you may with a strong stroak draw it true, the other line by reason of its faintness being no hinderance.

These lines must be truly drawn, sharp and neat, with the greatest exactness imaginable.

VIII. Observe the most remarkable and deep shadows which keep in memory when you go over them with more exactness; drawing out also (if you so please) the shape of that part of the body next adjoining to the face, *viz.* a little beneath the shoulders, with a strong and dark color, which in case of mistake in proportion may easily be altered.

IX. The first sitting is to dead color the face: the second sitting is the exact coloring and observation of the several shadows, graces, beauties or deformities, as they are in Nature: the third sitting is making smooth what was before rough and rude; cloathing what was naked, and giving strong and deepning touches to every respective shadow.

X. The dead color is thus made.

Take of the aforesaid ground (at the third or fourth Section of this Chapter) and mix it with fine Red lead, tempering it exactly to a dead color of the cheeks and lips, having a great care, that you make it not too deep; which if light, you may do at pleasure.

XI. The face is first begun to be coloured in the reds of the cheeks and lips, and somewhat strongly in the bottom of the chin (if beardless) also over, under, and about the eyes with a faint redness.

XII. The ear is most commonly reddish, as also sometimes the roots of the hair.

XIII. The ground being wash'd over with this reddish or dead color let the shadows be as well bold and strong as exact and curious.

XIV. *A good Picture, if but dead colored only, and seeming near hand very rough, uneven and unpleasant, yet being boldly and strongly done and shadowed will appear very smooth, delicate, and neat if but viewed at a distance from the eye.*

XV. *Therefore curiosity and neatness of Color, is not so much to be regarded, as bold, lofty, and strong expressing what is seen in the life.*

XVI. The next thing to be done is the use of the faint blews, about the corners and balls of the eyes and temples, which you must work out exceeding sweetly, and faint by degrees.

XVII. Always be sure to make the hard shadows fall in the dark side of the face under the nose, chin, and eye-brows, as the light falls, with somewhat strong touches.

XVIII The light shadows being done and smoothed, work the hair into such forms, curlings, and dispositions as best adorn the piece.

XIX. *First draw it with colors neatly and to the life; then wash it roughly as the rest; and the next time perfect it: filling up the empty places with color, and the partings thereof with blew.*

XX.

XX. And ever remember, when you would have your colors or shadows deep, strong, and bold; that you do them by degrees, beginning faintly, and then encreasing the same.

XXI. First, use the former colors in the same places again, driving and sweetning them into one another, that no part may look uneven, or with an edge, or patch of color, but altogether equally mixt and dispersed, lying soft and smooth, like smoak or vapours.

XXII. Secondly, this work being done for an hour or two, lay the ground for behind the Picture of Blew, or Crimson, like to a Sattin or Velvet Curtain.

XXIII. If blew, let it be done with Bice well tempered in a shell: First draw the out-lines with the same color, with a small pencil: then with a thin and waterish blew wash over the whole ground with a larger pencil.

XXIV. Lastly, with thicker color cover the same which you before wash'd, swiftly, that it dry not before all be covered, so will it lie smooth and even.

XXV. If Crimson, work with *Indian*-lake, in those places where the strong lights, and high reflections fall, let the light be done with thin and waterish Lake; the deepning and strong shadows, close by the light with thicker color: this done, the Picture will be much changed; the beauty of these grounds will much darken and deaden it.

XXVI. Let the apparel with suitable colors be done only flat with heightening or deepning; and then go over the face again, reducing the shadows to smoothness and neatness with a sharp and curious pencil: drawing the eyes, the lines of the eye-lids; redness of the nostrils; shadow of the ears: deepness of the eye-brows, and those other remarkable marks of the face.

XXVII. So sweetning the out-lines of the face (by darkning the ground, above from the light side, and below on the dark side) that when the work is done, the ground may stand as it were at a distance from the face behind; and the face may seem to stand off forward from the ground.

XXVIII. Then go over the hair, making it light or deep by the life: and in apparel make the several folds and shadows, and what else is to be imitated, as it is in the life it self; lightning the lines with the purest white, a little yellow and some blew; and deepning with *Ivory* black. and heightning with black mixed with a little Lake or Indico.

XXIX. This done, and the perſon gone, your work being yet rough, by your ſelf poliſh it, and ſtrive to make it ſmooth and pleaſant, filling up the empty places, and ſweetning the ſhadows, which yet lie uneven and hard.

XXX. The apparel, hair, and ground being finiſhed, now give ſtrong touches for the rounding of the face; and obſerve whatſoever may conduce to likneſs and reſemblance, as moles, ſmilings, or glancings of the eyes, motion of the mouth, *&c.*

XXXI. For which purpoſe, you may find an occaſion of diſcourſe, or cauſe the perſon to be in action, and to look merrily and chearfully.

XXXII. Laſtly conclude, that the eye gives the life; the noſe the favor; the mouth the likeneſs; and the chin the grace.

XXXIII. In fair colored Drapery, if the lightning be done with fine ſhell Gold it will add a moſt wonderful luſture, and be a ſingular Ornament to your works; and if this Gold be mixt with the very ground it ſelf, the apparel will appear much the fairer.

XXXIV. The Dead coloring of a whole figure deſigned for Hiſtorical Limning.

It is twofold. 1. To temper a fleſh color ſomewhat lighter than you intend it to be after it is wrought down by the Variety of *ſhadowing mixtures*, which fleſh color you muſt temper in a large ſhell, becauſe it requires a quantity; it muſt be of a good mixture, neither too thick nor too thin.

XXXV. Then take a Gooſe-quil-pencil full of the color, and lay it on quick, even, and ſmooth, on the place where you deſign the Figure; if you be not very nimble in the laying it on, it will not lye even.

XXXVI. The other way is thus. Inſtead of fleſh Color, make uſe of the beſt *Lake-white, well prepared*, and lay it on with the ſame fized Pencil as before mentioned, and ſo your dead Color is as the Oyl-painters do, which muſt be done free, rough, and boldeſt of all.

XXXVII. But note, That you draw all the out-lines of your figure firſt with a *Temperature of Lake and White*, before you lay the ground Color for the fleſh. Alſo, in *dead coloring*, leave not your ſhadows too dark, harſh, or hard, next to the light, but faint, even and miſty.

XXXVIII.

XXXVIII. This done, *mix Flake-White, and a little Red lead*, with which touch all the deep places both in Face and Body, as your ingenuity, or the life ſhall direct you.

XXXIX. This do extream faint, becauſe if you lay it too dark, you cannot heighten it up again, without running the hazard of ſpoiling of it, but if too light, you may deepen it by degrees at your pleaſure.

XL. In the face make a delicate faintneſs, or faint Red inclining to a Purple, under the Eyes; then touch the tips of the Ears, with the aforementioned mixture, as alſo the Cheeks, Lips, and the bottom of the Chin, and ſo go on to the ſoal of the foot, touching in all the following Muſcles and places with this glowing color.

XLI. *Then mix Gal-ſtone and Pink, for the general yellowiſh glowing ſhadows*, and in ſome places add to the former mixture or temperature, a *little Lake*.

XLII. Moreover you will perceive in the life, a faint blewiſh color in ſome parts of the body, which you may expreſs with a temperature or mixture of *Indico and White*, and ſo proceed according to the ſubject you draw after, whether the *life* or *copying* after *Painting*.

XLIII. All theſe ſhadows are to be expreſſed after the manner of hatching with a Pen, with gentle and faint ſtrokes waſhing it along.

XLIV. But in this *Dead coloring*. See that you cover your ground-color with the aforeſaid Red and other ſhadows.

XLV. And be not too curious in the firſt working, but rather make choice of a good, free, and bold following of nature, than to affect an extream near, ſet, or ſtarcht way.

XLVI. Let not the roughneſs of your color diſcourage you, for that is to be wrought down and couched by degrees with the other ſhadows, but not at firſt.

XLVII. Then by degrees ſweeten and heighten your ſhadows according as the light falls.

XLVIII. In ſome places touch it with ſtrong touches, and in thoſe places bring your work up together, to an equal roundneſs and ſtrength, not finiſhing any part of the figure before the other, but viſiting and working all the parts curiouſly alike, but in a manner at Random.

XLIX. Then obſerve the roundneſs, coloring, and ſhadowing, or whatever elſe is requiſite to the perfection of the Work.

L Having done with the fainter ſhadows, ſweeten and work them into the Red ſtill.

LI. Carefully obſerve all the variety of coloring, and with your pencil curiouſly delineate thoſe ſeveral varieties of nature which you had rudely traced out before.

LII. To do this, make uſe of the ſame color in the ſame places as you did before, working, driving, and ſweetening the ſame colors one into another; that nothing be left in your work with a harſh edge, uneven, or in a lump, but all as it were ſweet, or driven one into another with the point of ſomewhat a ſharper pencil than you uſe at firſt, ſo that your ſhadows may lye diſperſed, ſoft, ſweet, ſmooth, and gently extended one into a nother like Air.

LIII. Laſtly, obſerve, that Skies, Waters, Trees Plants, Flowers, and Ground, are all to be dead colored before the Figures.

LIV. *How to draw with Indian Ink.*

It is done after the manner of Waſhing: Or, inſtead of the *Indian Ink* you may temper *Lamp-black*, or *bread burnt.*

LV. Take your Indian *Ink*, or Lamp-black; and temper it with fair-water, in a ſhell, or upon your hand, your out-lines being drawn with Cole, or Black-lead, take an indifferent long ſharp pointed pencil, dip the point into fair water, then dip the pencil into Indian Ink, and draw all your out-lines very faint.

LVI. (Note that all the temperature of Indian Ink muſt be thin and wateriſh, not too black.)

LVII. When it is dry, take a little bit of ſtale white bread, and rub out the out-lines which you drew with the Cole, (if too black) then daſh on your ſhadows very faintly, and deepen it by degrees, as you ſhall think convenient, and finiſh it with Stipples, it being moſt advantageous to any one that ſhall practiſe Limning.

LVIII. *Beware* of taking too much color in your pencil, which you may prevent by firſt drawing it through your lips.

LIX In laying on your ſhadows, never lay them too deep, but deepen them down by degrees; for if too deep you can never heighten them again.

CHAP.

CHAP. XXXII.

Of Limning Landskip, more particularly.

I. TO make the Tablet for Landskip.

Take a piece of Vellom and shave it thin upon a Frame, fastning it with paste or glew and pasting it upon a board; these manner of Tablets are altogether used in Italy *for Landskip, and History.*

II. If you draw a Landskip from the life, take your station from the rise of ground, or top of an hill, where you shall have a large Horizon, marking your Tablet into three divisions downwards from the top to the bottom.

III. Then your face being directly opposed to the midst of the finitor, keeping your body fixed, depict what is directly before your eyes, upon your Tablet on your middle division, then turning your head (not your body) to the right hand, depict what is there to be seen: adjoining it to the former. *In like manner doing by that which is to be seen on the left hand, your Landskip will be compleated*

IV. Make every thing exact, not only in respect of distance, proportion and color; but also in respect of form, as if there be *Hills, Dales, Rocks, Mountains, Cataracts, Ruines, Aquæducts, Towns, Cities, Castles, Fortifications, or whatsoever else may present it self to view*; making always a fair Sky, to be seen afar off; letting your light always descend from the left hand to the right.

V. In beginning your work, first begin with a large Skye; and if there be any shining or reflection of the Sun, beware you mix no Red-lead in the Purple of the Sky, or Clouds, but only with Lake and white: the yellow and whitish beams of Sol work with Masticot and white.

VI. Then with a fresh or clean pencil finish the blewish Sky, and Clouds, with smalt only: at the first working, dead all the work over, with colors suitable to the Air, green Meadows, Trees, and Ground, laying them somewhat smooth, not very curiously, but slightly and hastily.

VII. Make a large Sky, which work down in the Horizon, faintly, but fair; and drawing nearer to the Earth, let

the

the remote Mountains appear ſweet and miſty, almoſt indiſtinguiſhable, joyning with the Clouds, and as it were loſt in the Air.

VIII. The next ground color downwards muſt encreaſe in magnitude of reaſon, as nearer the eyes, ſomewhat blewiſh or Sea-green: but drawing towards the firſt ground, let them decline into a reddiſh or popinjay-green.

IX. The laſt ground color, muſt be neareſt the color of the earth, *viz.* a dark yellow, brown and green; with which, or ſome color near it, you muſt make your firſt Trees.

X. Making them, as they come near in diſtance, to encreaſe proportionably in color and magnitude, with great judgment; the leaves flowing and falling one with another, ſome apparent, others loſt in ſhadow.

XI. Let your Landskip lie low, and as it were under the eye (which is moſt graceful and natural) with a large and full Sky not riſing high, and lifting it ſelf into the top of the piece, as ſome have done.

XII. Be ſure to make your ſhadows fall all one way, *viz.* to make light againſt darkneſs, and darkneſs againſt light; thereby extending the proſpect, and making it to ſhew as afar off; by loſing its force and vigour, by the remoteneſs from the eye.

XIII. In touching the Trees, Boughs and Branches, put all the dark ſhadows firſt, raiſing the lighter leaves above the darker, by adding Maſticot to the dark green, which may be made with Bice, Pink, and Indico.

XIV. The uppermoſt of all, expreſt laſt of all, by lightly touching the exterior edges of ſome of the former leaves, with a little green, Maſticot, and white: the darkeſt ſhadows you may ſet off with Sap-green and Indico.

XV. Trees and their Leaves, Rivers, and Mountains far diſtant, you muſt ſtrive to expreſs with a certain real ſoftneſs and delicateneſs.

XVI. In making Cataracts, great falls of Waters, and Rocks, you muſt firſt lay a full ground near the color, then with a ſtronger in the dark places, and ſlight heightning in the light.

XVII. Remark all diſproportions, cracks, ruptures and various repreſentations of infinitely differing matters; the manner whereof is abundantly expreſt, in almoſt every Landskip.

Horat.

Horat. Epod. 16.

Vos, quibus est virtus, muliebrem tollite luctum,
Etrusca præter & volate littora.
Nos manet Oceanus circumvagus; arva, beata
Petamus arva, divites & insulas:
Reddit ubi Cererem tellus inarata quotannis,
Et imputata floret usquè vinea.
Germinet & nunquam fallentis termes olivæ,
Suámque pulla ficus ornat arborem.
Illis injussæ veniunt ad mulctra capellæ;
Refértque tenta grex amicus ubera.
Nec Vespertinus circumgemit Ursus ovile;
Nec intumescit alta Viperis humus:
Pluráque felices mirabimur: ut neque largis
Aquosus Eurus arva radat imbribus,
Pinguia nec siccis urantur semina glebis:
Utrumque rege temperante Cœlitum.
Non huc Argoo contendit remige pinus,
Neque impudica Colchis intulit pedem
Non huc Sidonii torserunt cornua nautæ,
Laboriosa nec cohors Ulyssei.
Nulla nocent pecori contagia, nullius astri
Gregem æstuosa torret impotentia.
Jupiter illa piæ secrevit littora genti,
Ut inquinavit ære tempus aureum.

You nobler sprits, hence with womens tears,
Sail from Etruscan confines free from fears:
The Earth-encirc'ling Ocean us invites,
Rich Islands, Fields, Fields blest with all delights.
Where Lands untill'd are yearly fruitful seen,
And the unpruned Vine perpetual green.
Sill, Olives by the faithful branch are born,
And mellow Figgs, there native Trees adorn.
There, milchy Goats come freely to the pail,
Nor do glad flocks with dugs distended fail.
The nightly Bear roars not about the fold,
Nor hollow earth doth poisonous Vipers held.
Add to this happiness, the humid East
Doth not with frequent showers the Fields infest.

Nor

Nor the fat seeds are parcht in barren land.
The powers above both temp'ring with command.
No Bark came hither with Argoan *oar,*
Nor landed wanton Colchis *on this shoar:*
Cadmus *with filled sails turn'd not this way,*
Nor painful troops that with Ulysses *stray.*
Here amongst cattle no contagions are,
Nor feel flocks droughty power of any star.
When brass did on the Golden Age intrude,
Jove *for the pious did this place seclude.*

CHAP. XXXIII.

Of the various Forms or Degrees of Coloring.

I. THere are four various Forms or degrees of coloring, *viz* 1 *Of Infants, or Children.* 2. *Of Virgins, or fair Women.* 3. *Naked Bodies.* 4. *Old or aged bodies.*

II. *Infants or young Children* are to be painted of a soft and delicate complexion; the Skin and ears of a ruddy and pleasant color, almost transparent.

III. This may be done with White lead, Lake, and a little Red lead; shadowing it thin, faint and soft; letting the Cheeks, Lips, Chin, Fingers, Knees, and Toes, be more ruddy than other parts; making all their Linnen very fine, thin, and transparent, or perspicuous, with strong touches in the thickest folds.

IV. *Virgins and fair Women* are as curiously to be expres'd as the former, but their Muscles are to be more apparent, their shape more perfect; and their shadows to be of a whitish yellow, blewish, and in some places almost purple.

V. But the most perfect and exquisite direction is the life, which ought rather to be followed than any thing delivered by rule.

VI. *For the shadows here, mix white with Pink; and Indico and white; and in some places Lake, with a little Indico and white.*

VII. As for Womens Bodies, viz. *such as are naked, they are to be represented soft, round, plump, gentle and tender, and without many Muscles.*

VIII

VIII. On the contrary, Mens Bodies are to be repreſented ſtrong, ſturdy, ſtout, and vigorous with the Muſcles exactly placed and drawn, which to do with Judgment and Underſtanding, requires time, ſtudy, and knowledge in Anatomy.

IX. *Naked Bodies* are to be painted ſtrong, lively, and accurate; exactly matching the reſpective pairs of Muſcles and Nerves, fixing each Artery in its due and proper place, giving each limb its proper motion form and ſituation, with its true and natural color; all which to do well may be the ſtudy and practice of almoſt ones whole life.

X. *Old or aged Bodies* ought to be eminent for exact and curious ſhadows, which may be made of Pink, Lake, and Ivory-black, which made notable ſhadows, in appearance like the wrinkles and furrows of the face and hand in extream old age.

XI. Let the eyes be dark, the aſpect melancholy, the hair white (or elſe the pate bald) and all the remarks of Antiquity or age be very apparent and formidable.

XII. *Pink mixt with Lake and Red-lead, make an excellent ſhadow for old Mens Bodies: but for the extreameſt or deepeſt ſhadowings either in face or body, mix Lake and Ivory-black, which will make an excellent deep ſhadow, and will be very uſeful in expreſſing of the ſeveral furrows and wrinkles in the face and hands of people extreamly Aged, with their dark Eyes and melancholy Aſpects.*

XIII. But notwithſtanding all the foregoing rules, the poſture or form of ſtanding, and being, either of the whole body, or any of its parts, ought diligently to be obſerved, that the life may be imitated.

XIV. In which, it only lies in the breſt and judgment of the Painter to ſet it off with ſuch various colors, as may beſt befit the reſpective complexion and accidental ſhadows of each accidental poſition or poſture, which are ſometimes more pale, ſometimes more ruddy; ſometimes more faint, ſometimes more lively.

CHAP.

CHAP. XXXIV.

Of the Limning of the Skie, Clouds, &c.

I. FOR a beautiful Sky, fitted for fair weather, take Bice tempered with white, laying it in the upper part of the Sky, (as you see need) under which you may lay a thin or faint purple with a small soft brush: working the undermost purple into the uppermost blew; but so as that the blew may stand clear and perfect.

II. Then for the Horizon or near the same lay a fine thin Masticot, which work from below upwards, till it mix with the purple, after which you may take a stronger purple, making here and there upon the former purple, as it were the form of Clouds, as nature requires.

III. Upon the Masticot you may also work with Minium mixed with Ceruse, to imitate the fiery beams which often appear in hot and clear Summer weather.

IV. To imitate glory, with a great shining light of a yellowish color or the Sun-beams, you must take Masticot or Saffron mixt with Red-lead, and heightned with shell gold, and the like.

V. A Cloudy Sky is imitated with pale Bice, afterwards shading the Clouds with a mixture of several colors: a fair Sky requires clouds of a greater shade, with purple.

VI. The clouds in a rainy Sky, must be shaded with Indico and Lake: in a night Sky, with black and dark blew, smoaky, making a blaze with purple, Minium and Ceruse.

VII. The clouds in a Sun rising or setting must be done with Minium, Ceruse and purple, making underneath the clouds scattering streaks, with Minium and Masticot, or Minium and Saffron; so that the scattering upwards may appear faint; and below, afar off near the Landskip, somewhat fiery.

VIII A fiery Sky, let be made with a pale blew, smoothing it downwards, which afterwards, you must mingle with a strong Red-lead mixt with Ceruse making long diminutive streaks like the Sun-beams upon the blew Sky, with which, let fall some purple streaks, much like the said beams; then, sweeten

ſweeten one into another with a ſoft bruſh pencil, wet in gum-water, not too ſtrong.

IX. Laſtly, you may make a fair Sky, by uſing fair Bice alone, and tempering it by degrees with more and more white, ſmoothing one into another, from above downwards, and ſhading it as you ſhall ſee reaſon and nature require.

CHAP. XXXV.

Of the Limning of Towns, Caſtles, and Ruines.

I. THoſe Towns, or Cities, which ſeem at fartheſt diſtance, muſt have but little ſhadowing or heightning, and ſometimes none at all, theſe if they appear againſt the Sky, muſt be laid with Bice, and a little purple, and ſhaded faintly with a good blew.

II. Thoſe which lie at a farther diſtance, muſt be laid with Bice and purple as aforeſaid, and ſhaded with light blew, and heightned with white.

III. Thoſe which appear at an ordinary diſtance, muſt be done with Vermilion and purple, and ſhaded with a ſtrong purple ſhaded with white.

IV. Thoſe which are near, muſt be done with Vermillion and white, and then ſhaded with a ſtrong Vermillion and brown Oker, mixt with white.

CHAP. XXXVI.

Of Mountains, Hills, and the like.

I. THoſe Mountains which are next in ſight, muſt be laid with a fair green, and ſhaded with Sap-green; ſometimes with brown Oker, and *French* Berries, to diſtinguiſh them from ſuch as are farther off.

II. Such as lie farther off, muſt be laid with green, blew, and Maſticot, and be ſhaded with blew, green, and Verdigriſe.

III. Such as lie yet farther, muſt be laid with ſome ſtrong blew, white, and Bergh-green, and ſhaded with ſtrong blew.

IV. Such as lie yet farther, muſt be laid with ſtrong blew and white, and ſhaded with blew only.

V. Such as lie yet farther, with Bice and white, and ſhaded with Bice.

VI. Such as lie farther off, are only laid with white, and ſhaded with a faint Bice.

VII. Fields being near, muſt be done with a ſingular good green, the which muſt always be fainteſt, according as they are farther diſtant; heightning them with Maſticot, or a light green, and ſhadowing with Sap-green, but not too much.

VIII. Thoſe which lie far, are to be laid with a *French* berry yellow, made of a blew greeniſh; ſhaded with Oker.

IX. And in Fields, Hills, and Dales (whether near or far off) there are many roads, paſſages and ways, which muſt be laid either fainter or ſtronger according to their diſtance and ſituation.

CHAP. XXXVII.

Of Trees, Boughs, Cottages, and the like.

I. THoſe Trees of divers colors which ſtand upon the foreground, muſt be laid with divers colors, as with Verdigriſe, mixt with other green, or with Maſticot, and Bergh-green mixt, and then ſhaded with Sap-green; which you may heighten with Maſticot, mixt with White-lead.

II. If they appear yellow, uſe Verdigriſe and Maſticot mixt, and ſhadow with Verdigriſe.

III. If they be of a whitiſh color, let them be laid with Verdigriſe mixt with White-lead, and ſhade them with Verdigriſe, mixt with Indico faint; heighten them with Ceruſe, that

that they may look of a faint yellow green; or else with a little Indico and yellow.

IV. Those which stand at a great distance, lay with Indico, and white, and shadow with Indico, and heighten with the same made a little lighter.

V. If Trees be very old with mos upon them, give them the appearance of green and yellow, which commix with Pink, and Bergh-green: if they be of a whitish yellow, do them with Pink and white mixt with a little green.

VI. Country Cottages lay with light Oker, which order according to the newness or oldness of the building.

VII. Cottages of Timber, let be laid of the color of Trees and Wood-work.

VIII. Thatcht Cottages if new, lay with Pink, shadow with brown Oker, and heighten with Masticot mixt with white: but if old, lay them with brown Oker mixt with white, and heighten with the same.

IX. Straw colors at a distance are done with Indico and white, mixt sometimes with brown Oker, and shaded with Indico.

CHAP. XXXVIII.

Of the Coloring of Naked Figures.

I. FOR *Women and Children*, take the best Flake White-lead, and a little good Lake, with which if you please you may mix a little Vermillion, but take heed that your mixture be neither too red or too pale, but exactly agreeable to the life it self; the which in this case is the best director.

II. This being dry, touch the lips, cheeks, chin, fingers, and toes with thin Lake, and then heighten with white mixt with a little Lake or Vermillion.

III. But if you would cover them somewhat brownish, mix with your Carnation, a little brown Oker; and shade it with Red-Oker, and coal-black with a little Lake.

IV. In old Women take White, Vermillion and Brown-Oker, and give the luſtre where it ought to be with Vermilion mixt with a little Lake.

V. Shade it with Red-Oker and Lake, or with Wood ſoot, or Lamp-black, and heighten with white mixt with a ſmall quantity of Vermillion.

VI. Dead Children and young Women, paint with Brown-Oker, white and ſome Vermillion, and ſhadow the ſame with the ſoot of wood.

VII. Dead old Women color with Brown-Oker mixt with a little white, which ſhade with a thin ſoot of wood firſt, then with a ſtronger.

VIII. Young men paint with Ceruſe, Vermillion and Lake, making it a little browner than for young Women; giving them luſtre with Vermillion and Lake, ſhadowing with Lamp-black and Brown-Oker; and heightning with Ceruſe and Vermillion.

IX. Old Men Limn with Vermillion, Brown-Oker, and white; ſhade with ſoot and Lamp-black; heighten with Vermillion, Brown-Oker, and white, and give it a luſtre with Lake or Vermillion.

X. Dead men color with Brown-Oker, white, and a little Vermillion, as your diſcretion ſhall inform you, and ſhade with ſoot, or Lamp-black mixt with a little Ceruſe.

XI. Devils, Satyrs, and the like Limn with brown-Oker, mixt with a little white and red, which mixture let be made ſome part whiter, ſome part browner; and ſtrongly ſhade it with ſoot, as your own ingenuity may inform you.

CHAP. XXXIX.

Of the Coloring of Hair.

I. THe Hair of Women and Children is colored with ſimple Brown-Oker, and heightned with Maſticot: The ſame in the hair of men, only making it ſadder or lighter as the life requires.

II. Hair which is black may be done with ſoot, or Lamp-black, but it will abide no heightning.

III.

III. Childrens Hair is ſometimes laid with brown-Oker and White, and heightned with the ſame; and ſometimes with Alom.

IV. Sometimes alſo they are done with light-oker, and deepned with brown-oker, and heightned with Maſticot ſimple.

V. Old Womens Hair with brown-oker and black, heightned with Brown-oker and white.

VI. In Gray Hair take more black than white, and heighten with pure white.

CHAP. XL.

Of Walls, Chambers, and the like.

I. FOR a brick Wall take Vermillion and white, and ſhadow with Red-oker.

II. If the ground of the wall is laid with black and white, ſhade it with a thin black, if with Red-Oker and white, ſhade it with purple: or with Lake and black, or Red-oker ſimple.

III. If it be laid with black, white, and purple, ſhade it with purple and black.

IV. If the wall belongs to any Chamber or Hall, having Figures or Statues; ſo order and temper your colors, with ſuch diſtinction, that the Figures and Wall be not drowned in each other.

V. Sandy fore-grounds do thinly with brown-oker, ſad or light as the life preſents; ſhadow the ſame with the ſame brown-oker, and Rocks with Red-oker, according as they are near to, or far from the ſight.

CHAP. XLI.

Of Marble Pillars, Rocks, and the like.

I. MArble must be done with a good and light pencil, after a careleſs manner in imitation of Nature, wherein all ſuch ſtains, colors, veins: and repreſentations of the faces of living things muſt be carefully obſerved.

II. The like is to be obſerved in Rocks, of Sandy colors, and ragged forms; which if ſeen at a great diſtance, muſt be colored with thin Bice, and then heightned with purple and white, and ſhaded with Smalt or a deep blew.

III. If they ſeem near, color them with brown-oker mixt with white, which go over again with Vermillion mixt with white, after which lay here and there ſome Verdigriſe mixt with ſome other green.

IV. In theſe works you muſt make ſpots, ſtains and breakings, with hatchings, which ſhade with the foot of Wood or Lamp-black mixt with a little white.

CHAP. XLII.

Of the Coloring of Metals.

I. FOR *Gold color*, take Red-lead, Saffron, and very light Oker, with which color all manner of Cups, Diſhes and the like, which ſhade with foot, and heighten with ſhell Gold.

II. For Silver, lay a thin white, which ſhade with a thin blew, mixt with a little black, and heighten with ſhell Silver.

III. For Tin and Iron, take white and Indico, and ſhade it with Indico and Bice, and heighten with white or ſhell Silver.

IV.

IV. For Brass, take thin Pink, shade it with *Indico* mixt with green, or with almost all *Indico*, and heighten it with shell Gold.

V. *For Copper*, take Red-oker and white, shade it with Red-oker, and heighten with Red-oker and white, heightning also here and there, where the light falls, with shell Silver.

CHAP. XLIII.

Of the Coloring of Flowers.

I. THE *Tulip*, draw it first with black-lead upon a white ground, then shade it a little (as for a white Flower) with thin *Indian Ink*, or with green yellow *Ink*, or with black-lead ground with thick gum-water.

II. Then lay on your several colors resembling Nature, which being dry, shade with a higher color, and then farther shadow it, according to the nature of the flower.

III. So that being finished it may be like flame, Red, Blew, Lake, Purple, Spotted, or otherwise, in imitation of the life.

IV. The Damask Rose, lay with Lake mixt with white, shadow with the same mixt with thin Lake; and heighten with white.

V. *The green leaves*, are done with Verdigrise mixt with some *French* berry green, shade it with Verdigrise mixt with Sap-green; the stalks lay some what browner with brown-oker.

VI. Red Roses do with fine Lake mixt with white, shade it with brown Lake, and heighten it with Lake mixt with white.

VII. White Roses color with Flake Lead, shade it with white and black (but the chief shadows with a stronger black) and heighten with white.

VIII. The little thrums (which some erroniously call seeds) in the middle of the Rose, lay with Masticot, and shadow with Minium, and heighten with white.

IX. The Clove gilliflower is done almoſt like the Redroſe: the ſpeckling or ſpotting of it is done vvith Lake; thoſe vvhich are lighter, vvith a lighter red upon a pure vvhite; thoſe like flames vvith Vermillion and Lake, vvhich ſhade vvith a ſtronger Lake; and ſpeck the vvhite vvith Lake and Vermillion, to reſemble the life.

X. *The green ſtalks, or branches and leaves* lay with Bergh-green, and ſhade vvith Sap-green.

XI. The Marigold do vvith yellovv Orpiment and Minium, ſhadovv vvith Vermillion and Lake mixt vvith Minium; and heighten vvith vvhite and Maſtigot.

XII. Corn-flowers lay vvith blevv mixt vvith ſome vvhite, ſhadovv vvith Indico, and ſhadovv vvith blevv and vvhite.

CHAP. XLIV.

Of Radiſhes, Turneps, Melons, Cucumbers, and Cabbage.

I. *Radiſhes* are done vvith vvhite, ſhaded vvith Lake, and as it vvere behind ſvveetned vvith purple: and ſometimes vvith green from the top dovvnvvards.

II. *The green leaves* at top vvith Verdigriſe mixed vvith Sap-green, ſhaded vvith Sap-green, and heightned vvith Maſticot.

III. *Turneps are* laid vvith vvhite, ſhaded vvith ſoot; the leaves as the Radiſh leaves.

IV. Yellow Melons vvith yellovv, ſhaded vvith brovvn-oker, the veins vvith a ſtronger brovvn-oker, and then heightned vvith vvhite.

V. *Green Melons* vvith Indico mixt vvith Verdigriſe and Sap-green, ſhaded vvith Sap-green and Indico; and heightned vvith Maſticot.

VI. *Cucumbers*, the ends vvith a thin yellovv, the middle with green, ſvveetned the one into the other, and ſhaded vvith Sap-green; but the vvhole fruit vvith brovvn-oker, the ſpecks lay vvith red and black to the life.

VII. Cabbage white vvith very thin yellovv, and in ſome places vvith very thing reen (or yellowiſh green) ſweetning with very

very thin brown-oker mixt with Sap-green, heighten with pure white.

VIII. *Cabbage red*, lay with purple, shade wit Lake, and heighten with purple mixt with white.

CHAP. XLV.

How to Color Fruits.

I. *Cherries*, with Vermilion and some Brazil, shade with Lake, heighten with Vermillion mixt with white.

II. *Heart Cherries* in the middle with Vermillion and Lake mixt with white, the Circumference remaining whitish, here and there sweetning them with Lake, and heightning with white, or mixt with a little Lake.

III. *A Pear* with Masticot, shaded sweetly with brown-oker; its blush with Lake not too high, heighten with white.

IV. *Apples* with a thin Masticot mixt with Verdigrise, shade them with brown-oker, and give their blush with a thin or deep Lake (resembling Nature,) and heighten with white.

V. If you will have them very high, mix your white with some Masticot, but this must be according to the condition of the Fruit whether ripe or unripe, red, yellow or green, *&c.*

VI. *Mulberries* with a very strong Brazil, and then lay'd over with black, so that between the stalks and berries they may look a little reddish according to Nature.

VII. *Strawberries* with a white ground, which draw over with Vermillion and Lake very thin; shade it with fine Lake, and heighten with Masticot mixt with Minium; and then with white only speck them with Lake, by one side of which put a smaller speck of white.

VIII. *Wall-nuts* with their green on, with Verdigrise mixt with Sap-green, shade with Sap-green and a little white.

IX. *Wall-nuts* without their green, with brown-oker, shaded with soot.

X.

X. *Blew Plumbs* with purple, ſhadowed with Bice, and about the ſtalks with a little green, well ſweetned; heighten with purple and white.

XI. *White Plumbs* and Peaches with thin Maſticot, ſhaded with brown-oker; give them a bluſh with Lake, and heighten them with white.

XII. *Red and Blew* Grapes with purple, ſhaded with blew, and heightned with white.

XIII. White Grapes with thin Verdigriſe (called alſo *Spaniſh* green) mixt with Maſticot, ſhadow with thin Verdigriſe; and heighten with Maſticot mixt with white.

CHAP. XLVI.

Of the Limning of Fowls.

I. *THe Eagle* with black and brown-oker, ſhadow it with black, the feathers heighten with brown-oker mixt with white.

II. The bill and claws lay with Saffron, and ſhade it vvith ſoot or Lamp-black: the eyes with, Vermillion heightned with Maſticot, or with Saffron ſhaded or deepned with Vermillion; let the talons be done with black.

III. *The Swan* with white mixt with a little black, heighten it with fine and pure white, ſo that its plumes or feathers by that heightning may look vvell: the legs vvith a black color.

IV. *The bill* vvith Vermillion, ſhaded vvith Lake: the eyes yellovv vvith a black round in the middle; from vvhich falls a blackiſh vein, deſcending to the bill.

V. *The Gooſe* vvith more vvhite than black, *viz.* a light gray, heighten it vvith a gray vvhite; the legs vvith black: the bill like the Svvan.

VI. *The Duck* vvith a light grey, the head vvith a dark blevv, and dark green neck ſvveetly entervvoven, the belly vvith vvhite, the legs vvith black mixt vvith a little vvhite, *&c.* but be ſure to imitate the life.

VII.

VII. *The Turkey* with black mixt with a little white, from the back towards the belly whiter by degrees, but the belly speck with black, and in like manner the wings.

VIII. Let him be shaded with black, the wings with Indico, shaded with stronger Indico, the bill with black, the eyes blew, heightned with white.

IX. He being angry, the naked skin of his neck will be blood red, which lay with Vermillion mixt with Lake, shaded with Lake: but otherwise lay it of a whitish blew-color.

X. *The Griffon* with Saffron, shaded with brown-oker or soot.

XI. *The Pheasant* with grey, made of white and black, the feathers of a white grey, the whole must be shaded with black, and heightned with pure white; the eyes like the Falcon, the legs with Pink, and shaded with black.

XII. *The Falcon* with brown oker, and black mixt with white, and shadowed with black, and sprinkled upon its breast; heighten it with white, let his talons be black, above the eyes lay with Saffron, and shade with Vermilion, the bill with grey.

XIII. *The Stork* with grey, heightned with white, and the corners of his wings (near one half) with black, his long bill and legs with Vermilion, shaded with lake.

XIV. *The Owl* with Ceruse, black and soot, shadowed with soot, and heightned with yellow-Oker and white, sometimes white alone, the eyes yellow, circled with white, the legs of a brovvn yellovv.

CHAP. XLVII.

Of Limning of Beasts.

I. *Sheep* lay with a thin white, shaded vvith Indico and soot, and heightned vvith vvhite.

II. *Hogs* lay vvith brovvn-oker, shaded vvith soot, and heightned vvith Masticot: you may as you see occasion color the hair here and there vvith stronger brown-oker; his eyes vvith Ver-

Vermilion, vvhich heighten vvith Maſticot, his mouth vvith Indico, or vvhite and black, ſhaded vvith black.

III. *A Bear* vvith brovvn-oker, red-oker, and black mixt; ſhadovv vvith ſoot alone, or mixt vvith black, and heighten vvith brovvn oker and vvhite.

IV. *A Woolf* vvith brovvn-oker and ſoot, ſhadovv vvith more ſoot.

V. *A gray Woolf* with black, white, and brown-oker, ſhaded with black and ſoot, or black only; the mouth with black and red-oker, ſhaded with black and ſoot heightned with red-oker and white.

VI. *The Elephant* (which is of a Mouſe gray) with black and white mixt with ſoot, and ſhaded with black and ſoot, and heightned with the ſame, with a little more white.

VII. *The noſe at the end of his trunk* inwardly muſt be laid with Vermilion and Ceruſe, ſhadowed with black, or black mixt with Lake: in the ſame manner the inner part of the ears, the eyes with white tending to a grey.

VIII. *Mice* are colored as the Elephant: *Rats* a little browner.

IX. *The Unicorn* with a pure white, ſhaded with black: the chaps red, the eye and hoofs with a thin black.

X. *The Hart* with brown-oker, ſhaded on the back with ſoot, which ſweetly drive towards the belly, and ſhade over again with a ſtronger ſoot.

XI. *The neck and belly* with white, the mouth and ears a little reddiſh, the hoof black, the horns with ſoot, and ſhaded with ſoot mixt with black.

XII. *The Hind* with the ſame colors as the Hart, but thinner, and higher, not ſo brown.

XIII. *The Coney* with black and white, his belly all white, ſweetned with black; and heightned with a ſtronger white.

XIV. *The Hair* with brown-oker, his belly below a little whitiſh; ſhade it on the back with ſoot, and heighten on the belly with white.

XV. *Apes*, *Monkeys* and the like, with Pink and black, heightned with Maſticot and white; the face lay with a thin black mixt with ſoot, ſhaded with black and Pink mixt with a little red-oker.

XVI. *Cats* if gray and browniſh, or tabby, with Indico blew and white, heightned with pure white, and ſhaded with Indian-

Indian-blew and black mixt: in other colors uſe your diſcretion.

XVII. The Aſs with black mixt with white like grey; if the Aſs be of a mingled brown, black and white mixt with brown-oker, ſhaded with black in the mouth; heighten with white.

XVIII. *The Lepoard* with brown-oker and red-oker mixt with black, ſhadow it with ſoot, the ſpots with red-oker and black, the mouth with black and white: heighten him with light oker.

XIX. *Horſes, Dogs, Oxen* and ſuch like, if white, with white mixt with a little ſoot, or oker, ſhaded with a little black and white, and heightned with perfect white.

XX. *If of a Cheſtnut-brown*, with red-oker and black ſhaded with black and ſoot, and heightned with red oker and white.

XXI. If an Aſh-grey, with black mixt with white, ſhaded with black, and heightned with white.

XXII. *If black*, with a thin black, ſhaded with a ſtronger black, and heightned with black and white.

XXIII. *A bay Horſe* with Vermilion and brown-oker; or only with red-chalk, ſhaded with red-oker, and heightned with red-chalk mixt vvith vvhite.

XXIV. *If ſpotted*, by mixture of the aforeſaid colors and diſcreetely putting every one in its proper apartment or place.

CHAP. XLVIII.

Of the Limning of Serpents.

I. *The Serpent* on the back with Bice, and down-wards towards the belly with a pale black, the back ſpeckled with black ſpecks.

II. *The Adder* with red-lead, Vermilion and Saffron, with blew in the back, and on the belly below Maſticot and white, ſpeckled all over with black ſpots.

III. *The Crocodile* with a dark thin green, from the back downards to the belly.

IV.

IV. *Below the belly* with Maſticot, ſo that the yellow and green may melt, or vaniſh away into one another; ſhadovv him with Indico and ſmalt, and heighten the belly vvith Maſticot and vvhite.

V. *The mouth* before and vvithin rediſh, the ſcales black, the clavvs of blackiſh green, the nails vvholly black.

VI. *The Frog* vvith a fair green, ſpeckled vvith black, and tovvards the belly vvith green mixt vvith Maſticot, ſvveetned vvith green ſpeckled: the eyes vvith Saffron, and black round them, the back heightned vvith Saffron.

CHAP. XLIX.

Of Limning Waters and Fiſh.

I. *Water* at a diſtance with white and Indico, ſhaded with Indico mixt with Bice, and heightned with white: if near the Horizon much like the Sky.

II. *Waters near* lay with ſtronger Indico, heighten and ſhadow with the ſame mixt with Bice: laſtly heighten with pure white.

III. *Waters nearer* with ſtronger Indico, ſhaded and heightned as before.

IV. *Waters in fields overgrown*, with Pink and the like; always imitating Nature.

V. *Fiſh* in green Waters, with Indico mixt with *French*-berry-yellow, ſhaded with a thin Indian-blew, and heightned with pure white.

VI. *But Fiſhes ought alſo to be done according to their Nature and Color, for ſome are yellow, ſome brown, ſome ſpeckled, ſome griſled, ſome black,* &c. *in all which to conſerve in Figure the true* Idea, *you ought to take directions only by the life.*

Libri Secundi FINIS.

POLY-

POLYGRAPHICES

LIBER TERTIUS.

Of Painting, Washing, Coloring, &c.

Containing the Description and Use of all the chief Instruments and Materials, and the way and manner of Working.

CHAP. I.

Of Painting in General.

I. THE Art of *Painting* (which is the imitation of Nature) consists in three things, to wit, *Design*, *Proportion*, and *Color*: all which are exprest in three sorts of Painting, *viz. Landskip*, *History* and *Life*.

II. *Landskip* or Perspective, wonderfully respects freedom and liberty, to draw even what you please. *History* respects proportion and figure: *Life* respects color; in each of which there is a necessary dependency of all the other.

III. The work of the Painter is to express the exact imitation of natural things; wherein you are to observe the excellencies and beauties of the piece, but to refuse its vices.

IV.

IV. *For a piece of Painting may in ſome part want Diligence, Boldneſs, Subtilty, Grace, Magnificence,* &c. *while it is ſufficiently in other parts excellent; and therefore you are not ſo much to imitate Ornaments, as to expreſs the inward power and ſtrength.*

V. In *Imitation*, always be ſure to follow the examples and patterns of the beſt maſters; leſt evil precedents beget in you an evil habit.

VI. The force of *Imitation* reſides in the fancy or imagination, where we conceive (what we have ſeen) the form or *Idea* of that, or thoſe things which we would repreſent in lines and colors.

VII. This *Fancy* or *Imagination* is ſtrengthned, by lodging therein all variety of viſible rarities; as 1. Forms made by light and darkneſs; ſuch as are to be ſeen in Summer in the clouds, near Sun-ſetting (which vaniſh before they can be imitated.)

VIII. 2. Forms made by proximity or diſtance of place, ſuch as are Trees, Woods, Buildings, appearing perfect being near, or confuſed in their parts being far off.

IX. 3. Forms of dreams, of which (whether ſleeping or waking) the fancy muſt be fully poſſeſt.

X. Where *Deſign* is required; you muſt fancy every circumſtance of the matter in hand, that in an inſtant, with a nimble hand, you may depict the ſame with livelineſs and grace.

XI. *Slow performance cauſes a preturbation in the fancy, cooling of the mind, and deſtruction of that paſſion which ſhould carry the work on: but quickneſs and diligence brings forth things even excellent indeed: Care, Induſtry and Exerciſe are the props, ſupporters and upholders of Art.*

XII. Be ſure you dwell not too long upon deſigning: alter not what is well, leſt for want of exquiſite judgment you make it worſe: and if in deſigning, you want that ability to follow the quickneſs of fancy, ſubmit to a willing negligence; a careleſs operation adds ſometimes ſuch a ſingular grace, as by too much curioſity would have been totally loſt; then by reviewing what is done, *make a regular connexion of all the* Idea's *conceived in your mind.*

XIII. With *Apelles* amend thoſe things which others juſtly find fault with; the reprehenſions of an Artiſt are as demonſtrative rules of experience; and weigh every ones opinion for the advancement of Art.

XIV.

XIV. Laſtly, be ſure your piece be of a good *Deſign, Hiſtory* or *Life*; that the parts be well *diſpoſed*, the Characters of Perſons, *proper*; the Form *magnificent*, the color *lively*, and the ſpirit *bold*: that it may appear to be the work of a nimble fancy, ready memory, clear judgment, and large experience.

CHAP. II.

Of Painting in Oyl, and the Materials thereof.

I. PAinting in Oyl is nothing but the Work or Art of Limning, performed with colors made up or mixed with Oyl.

II. The Materials of Painting are chiefly Seven, 1. *The Eaſel.* 2. *The Pallet.* 3. *The Streining Frame.* 4. *The Primed Cloath.* 5. *Pencils.* 6. *The Stay.* 7. *Colors.*

III. *The Eaſel* is a Frame made of wood (much like a Ladder) with ſides flat, and full of holes, to put in two pins to ſet your work upon, higher or lower at pleaſure; ſomething broader at bottom than at the top: on the backſide whereof is a ſtay, by which you may ſet the *Eaſel* more upright or ſloping.

IV. The Pallet is a thin piece of Wood, (Pear-tree or Walnut) a foot long, and about ten inches broad, almoſt like an Egg, at the narroweſt end of which is made an hole to put in the thumb of the left hand, near to which is cut a notch, that ſo you may hold the *Pallet* in your hand. *Its uſe is to hold and temper the Colors upon.*

V. The Streining Frame is made of wood, to which with nails is faſtned the *Primed Cloath*, which is to be Painted upon.

Theſe ought to be of ſeveral ſizes according to the bigneſs of the Cloath.

VI. The *Primed Cloath* is that which is to be Painted upon, and is thus prepared.

Take good Canvas and ſmooth it over with a ſlick-ſtone, ſize it over with ſize, and a little honey, and let it dry; then white it over once with whiting and ſize mixed with a little honey, ſo

is the Cloath prepared, on which you may draw the Picture with a Coal; and lastly lay on the Colors.

Where note, honey keeps it from crackling, peeling or breaking out.

VII. *Pencils* are of all bignesses, from a pin to the bigness of a finger, called by several names, as *Ducks-quill fitched* and *pointed*; *Goose-quill fitched* and *pointed*; *Swans-quill fitched* and *pointed*; *Jewilling pencils*, and *brisse pencils*: some in quills, some in Tin cases, and some in sticks.

VIII. The *Stay* or *Molstick*, is a Brazil stick (or the like) of a yard long; having at the one end thereof, a little ball of Cotten, fixed hard in a piece of Leather, of the bigness of a Chestnut; which when you are at work you must hold in your left hand; and laying the end which hath the Leather ball upon the Cloath or Frame, you may rest your right arm upon it, whilst you are at work.

IX. The Colors are in number seven *(ut suprà)* to wit, White, Black, Red, Green, Yellow, Blew, and Brown.

Of which some may be tempered on the Pallet at first, some must be ground, and then tempered; and other some must be burnt, ground, and lastly tempered.

X. To make the Size for the Primed cloath at the sixth Section of this Chapter.

Take Glew, and boil it well in fair water, till it be dissolved, and it is done.

XI. To make the Whiting for the sixth Section of this Chapter.

Take of the aforesaid Size, mix it with whiting ground, and so white your boards or cloath (being made smooth) dry them, and white them a second or third time; lastly, scrape them smooth, and draw it over with White-lead tempered with Oyl.

XII. To keep the Colors from skinning.

Oyl Colors (if not presently used) will have a skin grow over them, to prevent which put them into a glass, and put the glass three or four inches under water, so will they neither skin nor dry.

XIII. To cleanse the Grinding-stone and Pencils.

If the Grinding stone be foul, grind Curriers shavings upon it, and then crumbs of bread, so will the filth come off: if the pencils be foul, dip the ends of them in oyl of Turpentine, and squeeze them between your fingers, and they will be very clean.

CHAP.

CHAP. III.

Of the Colors in General, and their significations.

I. THe chief *Whites* for Painting in Oyl are, White-lead, Ceruse and Spodium.

II. The chief *Blacks* are Lamp-black, Seacoal-black, Ivory-black, Charcoal, and Earth of Colen.

III. The chief *Reds* are, Vermillion, Cinnaber Lake, Red-lead, Indian Red, Ornotto.

IV. The chief *Greens* are, Verdigrise, Terra-vert, Verditer.

V. The chief *Yellows* are, Pink, Masticot, English Oker, Spruce Oker, Orpiment.

VI. The chief *Blews* are, Blew Bice, Indico, Ultramarine, Smalt.

VII. The chief *Browns* are Spanish-brown, burnt Spruce Umber.

VIII. These Colors, Lamp-black, Verditer, Vermilion, Bice, Smalt, Masticot, Orpiment, Ultramarine, are not to be ground at all, but only tempered with oyl upon the Pallet.

IX. These Colors, Ivory, Ceruse, Oker and Umber are to be burnt, and then ground with oyl.

X. All the rest are to be ground upon the Grinding stone with Linseed oyl (except White-lead,) when it is to be used for Linnen, which then is to be ground with oyl of Walnuts, for Linseed oyl will make it turn yellow.

And now since we are engaged to treat of colors, it may neither be unnecessary, nor unuseful for the young Artist to know their natural significations; which take as followeth.

XI. *Blew* signifieth truth, faith, and continued affections; *Azure*, Constancy; *Violet*, a religious mind.

XII. *Orange tawny* signifies Pride, also integrity; *Tawny*, forsaken; *Limmon*, jealousie.

XIII. *Green* signifies hopes: *Grass-green*, youth, youthfulness, and rejoycing: *Sea-green*, Inconstancy.

XIV. *Red* signifies Justice, Vertue and Defence: *Flame-color*, Beauty and Desire: *Maidens-blush*, Envy.

XV. *Yellow* signifies Jealousie: perfect yellow, Joy, Honour, and greatness of Spirit: *Gold color*, Avarice.

XVI *Flesh color* signifieth Lasciviousness; *Carnation*, Craft, Subtilty and Deceit: *Purple*, Fortitude and Strength.

XVII. *Willow Color* signifieth forsaken: *Popingjay-green*, Wantonness: *Peach-color*, Love.

XVIII. *White* signifieth Death: *Milk-white*, Innocency, Purity, Truth, Integrity: *Black*, Wisdom, Sobriety, and Mourning.

XIX. *Straw-color* signifieth Plenty: *Rust of Iron*, Witheredness; *Ermine* Religion and holiness.

XX. *The White, Black, Red, and Green, are colors held sacred in the Church of* Rome: *White* is worn in the Festivals of Virgins, Saints, Confessors and Angels, to show their Innocency: *Red* in the Solemnities of the Apostles and Martyrs of Jesus: *Black* in Lent and other Fasting days: *Green* is worn between the *Epiphany* and *Septuagessima*: and between *Pentecost* and *Advent*.

CHAP. IV.

Of the fitting of Colors for Painting

I. UPon the Pallet dispose the several colors, at a convenient distance, that they may not intermix: first lay on the Vermilion, then the Lake, then the burnt Oker, then the Indian Red, Pink, Umber, Black and Smalt, each in their order, and lay the White next to your thumb, because it is oftnest used, for with it all the shadows are to be lightned; and next the White a stiff sort of Lake; thus is the Pallet furnished with single colors for a face.

Now to temper them for shadowing various complexions do thus.

II. For a fair complexion.

Take White one dram, Vermillion, Lake, of each two drams, temper them, and lay them aside for the deepest Carnation of the face: to part of the aforesaid mixture put a little more white, for a light Carnation; and to part of that put more white (which temper on the Pallet) for the lightest color of the face.

III.

III. The faint shadows for the fair Complexion.

Take Smalt, and a little white, for the eyes; to part of that add a little Pink, and temper by it self for faint greenish shadows in the face.

IV. The deep shadows for the same.

Take Cinnaber Lake, Pink, and black of each, a sufficient quantity, which temper together; if the shadows ought to be redder than what is tempered, add more Lake; if yellower, add more Pink; if bleaer or grayer, add more black: thus shall the Pallet be fitted with colors.

V. For a brown or swarthy complexion.

The single colors being laid on the Pallet as before, and tempered: to the white, Lake and Vermilion, put a little burnt Oker for a Tawny; and for heightning add some Yellow Oker, so much as may just change the colors. The faint and deep shadows are the same as at the third and fourth Section of this Chapter.

VI. For a Tawny complexion.

The colors are the same with the former, but the shadows are different; which must be made of burnt Oker and Umber, (which will fit well:) if the shadows be not yellow enough, add a little Pink to it.

VII. For a black complexion.

The dark shadows are the same with the former: but for heightning take White, Black, Lake, and burnt Oker; in tempering of which put in the white by degrees, till you come to the lightest of all. Where note that the single colors at first laid upon the Pallet and tempered serve for shadows for all complexions; and that all deepnings ought to be with black, Lake and Pink tempered together.

CHAP. V.

Of Colors for Velvet.

I. FOR *black Velvet.* Take Lamp-black and Verdigrise for the first ground; that being dry, take Ivory-black and Verdigrise, shadow it with White-lead mixt with Lamp-black.

II. For Green. Take Lamp-black and White-lead, and work it like a Russet Velvet, and let it dry; then draw it over with Verdigrise tempered with a little Pink.

III. *For Sea-green.* Take only *V*erdigriſe, and lay it over Ruſſet: If a *Graſs-green*, put a little Maſticot to it; ſhadow theſe greens with Ruſſet, which lay according to the deepneſs of the green.

IV. *For Red.* Take *V*ermilion, and ſhadow it with Spaniſh-brown; and where you would have it darkeſt, ſhadow with Seacoal-black and Spaniſh brown with the aforeſaid colors, dry it, and then gloſs it over with Lake.

V. *For Crimſon or Carnation.* Take *V*ermilion, to which add White-lead at pleaſure.

VI. *For Blew.* Take Smalt tempered alone.

VII. *For Yellow.* Take Maſticot and yellow Oker, and where you would have it darkeſt, ſhadow it with Umber.

VIII. *For Tawny.* Take Spaniſh-brown, White-lead, and Lamp-black, with a little *V*erdigriſe, to ſhadow where need is; when dry, gloſs it over with Lake and a little Red-lead.

IX. *For hair color.* Take Umber ground alone; and where it ſhould be brighteſt, mix ſome White-lead about the folds, lighten or darken with White-lead and Umber.

X. *For Aſh-color.* Take Charcoal, black and White-lead; lighten with White-lead: *a color like to a dark Ruſſet will be an Aſh-color.*

XI. For Purple. Take Smalt and Lake, of each alike, temper them (light or deep as you pleaſe) with white-lead.

XII. *Laſtly note*, that in painting *V*elvet you muſt at firſt work it ſomewhat ſad, and then give it a ſudden brightneſs.

CHAP. VI.

Of Colors for Sattins.

I. FOR *Black*, Take Lamp-black ground with Oyl, and tempered with white-lead; and where you would have it ſhine moſt, mix Lake with the white-lead.

II. *For Green.* Take *V*erdigriſe ground alone and mixed with white-lead; adding Pink where you would have it brighteſt: to the deepeſt ſhadows add more *V*erdigriſe.

III. *For Yellow.* Take Maſticot, yellow Oker and Umber (ground each by themſelves) where it ſhould be brighteſt uſe Maſticot

Maſticot alone; where a light ſhadow, uſe Oker, where darkeſt uſe Umber.

IV. For Purple. Take Smalt alone, and where it ſhould be brighteſt uſe white-lead.

V. *For Red.* Take Spaniſh-brown (ground alone) mix it with *Vermilion*, and where it ſhould be brighteſt mix white-lead with the *Vermilion*.

VI. *For White.* Take White-lead (ground alone) and Ivory-black, which temper light or dark.

VII. *For Blew.* Temper Smalt and White-lead: where it ſhould be ſaddeſt, uſe Smalt; where lighteſt, White-lead.

VIII. *For Orange Color.* Take Red-lead and Lakes; where brighteſt, Red-lead, where ſaddeſt, Lake.

IX. *For Hair Color.* Temper Umber and White-lead; where it ſhould be brighteſt, put more White-lead, and where the greateſt ſhadow, uſe Seacoal-black mixed with Umber.

CHAP. VII.

Of Colors for Taffaty, Cloath and Leather.

I. *Taffaties* are Painted much as Sattin, thus: Take ſuch colors as are fit for the purpoſe, and lay them one by another upon the work, and ſhadow them with others.

II. *Cloth* is the ſame work with Sattin, ſave, you muſt not give to Cloth ſo ſudden a ſhining gloſs.

III. *Cloth of Gold* is made of brown Oker and liquid Gold; water and heighten upon the ſame with ſmall gold ſtroaks.

IV. *For Buff*, mix yellow Oker and White-lead; and where it ſhould be dark by degrees, mix it with a little Umber; when you have done, ſize it over with Umber and Seacoal-black.

V. *For Yellow Leather*, take Maſticot and yellow Oker, ſhadow it with Umber.

VI. *For black Leather*, take Lamp-black, and ſhadow it with White-lead.

VII. *For white Leather*, take White-lead, and ſhadow it with *Ivory*-black.

CHAP. VIII.

Of Colors for Garments in general.

I. FOR *Black*, Let the dead color be Lamp-black and Verdigriſe: being dry, go over with Ivory-black and Verdigriſe; but before the ſecond going over, heighten it with white.

II. *For Hair Color.* Take Umber and White for the grounds; Umber and black for the deeper ſhadows; Umber and Engliſh Oker for the meaner ſhadows; white and Engliſh Oker for the heightning.

III. *For blew.* Take Indico and White: firſt lay the White, then the Indico and White mixed; then deepen it with Indico, and when dry, glaze it with Ultramarine which will never fade.

Smalt will turn black, and Bice will turn green.

IV. *For Purple.* Take Smalt tempered with Lake and White-lead; then heighten with White-lead.

V. *For a ſad Red.* Take Indian Red heightned with White.

VI. *For a light Red.* Take Vermilion, glaze it over with Lake, and heighten it with White.

VII. *For a Scarlet*, Take Vermilion and deepen it with Lake, or Indian-Red.

VIII. *For Green.* Take Bice and Pink, heighten it with Maſticot, and deepen with Indico and Pink.

IX. *For yellow.* Take Maſticot, yellow Oker, Umber; lay Maſticot and white in the lighteſt places; Oker and White in the mean places, and Umber in the darkeſt, glaze it with Pink.

X. For *Orange Color.* Lay the lighteſt parts with Red-lead and white, the mean parts with Red-lead alone; the deeper parts with Lake, and if need is, heighten it with white.

XI. *For a ſad Green.* Mix Indico with Pink: *For a light Green* mix Pink and Maſticot; *for a Graſs-green* mix Verdigriſe and Pink.

XII. Remember always to lay yellows, blews, reds and greens, upon a white ground, for that only giveth them life.

CHAP. IX.

Colors for Metals and precious Stones.

I. FOR *Iron.* Take Lamp-black and White-lead; if you would have it ruſty, take Seacoal-black, and mix it with a little white.

II. *For Silver.* Take Charcoal-black and White-lead; where you would have it darkeſt, uſe more Charcoal; work, Silver ſomewhat ruſtiſh, and give it a ſudden gloſs with White-lead only.

III. *For Gold.* Take Lake, Umber, Red-lead, Maſticot; lay the ground with Red-lead, and a little dry Pink: where you would have it darkeſt, ſhadow it moſt with Umber, where lighteſt with Maſticot.

Note, in grinding Red-lead for the Gold ſize, put in a little Verdigriſe to make it dry ſooner.

IV. *For Pearls.* Temper Charcoal-black with white-lead, till it be a perfect ruſſet; then make the Pearl with it, and give it a ſpeck of White-lead only to make it ſhine.

Where note, that Ceruſe tempered with Oyl of white Poppy is excellent to heighten up Pearls.

V. *For precious Stones.* For Rubies, *&c.* lay their counterfeit grounds with tranſparent colors; and Lake, Verdigriſe and Verditer give them a ſhining color.

CHAP.

CHAP. X.

Of Colors for Landskip.

I. FOR *a light Green*, uſe Pink and Maſticot heightned with white: *for a ſad Green*, Indico and Pink heightned with Maſticot.

II. *For ſome Trees*, take Lake, Umber and White, *for others* Charcoal and white *for others* Umber, black and white, with ſome green; and ſometimes Lake or Vermilion, with other colors.

III. *For Wood* take Lake, Umber and white, mixing ſometimes a little green withal.

IV. *For Fire*, lay Red-lead and Vermilion tempered together where it is reddeſt: where it is blew, lay oyl, Smalt, and white-lead: where it is yellow, take Maſticot, and work it over in certain places; where you would have it ſhine moſt with Vermilion.

V. *For an Azure Skie*, which ſeems a far off, take Oyl, Smalt, or Bice, and temper them with Linſeed-oyl. *But grind them not: for Smalt or Bice utterly loſe their color in grinding.*

VI. *For a Red Skie*, take Lake and white; and for Sunbeams, or yellow clouds at Sun-riſing or ſetting, take Maſticot and white.

VII. *For a Night Skie*, or clouds in a ſtorm, take Indico deepned with black, and heightned with white.

VIII. *For Wood Colors*, they are compounded either of Umber and white, Charcoal and white, Seacoal and white, Umber black and white; or with ſome green added: to which you may adjoin ſometimes, as in barks of Trees, a little Lake or Vermillion.

IX. *Laſtly for the practical performing of the work* have recourſe to the rules delivered in *chap.* 17. *lib.* I. and *chap.* 27. *lib.* II.

CHAP.

CHAP. XI.

Of the Painting of the Face.

I. HAve your neceſſary pencils in readineſs, as two pencils ducks quill fitched; and two ducks quill pointed; two Gooſe quill fitched, and two pointed: two briſtles both alike; one Swans quill fitched, and one pointed; one larger pencil in a Tin caſe fitched; and a briſtle of the ſame Bigneſs, every one having a ſtick of about nine inches long put into the quill thereof, the farther end of which ſtick muſt be cut to a point.

II. Have the *pencils* in a readineſs in your left hand, with the *pallet* upon your thumb, prepared with fit colors, and your *molſtick* to reſt upon; you muſt work according to the directions following.

III. The *cloth* being primed, and ſtrained upon the Frame, take a knife, and with the edge thereof ſcrape over the cloth, leſt knots or the like ſhould trouble it.

IV. Then ſet the *Frame* and *Cloth* upon the *Eaſel*, at a convenient heighth, that ſitting on a ſtool (even with the party you draw) you may have the face of the Picture equal, or ſomething higher than your own: ſet the Eaſel to the light (as in Limning we have taught) letting it come in upon your left hand, caſting the light towards the right.

V. Let the Perſon to be drawn, ſit before you in the poſture he intends to be painted in, about two yards diſtant from you.

VI. Then with a piece of painted chalk draw the proportion of the face upon the cloth, with the place of the eyes, noſe, mouth, ears, hair, and other poſtures.

Here is no difficulty in this, if you miſs much, the colors will bring all to right again.

VII. Then take a pencil, Swans quill pointed, and begin to paint ſome of the lighteſt parts of the face with the lighteſt color, (as the heightning of the forehead, noſe, cheek-bone of the lighteſt ſide:) the mean parts next (as the cheek-bone of the dark-ſide, chin, and over the upper lip:

proceed-

proceeding, gradually till you come to the reddeſt parts of all.

VIII. Lay ſaint greeniſh ſhadows in convenient places, and where it is neceſſary to ſoften harſher ſhadows, but take heed of putting green where red ſhould be.

IX. The faint or light parts thus done, take one of the Gooſe quill pointed, or Ducks quill fitched, and begin at the eyes to ſhadow with Lake, going over the noſe, mouth, compaſs of the ear, &c. before you lay on any color, wiping it lightly over with a linnen rag to prevent the overcoming of the other colors.

X. The colors both light and dark being put in, take a great fitch pencil; and ſweeten the colors therewith, by going over the ſhadows with a clean ſoft pencil, which being well handled, will drive and intermix the colors one into another, that they will look as if they were all laid on at once, and not at divers times.

Where note, that the bigger pencils you uſe, the ſweeter and better your work will lie.

XI. *At the ſecond ſitting*, begin again with clean pencils, of ſuch bigneſs as the work requires, and obſerve well the perſon, and ſee what defects you find in your work at firſt ſitting, and amend them: then heighten or deepen the ſhadows as occaſion requires.

XII. *Laſtly* take a Gooſe quill briſtle, and put in the hair about the face (if there muſt be any) and rub in the greater hair, with the greater briſtle, heightning it up with the Gooſe quill pencil.

CHAP. XII.

Of the cleanſing of any old Painting.

I. TAke good wood-aſhes, and ſearce them, or elſe ſome Smalt or powder-blew, and with a Spunge and fair water gently waſh the Picture you would cleanſe (taking great care of the ſhadows) which done, dry it very well with a clean cloth.

II.

II. Then varnish it over again with some good varnish, but such as may be washed off again with water if need be.

We shall hereafter shew the way of making varnishes of several sorts, mean season this following may serve.

III. Take either common varnish (made with Gum sandrack dissolved in Linseed-oyl by boiling) or glair of Eggs, and with your pencil go over the Picture once, twice, or more therewith as need requires.

IV. *If* your painting be Wainscotting, or any other Joynery or Carpentry Work, you may take the Wood-ashes (at Sect. 1.) and mixing them somewhat thick with Water, rub them over the Painting, with a stiff Bristle Brush, as a Shoo Brush, and so scour, wash and dry it, as aforesaid, and then varnish it with common Varnish.

V. But if the Painting be more curious, as Figures of Men, Beasts, Landskips, Flowers, Fruits, *&c.* then take Smalt only, and with a Sponge wet in Water, cleanse it as abovesaid gently, which wash after with fair Water, then dry and varnish it, so will the lustre and glory of your Painting be much recovered.

VI. This cleansing of Paintings, ought not to be practised but seldom (*viz.* when it is very much soyled) because often and too frequent cleansings in this kind, will by degrees wear off part of the Colours: And therefore endeavour to preserve their first Beauty, by keeping them from smoak, dust, flys, *&c.*

VII. All Pictures (chiefly those performed with mixtures of white Lead) are apt to grow tawny, to tarnish or grow rusty, as may be seen in all old pieces: To prevent this, expose them to the hot Sun three or four days in *May* or *June*: so will the ill Colour be much drawn off, and the painting appear more fresh and beautiful: this doing yearly, you will wonderfully preserve them.

CHAP.

CHAP. XIII.

Of a Picture in general.

I. IN every Picture there are always four principal considerations: to wit, 1. *Invention.* 2. *Proportion.* 3. *Color*: *and* 4. *Life.*

II. *Invention* must be free, and flow from a general knowledge of Antiquites, History, Poetical Fictions, Geometrical conclusions, and Optical considerations, according to its Situation or Aspect, either near or far off.

III. And this *Invention* must express proper and fit things, agreeing to the Circumstances of *Time*, *Place*, *Matter*, and *Person*; and having respect to the modes of habits belonging to the Country or People whether *Antient* or *Modern.*

IV. *Proportion*, *Analogy*, or *Symmetry* (which you please) is that which limits each part to its proper bigness, in respect to the whole.

Whatsoever differs from this recedes from beauty, and may be called Deformity.

V. This *Proportion* is called by Artists the designing lines; which are first drawn before the whole is painted.

VI. *These proportions or lineal designs, draughts, and scetches, may be called Picture, which being well done, shew not only the shape, but also the intent.*

VII. *In lines only, we may draw the proportion of a Black-Moor, and such as shall be like him: Now this skill proceeds from the very highest principles of Art.*

VIII. *Color* is that which makes the Picture resemble what we desire to imitate; by mixing of various colors together.

IX. In making any thing apparent, it is necessary to express its opposite or contrary.

X. *So light and shadows forward, set forth Paintings outwards, as if you might take hold of them with your hand: blackness makes things seem farther off, and is used in things hollow, as Caves, Wells,* &c. *the more deep the more black.*

XI. Brightness exceeds and is as light sparkling in splendor.

It is used in the Glory of Angels; twinkling of Gems, Armory, Gold and Silver vessels, fires and flames.

XII. In Painting of a man, grace each limb with its proper and lively color; the black make sincerely black; the white pure, with redness intermixt.

XIII. But to paint purely the exquisite beauty of a woman, is never to be well done (except it be by a very ingenious Artist indeed) her rare complexion being scarcely possible to be imitated with colors: *There is none really knows the exact mixture for such a Countenance.*

XIV. Life or Motion is that from whence action or passion doth result, which in colored Pictures is seen with a lively force of Gesture and spirit.

XV. *To do this it is necessary that the Artist be well acquainted with the nature, manners, and behaviour of men and women, as in anger, sadness, joy, earnestness, idleness, love, envy, fear, hope, despair,* &c. *Every disturbance of the mind alters the Countenance into several postures.*

XVI. The head cast down shews humility; cast back, arrogancy or scorn; hanging on the neck, sanguishing; stiff and sturdy, morosity of mind.

XVII. The various postures of the head shew the passions; the Countenance the same; the eyes the like; and in a word, all the other parts of the body contribute something to the expression of the said passions of the mind, as is easily to be observed in the life.

In excellent pieces you may at a view read the mind of the Artist in the formality of the Story.

XVIII. Lastly, Be always sure first to conceive that in your thoughts, which you would express in your work; that your endeavours being assisted by an intellectual energy, or power of operation, may at length render your productions perfect.

CHAP.

CHAP. XIV.

Of the Choice of Copies, or Pattern.

I. HE that chuſeth a Pattern, ought to ſee 1. that it be well deſigned: 2. that it be well covered.

II. In the well deſigning, be ſure that it be true in every part; and that the proportion of the figure be juſt and correſpond to the life.

III. If the Picture be a fiction, ſee that it be done boldly, not only to exceed the work (but alſo the poſſibility) of nature, as in *Centaures, Satyrs, Syrens, Flying-horſes, Sea-horſes, Tritons, Nereides*, &c.

Alexander ab Alexandrio *ſaith, that* Theodore Gaza *caught one of theſe* Nereides *in* Greece, *and that in* Zealand, *another was taught to ſpin: theſe* Tritons and Noreides *are theſe which are called Mare-maids, the Male and the Female.*

IV. Natural figures ſhew property, and are required to agree with the life: forced figures expreſs novelty, and are to be beautified by exorbitancies according to the fancy of the Painter without limitation: novelty cauſes admiration, and admiration curioſity, a kind of delight and ſatisfaction to the mind.

Theſe things are not the products of ſtupid brains, nor are they contained within the perimetre of clouded and dull Conceptions.

V. In the well coloring, know that in obſcurity or darkneſs there is a kind of deepneſs; the ſight being ſweetly deceived *gradatim* in breaking the Colors, by inſenſible change from the more high to the more dull.

In the Rain-bow this mixture is perfect; the variety of Colors are throughly diſpers'd (like Atoms in the Sunbeams) among one another, to create its juſt appearance.

VI. See that the ſwellings of the work agree to the exactneſs of nature, and as the parts thereof require, without ſharpneſs in out-lines, or flatneſs within the body of the piece; as alſo that each hollowneſs exactly correſpond in due proportions.

VII.

VII. Lastly, View precisely the passions, as *Joy*, *Sorrow*, *Love*, *Hatred*, *Fear*, *Hope*, &c. and see that they correspond with their proper postures; for a touch of the pencil may strangely alter a passion to its just opposite or contrary, as from Mirth to Mourning, *&c.*

CHAP. XV.

Of the Disposing of Pictures and Paintings.

I. *Antique* works, or *Grotesce*, may become a wall, the borders and freezes of other works; but if there be any draughts in figures of men and women to the life upon the wall, they will be best of black and white, or of one color heightned: if they be naked, let them be as large as the place will afford: if of Marbles, Columns, Aquæducts, Arches, Ruines, Cataracts, let them be bold, high, and of large proportion.

II. Let the best pieces be placed to be seen with single lights, for so the shadows fall natural, being always fitted to answer one light; and the more under or below the light the better, especially in mens faces, and large pieces.

III. Let the *Porch* or entrance into the house, be set out with *Rustick* figures, and thing rural.

IV. Let the *Hall* be adorned with Shepherds, Peasants, Milk-maids, Neat-herds, Flocks of Sheep and the like, in their respective places and proper attendants; as also Fowls, Fish, and the like.

V. Let the *Stair-case* be set off with some admirable monument or building, either new or ruinous, to be seen and observed at a view passing up: and let the *Ceiling* over the top-stair be put with figures foreshortned looking downwards out of Clouds, with Garlands and Cornucopia's.

VI. Let *Landskips*, Hunting, Fishing, Fowling, Histories and Antiquities be put in the Great *Chamber*.

VII. In the *Dining-room* let be placed the Pictures of the King and Queen; or their Coat of Arms; forbearing to put any other Pictures of the life; as not being worthy to be their companions; unless at the lower end, two or three of the chief

Nobility, as attendants of their Royal Persons: for want hereof you may put in place, some few of the neareſt blood.

VIII. In the *inward or with-drawing Chambers*, put other draughts of the life, of Persons of Honor, intimate or special friends, and acquaintance, or of Artists only.

IX. In *Banqueting-rooms*, put cheerful and merry Paintings, as of *Bacchus*, *Centaures*, *Satyrs*, *Syrens*, and the like, but forbearing all obscene Pictures.

X. Histories, grave Stories, and the best works become *Galleries*; where any one may walk, and exercise their senses, in viewing, examining, delighting, judging and censuring.

XI. In *Summer-houses* and *Stone-works*, put Castles, Churches or some fair building: In *Terraces*, put Boscage, and wild works. Upon *Chimney-pieces*, put only Landskips, for they chiefly adorn.

XII. And in the *Bed-Chamber*, put your own, your Wives and Childrens Pictures; as only becoming the most private Room, and your Modesty: lest (if your Wife be a beauty) some wanton and libidinous guest should gaze too long on them and commend the work for her sake.

XIII. In hanging of your pictures; if they hang high above reach, let them bend somewhat forward at the top; because otherwise it is observed that the visual beams of the Eye, extending to the top of the Picture, appear further off, than those at the foot.

CHAP. XVI.

Of Fresco, or Painting of Walls.

I. IN Painting upon Walls, to make it endure the weather, you must grind your colors with Lime water, Milk, or Whey, mixt in fine color in pots.

II. The paste or plaister must be made of well wash'd Lime, mixt with fine powder of old rubbish stones: the Lime must be so often wash'd, till all its Salt is abstracted; and all your work must be done in clear and dry weather.

III. To make the work endure, strike into the wall stumps of headed nails, about five or six inches asunder, and by

by this means you may preserve the plaister from peeling.

IV. Then with this paste, plaister the wall, a pretty thickness, letting it dry: being dry, plaister it over again about the thickness of half a Barley corn, very fine and smooth, then your colors being ready prepared work this last plaistring over, whileſt it is wet, so will your Painting unite and joyn fast to the plaister, and dry together as a perfect compost.

V. In painting be nimble and free, let your work be bold and strong, but be sure to be exact, for there can be no Alteration after the first Painting, and therefore heighten your Paint enough at first, you may deepen at pleasure.

VI. All Earthy Colors are best, as the Oker, Spanish White, Spanish brown, Terrævert, and the like: mineral Colors are naught.

VII. Let your pencils and brushes be long and soft, otherwise your work will not be smooth.

VIII. Let your Colors be full, and flow freely from the Pencil or Brush, and let your design be perfect at first, for in this, there is no after alteration to be made.

CHAP. XVII.

Of Painting Sun Dials, Timber-work, &c.

I. IF the Dial be not drawn upon the Wall it self; you must have a Dial Plain, which you may make of the firmest and cleerest Oak, and throughly dry, so as that it may be free from shrinking.

II. Cut your Board to such a length, as you intend the length of the Dial to be of, and so many of them, as may make up the designed breadth; joynt and plain them on both sides, then set them to dry (for though they have lain in a House never so long, and are never so dry, yet being thus shot and plained, they will shrink afterwards beyond belief.)

III. When they are dry enough, and will shrink no more, shore them again with good Joynts, which fasten together in the glewing with *Pins* or Pegs, as Coopers do the bottoms of their Tubs.

IV. Being thus glewed and dryed, let it be well plained, and tryed every way, that it may be both ſmooth and true: let the edges be ſhot true, and all of a thickneſs, that they may fit into the Rabets of the Moulding, put round it, juſt as a Pannel of Wainſcot doth in its Frame.

V. This will give the Board liberty to ſhrink and ſwell without rending, whereas mouldings, nailed round the edges, as the vulgar way is, doth ſo reſtrain the motion of the Wood, that it cannot ſhrink without tearing; but made this way, they will laſt a long time, without either parting in the Joynts, or ſplitting in the Wood.

VI. The colors chiefly made uſe of in painting Dials are 1. Ceruſe, 2. white-lead; 3. Lamp-Black, 4. Char cole or Sea-cole, 5. Spaniſh-brown, 6. Red-lead, 7. Vermillion, 8, Cinnaber Lake, 9. Smalt, 10. Blew *Bice*, 11. Blew Verditer, 12. Indico, 13. Umber, 14. Verdigriſe, 15. yellow Oaker, 16. yellow Pink.

VII. But for a Plain Sun-dial, theſe four Colors will ſerve, *viz.* 1. *Spaniſh-brown*, for the priming Color, 2. *Vermillion*, for drawing the Lines, 3. *Lamp-black*, for drawing the Figures, 4. *white Lead*, for the laſt Color to be laid upon the Plain.

VIII. But if you will have your Dial more rich, you muſt have, 1. *Leaf-Gold* for gilding, 2. *Gold Size*, to make the Figures to lay Gold on, 3. *Smalt or Blew Bice* for the Margin and inner Table.

IX. And for curioſity ſake, you may uſe ſuch other Colors, as your fancy ſhall direct you to be moſt ſuitable to the deſign.

X. To theſe things add *Linſeed Oyl*, to temper your Colors with: and *Oyl of Turpentine*, to mix a little of it with your Colors, to make them dry the more ſpeedily.

XI. *Ceruſe* and *white Lead*, are eaſie to be ground fine: and the only white Colors uſed in Painting in Oyl: theſe are the laſt Colors to be laid on the plains of Dials.

XII. And with them Poſts, Pails, Paliſadoes, Gates, Doors, Windows, Wainſcotting, *&c.* are often colored both for beauty and preſervation, they reſiſting the Weather well.

XIII. They dry well, but to make them dry more ſpeedily, ſome in tempering put Oyl of Turpentine to them; but then without doors they reſiſt not the Weather ſo well.

XIII.

XIV. *Lamp Black*, is a fair Color, and may be tempered with Linseed Oyl: But it must be first burnt, then ground, afterwards tempered with the Oyl.

XV. A little of this with much *White*, makes an *ashcolor*; and according to the proportion of either, it gives several delightful varieties.

XVI. *Charcole*, is a good Black for ordinary uses, but it must have good labor in grinding to make it fine; it dries well.

XVII. *Spanish Brown*, the best is of a deep bright color and free from Stones; it grinds well with pains, and is the only color used in *priming* all manner of Timber-work.

XVIII. 1. Because it is cheap: 2. Because it drys kindly, yet gives the Oyl sufficient time to pierce into the Wood. 3. Because it freely receives all other Colors which are laid upon it.

XIX. This of it self is a perfect horse-Flesh color, and a natural shadow for Vermilion: being mixt with white, it gives sundry varieties, according to the various proportions.

XX. *Red-Lead*, it is not to be ground very fine on a Stone, but you may make it fine by washing: it is a great dryer and binder, for which cause it is mixed with some other Colors, to make them dry speedily: and it notably resists the weather, as well as any Color whatsoever.

XXI. *Vermillion*, It is a rich Color, and of a good body, if it be fine ground, otherwise it is as bad a Color as any: but being ground as soft as Oyl, no Color works better. You had best to buy it in the Stone, lest it be sophisticated with red Lead.

XXII. It is a perfect Scarlet, and mix with white, it gives a *Carnation*, in divers varieties, according to the proportions. Its shadow is Spanish Brown. With this we commonly draw the Hour Lines on Sundials.

XXIII. *Cinnabar Lake*, it is a rich Crimson color, and is to be ground very fine. Mixt with *Bice* it make a *purple* of divers varieties, according to the proportions.

XXIV. Mixt with *White*, it makes a Crimson Carnation in divers Varieties, which *White* and *Red-Lead*, a flesh color.

XXV. It is used in Ornaments of Dials, and in several Flowets. A Margin of a Dial with Gold Figures, is beautiful.

XXVI. *Smalt*, it is a delicate Blew at a distance, if strewed on: if you will work it in Oyl, it must be made fine with washing, and mixt with white-Lead, but even then it works not well, but in time will be apt to turn Black.

XXVII. The best way therefore is to strew it on, and then there is scarcely a more glorious Blew: it is a good color for the Margin of a Dial, if it be figured with Gold, as also for other purposes. If you buy it to work in Oyl, the finest is best. which they call *Oyl Smalt*.

XXVIII. *Blew Bice*, it is a pale color, and fine enough for almost any use, and works well, though a little sandy. It is used for a Margin ground in Dials, to gild Figures in small Plains, that are near the Eye.

XXIX. Mixt with *Pink*, it makes a *Green*: with *Lake* a *Purple*: with *white* a light *Blew*; and in each several varieties according to the proportions.

XXX. *Blew Verditer*, It is sandy, apt to change and turn greenish. It may serve in Dial Painting where *Bice* and *Smalt* are wanting, but not so good as either of them. Mixed with yellows, it makes a good green: with Whites or Yellows, or both, many other varieties.

XXXI *Indico*, It is a very dark Blew, and seldom used without a mixture of White, unless to shadow with. It grinds fine, works well, and is much used in common Painting for the last colors of Posts, Pales, Rails, Pallisadoes, Doors, Windows, or any other Timber work, for that it resists the weather well.

XXXII. It is dear, and therefore many Painters use *Blew-Balls*, which are almost like it, but not so good a color either for beauty or lasting, mixt with White, it makes a *Lead-Color*: and it is excellent to marble *White* withal or to shadow it.

XXXIII. *Umber*. It is a perfect hair color, it may be ground very fine with much labor, and dryes and binds exceedingly, and therefore very well resists weather.

XXXIV. It is much used in Painting for the many varieties it gives. Calcin'd in a Crucible, it is the natural shadow for Gold, and some other colors.

XXXV. *Verdigrise*; It is a perfect Willow Green, and therefore for some uses must be corrected with yellows. 'Tis very foul, and therefore ought to be cleansed thus,

XXXVI.

XXXVI. *Grind it fine, and put to it eight times its weight of ſpirit of Vinegar; digeſt till the Vinegar is tinged very Green: then decant the color, caſt away the Fæces, and evaporate the Vinegar in a braſs Veſica, ſo have you a glorious Verdigriſe at the bottom, of which one ounce is worth ten of the former.*

XXXVII. It drys ſpeedily: mixt with Pink yellow, it makes a pure lively *graſs Green*: with White, many varieties of light Greens, &c.

XXXVIII. *Yellow Oker.* It is either Engliſh or Foreign. The one is of a Wheat ſtraw Color, the other ſomewhat deeper, with much labour it may be ground very fine. It is much uſed in vulgar Painting, and to make Gold ſize withal.

XXXIX. *Yellow Pink.* It is a yellow inclining to Green, and grinds well. It is a good color for ſome uſes, but chiefly to mix with other colors, to make *Green* withal.

XL. The aforegoing Colors are now to be either *Burnt*, *Ground*, *or Waſht*, as they ſeverally require, and as we have taught in *Chap.* 22. aforegoing of this Book: this done you are to grind them with Oyl, thus.

XLI. Take about two ſpoonfuls of the color you intend to Grind, and put to it a little Linſeed Oyl, (but ſee you put not too much) mix them together, and grind them well upon your ſtone with a Muller: add Oyl by degrees, till it comes to the thickneſs of an Oyntment, for ſo it grinds much better than when it is ſo thin as to run about the ſtone.

XLII. Oftentimes as you grind, bring the matter together with a piece of Lanthorn horn, and as much as may be keep it together in the middle of the ſtone, till it is ground fine enough, then take it off, and put more color upon the ſtone, grinding as before, which work continue till you have Color enough to ſerve your occaſion.

XLIII. This done, if you grind other colors after it, cleanſe the ſtone firſt by grinding Sand and Water upon it, then waſhing it, and drying it.

XLIV. The Colors thus ground will be too thick for uſe, without adding more Oyl: therefore when you uſe them (whether ſimple or compounded, as your occaſion requires) you muſt add more Oyl to them, till they be ſo thin as to run free with the Pencil.

XLV. Yet not to let the ground on which they are laid, to be ſeen through them, or to run about when it is laid on; for ſo, you muſt be forced to go over it the oftner, before your work will be ſubſtantial.

XLVI. Whereas, if your Color be as ſtiff as it can well be wrought, your work will be done with more ſpeed; and once doing will be more ſubſtantial, than three times with the thin Color.

XLVII. This is the cheat of common Painters who do work by the yard, at a certain price; they do it with ſuch thin Color that all their three times doing over, is not ſo ſubſtantial as one time would be, if the Color had been of a thick and ſtrong body.

XLVIII. And three times coloring with ſuch a thick and well bodied Color will laſt ten times as long, as that which is wrought thus ſlightly by common Painters.

XLIX. Obſerve alſo, that if the Color to be mixt, be your *priming Color*, viz. *the firſt color you lay on*, it ought to be made ſo much the thinner, that it may have Oyl enough to pierce into the Wood, which is much for its durability; but after your firſt Color is laid on, let your next be thicker, as before is taught.

L. But if your Color to be mixt be for the drawing of Hour-lines, or making the Figures in a Sun-dial, then let it be tempered as ſtiff as is poſſible to uſe it, that it may not preſently decay, but may be capable by the quantity laid on, to laſt as long any color on the Dial.

LI. To which purpoſe, its being wrought in *Fat Oyl* will much conduce: how this fat or thick Oyl is made, we now come to teach.

LII. *How to make the ſaid fat or thick Oyl.* Take Linſeed Oyl what you pleaſe, put to it a ſufficient quantity of Red-Lead (the more, the better) ſo as it hinders not the boyling. This Red-Lead, adds a drying quality to the Oyl: Let them boyl gently, over a Charcole fire without flame, till it is boyled enough, which you may know by taking a little of it out and cooling of it; if it roaps like thin Treacle, or a Syrup, it is enough.

LIII. Then with a lighted paper ſet it on fire that it may take away much of its greaſineſs, let it burn a minute or two, more or leſs as your Oyl is in quantity: then extinguiſh it, by covering it cloſe over with a Cloth, and letting it cool and ſettle, decant the clear Oyl, and keep it in a bladder for uſe.

LIV. *To make the Gold ſize.* Take *Yellow Oker*, grind it on a ſtone with water, till it be very fine, and lay it on a chalk Stone to dry.

LV.

LV. *Or thus.* Firſt grind it fine as aforeſaid, then waſh it (by Sect. 6. Chap. 22. of this Book) and thereby ſeparate the pure fine part of the Color, which dry as the former.

LVI. Take of this prepared *Oker*, what you pleaſe, add to it a little of the former prepared Oyl, and grind them together as you do other oyl Colors: this work will be laborious, for it muſt be ground very fine, even as the Oyl it ſelf; and the finer it is, the greater luſter will your Gold carry that is laid on it.

LVII. Where note, that you put ſo much of the prepared Oyl to the Oker, that it may be of a good ſtiffneſs to work well, and of ſuch a fit body, that after it is laid on, it may ſettle it ſelf ſmooth and gloſſy, but not ſo weak as to run. *See Chap.* 21. *Sect.* 5.

LVIII. *How Colors are to be ſet off.* 1. *Blews* ſet off beſt with *Yellow* and *Whites*: indifferently with *Blacks* and *Reds*; not at all with *Greens*, *Purples*, or *Browns*.

LIX. 2. *Greens* ſet off beſt with *Whites* and *Yellows*: not at all with *Blacks*, *Blews*, or *Reds*.

LX. 3. Reds ſet off beſt with Whites and Yellows, indifferently with *Blews* and *Blacks*.

LXI. 4. *Yellows* ſet off beſt with *Blacks*, *Blews*, and *Reds*; indifferently with *Greens*, *Purples*, and *Whites*.

LXII. 5. *Whites* and *Blacks* ſet off well with any Color, becauſe they ſo much differ from all others.

LXIII. *The manner of Painting Sun-dials.* Having the draught of your Dial on paper, your Plain or Board fitted, and your Colors prepared, proceed thus.

LXIV. Take *Spaniſh Brown* well ground, mixed, and ſomewhat thin, and with a large Briſtle Bruſh, color therewith your Plain all over, on every ſide, ſo that no part be left undone.

LXV. This is called the Priming of your Dial. When it is dry, do it over again with more of the ſame Color, tempered ſomewhat thicker, which when dry alſo.

LXVI. You may do it over again a third time, with the ſame color, ſo will your work be the ſtronger, and laſt longer.

LXVII. When this laſt time of coloring your Plain is dry; then go over it with White-Lead Color; which when dry, go over it again three or four times ſucceſſively after each drying:

ing: so will the face of your Plain be defended against the fury and violence of the weather for many years.

LXVIII. *To transferr the Draught of your Dial upon the Plain.* The last Coloring being dry, draw on the Plain (with a black Lead Pencil) a Horizontal Line, so far from the uppermost edge of your Dial, as your Reason shall think fit, or best convenes with the Plain.

LXIX. Then set out the margin of the Dial, with sundry Lines for hours, half hours and quarters: after, take the Draught, and place it on the Horizontal Line, observing to place the Center, according as the Situation of your Plain requires:

LXX. If the Dial be a direct South Dial, let the Center be exactly in the middle of your Plain; if your Dial declines Eastwards or Westwards, place the Center of the Draught, between the Center of the Plain, and the Eastern or Western side thereof.

LXXI. If it declines but little, place the Center of the Draught, but a little from the Center of the Plain; if it declines much, place the Center of the Draught the more out of the Center of the Plain.

LXXII. For by thus doing you gain a greater distance for those Hour-lines, which in declining plains fall nearer together on one side than they are on the other.

LXXIII. And you ought to do it in all declining Plains, except they decline far, as between eighty and ninety degrees, for then they are best to be drawn without Centers, to gain the more distance for the Hour-lines.

LXXIV. The Draught being thus placed on the Plain, and fastned with Pins or Tacks; transfer it upon the Plain, by laying the Ruler over every hour, half hour, and quarter division.

LXXV. And where the Ruler shall intersect the boundary lines in the Margin, there make marks, by drawing lines with a Black Lead Pencil of such length as each division requires, drawing the hour and half hour lines quite through the Margin, for the guiding you in the right placing the Figures.

LXXVI. Then draw the *Sub-stile* Line, as it lies in the Draught, that it may guide you in right placing the *Stile* of your *Dial*.

LXXVII. This done, take the Draught off, and with *Vermillion* well ground and prepared, draw the boundary lines, as alſo the hours, half hours, and quarters.

LXXVIII. Let the color be as thick and ſtiff as you can work it, ſo as to draw a clear and ſmooth Line; the Lines being drawn, then with Lamp-Black delineate the Figgures.

LXXIX. And in the Margin at the top of the Plain, you may put the date of the year, or ſome proper Motto.

LXXX. Laſtly fix in, the *Stile* of your Dial, and paint it in like manner as you did the Dial before: thus is your Dial compleated.

LXXXI. To gild the Figures of Sun-dials. Draw the Figures or Letters you deſire to have gilt with the Gold ſize (at Sect. 53. above) which let dry ſo long, till that by touching it with the end of your finger, it will ſtick a little, yet not come off.

LXXXII. Then take leaf Gold, lay it upon your gilding Cuſhion, and with a very ſharp and ſmooth-edged knife, cut the Gold into ſuch pieces as may beſt befit your work.

LXXXIII. Then with a flat ſtick lin'd with Cloth, take up your cut pieces of Gold, and transfer it to your ſize, upon which clap it down, and your Gold will leave your lin'd ſtick, and cleave to the ſize, which then preſs down with Cotton, or a Hares foot.

LXXXIV. Thus do till all your ſize is covered with Gold: and when it is perfectly dryed, with your Hares foot, bruſh off all the looſe Gold, and the gilding will remain fair and beautiful.

LXXXV. Then if you pleaſe, Diaper on your plain with thin *Umber*, whatſoever ſhall be ſuitable to your deſign.

LXXXVI. How to lay on your Smalt. When you deſign to make the Margin of your Dial Blew, you muſt do it thus. After the figures are gilt, take white Lead, ſtifly tempered with fat Oyl (at Sect. 51. above) and therewith cover over your whole Margin: and then with a ſmall fine ſearſe ſift on your Smalt.

LXXXVII. Or otherwiſe with a Gooſe quill Feather, cover your Margin over with it, and with a piece of Cotton dab it down cloſe, that it may ſtick faſt to the ground laid under it.

LXXXVIII.

LXXXVIII. When it is all throughly dry, wipe off the loose color with a Feather, and blow the remainder off with a pair of Bellows; so is your work finished: the square of the Dial may also be colored Blew (if you so please) after the same manner.

LXXXIX. To Paint Wainscot, Doors, Windows, Posts, Rails, Pails, Gates, and other Timber work. This differs not much from the former method of Painting Sun-dials; you may proceed thus. Prime (the thing to be painted) first with *Spanish Brown*, as you did your Dial Plain, two or three times.

XC. Then take *White Lead* well tempered, or *Umber* and *White* or *Blew Balls*, or *Indico* and *White*, or any other Color you intend your work shall be done with; and that Color (what ever it be) let it be laid over your former Priming, four or five times successively after each Drying: for the oftner it is gone over, the longer it will last.

XCI. You may do it with variety of Colors, or Marble it as you please, so shall your work be finished according to your desire.

XCII. *But here note*, that Wainscotting, and other Paintings within Doors, need not be done above twice over, with the last Color; 'tis only that Painting which is exposed to the Air and Weather, that requires so many times running over it.

XCIII. And indeed, if it be not well and often done, it will not last long, or be of any considerable service.

CHAP.

CHAP. XVIII.

Of Washing Maps, Pictures, &c.

I. BY Washing we have intend nothing else, but either to set out Maps, or Printed Pictures in proper Colors.

II. The Instruments and Materials of Washing are chiefly these few, *viz.* 1. *Alum Water.* 2. *Size or Gum-water,* 3. *liquid Gold.* 4. *Pencils.* 5. *Colors.*

III. *To make Alum-Water.* Take Alum eight ounces: fair water, a quart: boil them till the Alum is dissolved.

IV. Or thus. Take spring or Well-Water a Gallon, Roch Alum a pound, pouder and dissolve it in Water by boiling: filter it thro brown paper, and keep it for use.

V. With this water if you wet your Paper, before you lay on your Colors, it will keep them from sinking in, and withal add a Lustre and beauty to the Colors laid on.

VI. But this you must note, that if your Paper is not good, you must wash it over four or five times, which may be done with a large Brush Pencil.

VII. It is also to be noted, that *Alum* raises staining Colors, and preserves them from fading.

VIII. *To make Size.* Take Glew, and steep it all night in Water, then melt it over the fire, to see that it be neither too strong, nor too weak: then let a little of it cool: if it is too stiff when it is cold, put more water to it: but if too weak, put more Glew, and use it Luke-warm.

IX. To make *Gum-water.*

Take pure spring water a Quart: put it into a Jar-Glass; and hang therein a sufficient quantity of pure white and clear Gum-Arabick, bruised and tyed up in a rag: let it hang till the Gum is all dissolved.

X. Then put your fingers into the water, and if you find them to stick together as if they were glewed, your water is too stiff, or full of the Gum, which you must remedy by putting thereto more fair water; and if you find it too weak, you may help it by adding more Gum.

XI.

XI. With this water, or the former ſize, moſt colors are to be tempered, and with ſo much of the ſaid Gum-water, which being toucht when dry, the color will not come off. where note, that if the color gliſter, there is too much Gum in it.

XII. *Liquid Gold.* It is exactly made by the firſt Section of the 21 Chapter of the ſecond Book.

XIII. *Pencils* are to be of all ſorts both fitch'd and pointed, as alſo a large pencil bruſh to paſte Maps upon Cloth; another to wet the paper with Alom water; a third to ſtarch the face of the Picture withal before it be colored: and a fourth to varniſh withal.

XIV. The colors are the ſame with thoſe which we mentioned in *Chap.* 17, *lib.* 2. to which add, 1. *Of Black*, Printers black, *Frankford* black. 2. *Of Red*, Vermilion, Roſſet. 3. *Of Blew*, Verditure, Litmoſe, Flory. 4. *Of Yellow*, Cambogia, Yellow-berries, Orpiment. 5. *Of Red* Brazil, Logwood (ground) and Turnſole, Cochenele, Madder.

XV. But for the reaſon, that all thoſe colors are not of uſe for ſtaining or waſhing of Maps, Pictures, Globes, *&c.* Artiſts have ſelected out the moſt proper which are as follows.

XVI. 1. *Red*, Braſil, Turnſole, Indian Lake, Cochenele, Indian Cakes, Roſſet, Cinnabar, Vermillion, Red-lead.

XVII. 2. *Yellows*, Aloes, Cambogia, Yellow-berries, Saffron, Maſticot, Orpiment.

XVIII. 3. *Blews*, Litmoſe, Logwood, Indico, Verditer, Blew Bice, Smalt, Ultramarine.

XIX. 4. *Greens*, Verdigriſe, Sap-green, Verditer, Green Bice.

XX. 5. *Whites*, Flake White, Spaniſh White.

XXI. 6. *Browns*, Wood-ſoot, Rinds of Green Walnuts, Walnut-tree Leaves, Spaniſh Brown, Umber, Iron Ruſt.

XXII. 7. *Blacks*, common Ink, Printers Black, Lamp-black, Ivory Black, Hartſhorn Black.

XXIII. Of theſe Colors, 1. *Some are to be burnt*, as Spaniſh Brown, Umber, Printers Black, Lamp-black, Ivory Black, Hartſhorn Black, which are afterwards to be ground.

XXIV. 2. *Some are to be ground* as Vermilion, Cinnabar, Indian Lake, Indico, White-lead, Spaniſh White, Maſticot.

XXV. 3. *Some are to be waſhed*, as, Roſſet, Red-lead, Bice, Verditer, Orpiment, Spaniſh Brown.

XXVI. 4. *Some are to be ſteeped,* as, Aloes, Cambogia, Yellow-berries, Sap-green, Verdigriſe, Indian Cakes, Saffron, Wood-ſoot.

XXVII. 5. *Some are to be boyled,* as, Brazil, Logwood, Turnſole, Green Walnut Rinds, Wood-ſoot. *How theſe Operations are to be performed we have taught at large* in lib. 2. cap. 22. *to which I refer you.*

CHAP. XIX.

Of Colors ſimple for Waſhing of Maps, &c.

I. *Aloes,* Let it be diſſolved in a weak Gum-water; it makes a deep or ſad kind of Yellow Color, according to the goodneſs of the Aloes.

II. *Brazil.* To ſome ground Brazil put ſmall Beer and Vinegar, of each a ſufficient quantity, let it boyl gently a good while, then put therein Alum in pouder to heighten the color, and ſome Gum-Arabick to bind it; boyl it till it taſte ſtrong on the tongue, and make a good red, Pink color, or light Violet.

III. *Logwood.* Ground Logwood boiled as Brazil, makes a very fair tranſparent Violet or Purple Color.

IV. *Cochenele.* Steeped as Brazil was boiled, makes a fair tranſparent purple: as thus, take Cochenele, and put it into the ſtrongeſt Sope-lees to ſteep, and it will be a fair purple, which you may lighten or deepen at pleaſure. Infuſed in ſtrong Vinegar, it makes a tranſparent purple.

V. *Madder.* Take madder four drachms, ground Brazil one ounce, Rain-water a quart; boil away a third part; then add Alom half an ounce boil it to a pint; then Gum-Arabick one ounce, which boil till it is diſſolved, cool it ſtirring it often, and ſtrain it for uſe. It is a good Scarlet die for Leather.

VI. *Verdigriſe.* Take Verdigriſe ground finely one ounce, put to it a good quantity of common varniſh, and ſo much oyl of Turpentine, as will make it thin enough to work withal; it is a good green,

VII.

VII. Fine Verdigriſe, diſſolved in Rheniſh wine or Vinegar, makes a tranſparent Green inclining to blew.

VIII. Ground with juice of Rue and Gum-water, it is a pure Green: without the juice, it makes a glorious emerald, mixt with Cryſtals of Tartar in white-wine Vinegar, in which Gum-Arabick has been diſſolved, makes a pure Green.

IX. And Verdigriſe, Alum, of each one drachm, Logwood three drachms, boiled in Vinegar, make a good Murry.

X. Gambogia. Diſſolve it in fair ſpring water, and it will make a beautiful and tranſparent yellow: if you would have it ſtronger, diſſolve ſome Alum therein: it is good for Silk, Linnen, white Leather, Parchment, Vellom, Paper, Quills, *&c.* This color delights in no mixtures.

XI. To make Verdigriſe according to Glauber.

This color is made with *Venus* in Vinegar in earthen pots ſet into hot horſe dung: but if you diſſolve your Venus with ſpirit of Nitre, and precipitate with a lye made of Salt of Tartar, edulcorating and drying the Venus will yield an excellent Verdigriſe, which will not corrode other colors as the common Verdigriſe doth.

XII. To make Ceruſe according to Glauber. It is made with Saturn and Vinegar in an Earthen pot ſet in horſe-dung: but if you diſſolve your Saturn with Spirit of Nitre, and precipitate with Salt water, you will have a Ceruſe whiter and purer than the ordinary, and much better whether for Painting or Chyrurgery.

XIII. Yellow Fuſtick-berry. Boil it in water or ſteep it in Alum water, it makes a good and tranſparent yellow for the ſame purpoſe.

XIV. Turnſole. Put it into a ſharp Vinegar over a gentle fire till the Vinegar boil, and is colored; then take out the Turnſole and ſqueeze it into the Vinegar, in which diſſolve a little Gum-Arabick; it ſhadows very well on a Carnation or yellow.

XV. Litmuſe. Cut it into ſmall pieces, and ſteep it a day or two in weak Gum-Lake water, and you will have a pure tranſparent blew water to waſh with.

XVI. Flory Blew. Grind it with glair of Eggs, if then you add a little Roſſet it makes a light Violet blew; mixed with White and Red-lead, it makes a Crane feather color.

XVII.

XVII. *Saffron.* Steeped in Vinegar and mixed with gum-water is a good yellow. In White wine or Sack, it makes also a good yellow; but more glorious if mixt with equal parts of Cochenele: you may also steep it in glair of Eggs, or grind it with Vermilion.

XVIII. *Indian Lake.* Ground with Gum-Arabick water, makes a glorious Murry; in grinding it, add a little Sugar-candy: some say it makes a deep Pink or Bloom color.

XIX. *Vermillion.* Being ground with glair of Eggs and Honey or Gum-water, it makes a deep Red, or Scarlet color.

XX. *Red-lead.* Grind it with a stiff Gum-lake water; if you add Saffron, it makes it Orient, and of a Marigold color: of it self it is between Red and an Orange color.

XXI. *Roset* Washed and tempered with Gum-water, differs not much in color from *Indian* Lake; but it will soon fade and grow lighter; but being tempered with Brasil-water, twill be more deep.

XXII. *Indian-Cakes.* Use them as ye do Turnsole (at *Sect.* 10. above) they make a good transparent Red color: into the liquor put some Gum to bind it.

XXIII. *Masticote.* Ground and tempered with Gum-water, makes a good yellow, but not transparent.

XXIV. *Orpiment.* Washed and colored with Gum-water, makes an Orient or Gold color: there are several degrees of it, some more red, others more yellow.

XXV. *Verditer.* Washed and tempered with Gum-water, is a good blew, but not transparent, or inclining to a Green.

XXVI. *Indico.* Ground and tempered with Gum-water, makes a deep blew, and is fit to shadow all other blews.

XXVII. *Blew Bice.* Washed and tempered with Gum-water, it is an excellent blew: there are several sorts of it, some lighter, some sadder.

XXVIII. *Blew Bice, Verditure, and Smalt,* ground singly with Gum-water (or together) make a good blew.

XXIX. *Smalt.* Ground with a little fine Roset, makes a deep Violet.

XXX. *Ultramarine,* If you would have it deep, grind it with Litmose water; it is the best and deerest of all blews.

XXXI. *Sap-green.* Steep it in sharp Vinegar all night, to which add a little Alum to raise its color. *In* Alum water it makes a good green to shadow with.

XXXII. Green Bice. Washed and tempered with Gum-water, makes a good, but no transparent Green.

XXXIII Lamp-black or Printers black Burnt, ground and tempered with Gum-water, make a good black.

XXXIV. Ivory black Burnt, ground and tempered with, Gum-water, as the former makes also a good black.

XXXV. Flake-Lead. Ground and tempered with Gum-water, is an excellent white.

XXXVI. Spanish White. Ground and tempered in like manner with Gum-water, makes the best of all whites.

XXXVII. Spanish Brown. Burnt, ground, and tempered with Gum-water, makes a Redish brown, or Liver color.

XXXVIII. Umber. Burnt and ground, and tempered with Gum-water, makes a good haw color; and is very good to shadow with upon Gold.

XXXIX. Green of Wallnuts. Boiled in water and strained, and Gum-Arabick dissolved in the liquor to bind it, makes an excellent color to express High-ways, Lanes, *&c.*

XL. *Wood Soot.* Prepared in all respects as the former, serves to the same intentions; and is much the better color.

XLI. *Native Cinnabar.* Grind it as Red-Lead, it is a glorious Red color; much exceeding the Artificial.

CHAP. XX.

Of Compounded Colors for Washing of Maps, &c.

I. *Orange Color.* Red-lead and Yellow berries make a good Orange color: thus, take Arnotto half an ounce, Pot ashes one Drachm, water one pound, boil it half away, then strain it, and use it hot.

It is good for White Leather, Paper, Vellom, Quills, Parchment, &c.

II. *Green.* Take distilled vinegar, filings of Copper, digest till the vinegar is blew, which let stand in the Sun or a slow fire till it is thick enough, and it will be a good green.

III,

III. Or thus, *Take Cedar-green (which is beſt of all) or in ſtead therof green Bice, ſteep it in Vinegar, and ſtrain it; then grind it well with fair water, and put to it a little honey, and dry it well; when you uſe it, mix it with Gum-water.*

IV. To make fine Indico.

Take the bloſſoms of Woade three ounces, Amylum one ounce, grind them with Urine and ſtrong Vinegar, of which make a Cake, then dry it in the Sun, and ſo keep it for uſe.

V. *A Blew to waſh upon paper.*

Take of the beſt Azure an ounce, Kermes two ounces, mix them, which temper with clear Gum-water, and it will be a glorious color.

VI. *To make a Venice Blew.*

Take quick Lime, make it into a paſte with ſtrong Vinegar, half an hour after put thereto more Vinegar to ſoften it; then add Indico in fine pouder one ounce, mix them, and digeſt it in horſe-dung for thirty or forty days.

VII. *Another excellent Blew.*

Mix fine white Chalk with juice of Elder-berries full ripe, to which put a little Alum-water.

VIII. *To make blew Smalt.*

Take fluxible ſand, Sal-Nitre and Cobalt, mix them together.

IX. *A lively Yellow.*

Diſſolve Orpiment in gum-water, to which put a little ground Vermilion; grind them together and you ſhall have a very lively color.

X. *A light Green.* Take juyce of Rue, Verdigriſe, and Saffron, grind them well together and uſe them with gum-water.

XI. Or thus, *Take Sap-green, Flower-de-luce, or Tawny green, which ſteep in water: Verditure and Ceruſe mixt with a little Copper green, make a good light color.*

XII. Blew. Ultramarine, blew-Bice, Smalt, and Verditure, ground ſingly with gum-water, or together make a good blew.

XIII. *Brown.* Ceruſe, Red-lead, Engliſh Oker, and Pink, make a good brown.

XIV. *Spaniſh-brown.* To color any Horſe, Dog, or the like, you muſt not calcine it; (yet not calcined it is a dirty color): but to ſhadow Vermilion or lay upon any dark ground, behind a picture, to ſhade berries in the darkeſt places, or to

color wooden posts, wainscot, bodies of Trees and the like, it is very good (being burnt.)

XV. *Flesh Color.* Mix white, Indian Lake, and Red-lead (according as you would have it light or deep,) and to distinguish a mans flesh from a womans, mingle with it a little Oker.

XVI. *Colors of Stones.* Verdigrise with Varnish makes an Emerald: with *Florence* Lake a Ruby; with Ultramarine a Saphire.

XVII. *A never fading Green.*

Take juice of flowers of Flower-de-luce, put it into Gum-water and dry it in the Sun.

CHAP. XXI.

Of mixing Colors and Shadowing.

I. IN mixing be careful not to make the color too sad, nor take the pencils out of one color and put them into another.

II. In mixing colors, stir them well about the water severally till they are well mixed; then put them together, making the color sadder or lighter at pleasure.

III. *Green* is shadowed with Indico and yellow-berries.

IV. *Blew* is shadowed with Indico, Litmose and Flory, or any of them being steeped in Lees of Sope-ashes, and used with gum-water.

V. *Garments* are shadowed with their own proper colors: or you may mingle the color with white (for the light) and shadow it with the same color unmingled: or you may take the thinnest of the color for the light, and shadow with the thickest or bottom of the same.

VI. *Sap-green* is only used to shadow other greens with, and not to be laid for a ground in any Garment.

VII. *Lake* ought not to be shaded with any color, for it is a dark red; but for variety you may shadow it with Bice, or blew Verditure, which will make it like changeable Taffata.

VIII.

VIII. The shadow for *Yellow-Berries* is Umber; but for beauties sake with Red-lead, and the darkest touches with Spanish-brown; and for variety with Copper-green, blew Bice or Verditure.

IX. *White* sets off *blews* and *blacks* very well: *Red* sets off well with *yellow*: *Yellows* with *reds*, sad *blews*, *browns*, *greens*, and *purples*.

X. *Blews* set off well with *yellows*, *reds*, *whites*, *browns*, and *blacks*: and *Greens* set off well with *purples*, and *reds*.

XI. More especially, all light colors are shadowed with colors of the same nature, but more sad; as for Example: *Vermilion* is shadowed with Lake or Spanish brow. *Verditer and Bice* are shadowed with Indico.

XII. *Camboge and yellow berries* are shadowed with Umber, with Red-lead or Vermilion.

XIII. *Red-Lead* is shadowed with Lake or Spanish brown *Masticote*, is shadowed with Red Orpiment.

XIV. *Spanish brown* is shadowed with burnt Umber, with Brasil-water.

XV. *Umber* is shadowed with Umber burnt, *Rosset & Brasil* are shadowed with Spanish brown mixed with brasil-water.

XVI. *Verdigrise* is shadowed with Indico mixed with yellow berry water.

XVII. *Wood Soot and Wallnut-shells* are shadowed with Umber.

XVIII. From the various mixtures of the forementiond Colors, infinite varieties almost may arise, even whatsoever one pleases.

XIX. But for our purpose of washing *Maps*, *Globes Pictures*, *Landskips*, *&c.* the most transparent colors are principal; of which these are chief, *viz. Brasil*, *Logwood*, *Indian cakes*, *Turnsole*, *Cambogia*, *Saffron*, *yellow berries*, *Litmose*, *Sap-green*, *Verdigrise*, *Wood Soot*, *green Walnut shells*: of these you may by mixture make several compounds, as.

XX. *A Compound Green.* Mix verdigrise water with yellow-berry-water: it will be transparent, and you may make it deeper or lighter according to the proportion that you take of either.

XXI. *A Compound blew color.* Mix Litmose water with yellow-berry water, and you will have a transparent sad blew, which you may heighten or deepen as the former at pleasure.

XXII. A Compound Orange Color. It is made by mixing Brasil water with yellow-berry water of a transparent color. Infinite other Varieties you may find out by practice, much better than to learn them by many words. See other discourses of this work.

CHAP. XXII.

Of Colors for washing Landskips.

I. GReen mixed with white, Pink, Bice, Masticot, Smalt, Indico, or Ceruse; or blew Verditure mixt with a few yellow berries makes a good green for Landskips.

II. For the *saddest hills* use Umber burnt: for the *lightest places*, put yellow to the burnt Umber: for *other hills* lay Copper green thickned on the fire, or in the Sun:

III. For the next *hills farther off* mix yellow berries with Copper green: let the fourth part be done with green Verditure; and the *furthest and faintest places* with blew-Bice, or blew Verditure mingled with white, and shadowed with blew Verditure, in the shadows indifferent thick.

IV. Let the *high-ways* be done with red and white Lead, and for variety Yellow-oker; shadow it with burnt Umber, which you may use for sandy Rocks and Hills.

V. *Rocks* may be done with several colors, in some places black and white, in other places red and white, and in others blew and white, and the like, as you see convenient.

VI. *The water* must be black Verditure and white, shadowed with green and blew Verditure, when the *banks* cast a green shadow upon the water, and the water is dark shadowed, then shade it with Indico, green thickned, and blew Verditure.

VII. Color *buildings* with as much variety of pleasant colors as may be imaginable, yet let reason be your rule in mixing your colors.

VIII.

VIII. You may sometimes use white and black for the *Wall, Conduits* or other things: for *Brick-houses* and the like, red-lead and white.

IX. If *many houses* stand together, set them off with variety of colors, as Umber and white; Lake and white; Red-lead and white, and the like.

X. Lastly, *for the Skie*, use Masticot or yellow-berries, and white for the *lowest and lightest places*; red Rosset and white for the *next degree*; blew Bice and white for *the other*; blew Bice, or blew Verditure for *the highest*.

XI. These degrees and colors must be so wrought together, that the edge of each color may not receive any sharpness; that is, so as that you cannot perceive where you began to lay them, being so drowned one into another.

CHAP. XXIII.

Of the Practice of Washing.

I. With the *Alum water* wet over the pictures to be colored, for that keeps the colors from sinking into the paper, and will add a lustre unto them, make them shew fairer, and keep them from fading.

II. Then let the paper dry of it self (being washed with *Alum-water)* before you lay on the colors; or before you wet it again, for some paper will need wetting four or five times.

III. The washing of the paper with the *Alum-water* must be done with a large pencil brush, such as we have advised to at the sixth Section of the nineteenth Chapter of this Book.

IV. But if you intend to varnish your Pictures after you have colored them; instead of washing them with *Alum-water*, first size them with new size made of good white starch, with a very fine brush; and this you must be sure to do all over, for else the varnish will sink through.

V. Having thus prepared your work, go to laying on your colors according to the former directions, suiting them, as near as may be, to the life of every thing.

VI. But before you lay on your Colors, you muſt know how to temper them; which you may do in this manner.

VII. 1. *Such colors as are ground with fair water: take a ſmall quantity of them, put it into a Horſe Muſcle-ſhell, putting thereto ſome Gum-water, and the Color in a little time will be ſoftned: then with your finger being very clean bruiſe the Color againſt the ſhell till you find no knot undiſſolved: after with a clean pencil ſtroak down the color to the bottom of the ſhell, and it is fit for uſe; if it be too thick, add more gum water to it.*

VIII. 2. *Such colors as are waſhed you muſt temper in a ſhell with Gum-water in the ſame manner as the former.*

IX. 3. *Such Colors as are ſteeped, the liquor only of them is to be uſed without any other preparation.*

X. The Picture being painted, you may with ſize (as at the fourth Section of the nineteenth Chapter of this Book) paſte your Maps or Pictures upon cloth, thus: wet the ſheet of cloth therein, wring it out, and ſtrain it upon a Frame, or nail it upon a wall or board, and ſo paſte your Maps or Pictures thereon.

XI. Laſtly, if the Picture be to be varniſhed, having thus fixed it into its proper Frame, then varniſh it with a proper varniſh (by the following rules) and the work will be fully finiſhed.

How to lay on your Colors.

XII. Firſt, provide your ſelf of pencils of ſeveral ſizes, and if you will be curious, you ought to have a great and a ſmall to each reſpective color: if not you muſt always have by you a diſh of fair Water, in which you muſt waſh and cleanſe your pencil, wiping it with a clean linnen cloth, before you put it into another Color.

XIII. For your pencils, chuſe thoſe that are good; thus: ſee that they be fulleſt next to the quill, deſcending or leſſening into a ſmall room and ſharp point, which you may ſee by putting the hair into your mouth, and drawing it through your lips once or twice; then you will ſee what it is, and if you find any extravagant hairs, ſinge them off by a Candles flame.

XIV. Being thus provided with Colors and pencils; if you deſign to lay any color about the edges of any Map, Part, Piece, or diviſion of Ground, in a Plat; as ſuppoſe you

you would inclose a particular Field or Close in a Mannor, with yellow.

XV. With your pencil take Camboge or yellow-berry water a very small quantity, and on the inside of the black-lead line, draw the Color along of an equal breadth (as near as you can) from the line, broader or narrower as your field is in bigness; not daubing the field or close all over with the Color, which would be put an abuse to your Map or Plat.

XVI. Then having gone round the Close or Field in this manner, with your Color, wet your Pencil in your mouth, or have by you a small quantity of water to dip it in, and strike along the inside of the colored line, bringing it more down towards the center of the field.

XVII. And this will sweeten your Color, and make it shew as if it lost it self by degrees, to the very color of your paper or parchment. This course is to be taken not only for yellows, but for all other colors.

XVIII. Lastly, with a pen (if you cannot do it handsomly with a pencil,) take some of the color which shadows the color you have already used about the field, and go over your black-lead line only, so shall your field be finished.

XIX. *Lastly*, after the same manner you may adorn all the fields in your Plat or Map, of divers colors observing this, that you color not two fields adjoyning one to another both of the same color, but of different.

XX. And therefore it behoves you to know what colors do set off one another best; and as near as you can, to lay Closes or Fields, adjoyning one to another, of two such colors, that one shadow may serve both.

CHAP.

CHAP. XXIV.

Experimental Observations on Vegetable Colors.

I. A ſtrong Infuſion of Galls filtred, mixed with a ſtrong and clear ſolution of Vitriol, makes a mixture as black as *Ink*: which with a little ſtrong *Oil of Vitriol* is made Tranſparent again: after which, by the affuſion of a little quantity of a ſtrong Solution of *Salt of Tartar*, it regains its black color again. *The firſt black (altho pale in writing yet) being dry, appears to be good Ink.*

II. A decoction of dried red Roſes in fair water, mixed with a filtrated ſolution of blew Vitriol, makes a black color; this mixed with a little *Aqua fortis*, turns it from a black, to a deep Red: which by affuſion of a little Spirit of Urine, may be reduced ſtraight to a thick and black color.

III. *Yellow Wax* is whitned by diſſolving it over the fire in Spirit of Wine, letting it boil a little, and then exhaling the Spirit; or elſe whilſt it is hot, ſeparating it by filtration.

IV. Fair water mixed with a blood red Tincture of *Benjamin* drawn with ſpirit of Wine, immediately makes it of a milk white color.

V. *Blackneſs* may be taken away with oyl of Vitriol; ſo black pieces of Silk or Hair I have turn'd to a kind of yellow.

VI. A handful of *Lignum Nephriticum* raſped, infuſed in four pound of ſpring water, yields between the light and the eye an almoſt golden color (unleſs the infuſion be too ſtrong) but with the eye between the light and it (in a clear vial) a lovely blew as indeed it is: this with ſpirit of Vinegar may be made to varniſh (ſtill keeping its golden color) and after with oyl of Tartar *per deliquium* may be reſtored again.

VII. Cloth died with blew and Woad, is by the yellow decoction of *Luteola* died into a green.

VIII.

VIII. Syrup of Violets mixed with a high ſolution of Gold in *Aqua regia*, produces a reddiſh mixture; and with a high ſolution of filings of Copper in ſpirit of Urine, a lovely fair green.

IX. Syrup of Violets mixt with a little juyce of Lemons, ſpirit of Salt, *Vinegar*, or the like acid Salt, will be immediately red; but mixt with oyl of Tartar, or a ſolution of potaſhes it will in a moment be perfect green: the like in juice of blew-bottles.

X. A good quantity of oyl of Tartar, put into a ſtrong ſolution of Verdigriſe, gives a delightful blew, which may be variouſly changed by adding ſpirit of Urine, or Hartſhorn.

XI. Although red Roſes hung over the fume of Sulphur loſe all their redneſs, and become white, yet oyl of Sulphur (which is nothing but the fumes condenſed) doth wonderfully heighten the tincture of the ſame.

XII. *Cochenele* will have its color far more heightned by ſpirit of Urine than by rectified ſpirit of Wine: and one grain of Cochenele in a good quantity of ſpirit of Urine, being put into one hundred twenty ſix ounces of water, tinged it (although but faintly:) which amounts to above one hundred twenty five thouſand times its own weight.

XIII. Twenty grains of *Chochenele* being mixed with an ounce of *Saccharum Saturni*, makes a moſt glorious purple color: and ſo accordingly as the quantity is either diminiſhed or encreaſed, ſo the purple color ſhall be either lighter or deeper.

XIV. A few grains of *Cochenele* being mixed with the *Lixivium* of Quick-lime in a due proportion, makes a fading purple color, of the greateſt glory imaginable in the world.

XV. The juice of privet berries with ſpirit of Salt, is turned into a lovely red: but with a ſtrong ſolution of potaſhes into a delightful green.

XVI. Upon things red by nature, as Syrup of Clove-gilliflowers, juice of Buckthorn berries, infuſion of Red Roſes, Brazil, &c. Spirit of Salt makes no conſiderable change, but rather a lighter red: but other ſalts turn them into a greeniſh; eſpecially juice of buckthorn berries.

XVII. Juice of *Jaſmin* and ſnow drops, by a ſtrong *alcalizate* ſolution, was (although of no color) turned into a deep greeniſh yellow.

XVIII.

XVIII. *Buckthorn Berries* being gathered green and dried are called *Sap-berries*, which being infused in Alum-water gives a fair yellow (*which is used by Book-binders for the edges of their Books, and to color Leather also:*) being gathered when they are black, they are called *Sap-green*, and make a green color being put into a Brass or Copper vessel for three or four days; or a little heated upon the fire, and mixed with Alum in pouder, and pressed forth; so put into bladders, hanging it up till it is dry: and being gathered about the end of *November*, (when they are ready to drop) they yield a purplish color.

XIX. Tincture of *Cochenele*, diluted never so much with fair water, will never yield a yellow color: a single drop of a deep solution in spirit of Urine, diluted in an ounce of fair water, makes a fair Pink, or Carnation.

XX. Oyl or spirit of Turpentine, digested with pure white Sugar of lead, yields in a short time a high red tincture, which Chymists call *Balsamum Saturni*.

XXI Spirit of Salt dropt into a strong infusion of *Cochenele* or juice of black cherries, makes immediately a fair red: but dropt into the infusion of Brazil, a kind of yellow: so the filtrated tincture of *Balaustins* mixed with good spirit of Urine, or the like, turns of a darkish green; but with spirit of Salt, a high redness, like rich Claret wine; which glorious color may in a moment be destroyed, and turned into a dirty green, by spirit of Urine.

XXII. A high infusion of *Lignum Nephriticum*, mixed with spirit of Urine gives so deep a blew, as to make the liquor *opaceus*: which after a day or two vanishes, and leave the liquor of a *bright amber color*.

Where note that instead of Spirit of Urine you may use oyl of Tartar, or a strong solution of pot-ashes.

XXIII. Infusion of Log-wood in fair water (mixt with spirit of *Sal-Armoniack*) straight turns into a deep, rich, lovely purple; two or three drops to a spoonful is enough, left the color be so deep, as to be opacous.

XXIV. Spirit of *Sal-Armoniack* will turn syrup of Violets to a lovely green.

XXV. Infusion of *Litmose* in fair water gives in a clear glass a purple color: but by addition of spirit of Salt, it will be wholly changed into a *glorious yellow*.

XXVI.

XXVI. The Infusions and juices of several plants will be much altered by a solution of Lead in spirit of Vinegar: it will turn infusion of red Rose leaves into a sad green.

XXVII. So Tincture of red Roses in fair water, would be turned into a thick green, with the solution of *Minium* in spirit of Vinegar; and then with the addition of oyl of Vitriol the resolved Lead would precipitate white, leaving the liquor of a clear, high red color again.

XXVIII. We have not yet found, that to exhibit strong variety of colors, there need be imployed any more than these five. White, Black, Red, Blew, Yellow: *for these being variously compounded and decompounded, exhibit a variety and number of colors; such as those who are strangers to painting can hardly imagine.*

XXIX. So *Black* and *White* variously mixed, make a vast company of light and deep *Grays*: *Blew* and *Yellow*, many *Greens*; *Red* and *Yellow*, *Orange-tawnies*: *Red* and *White Carnations*: *Red* and *Blew*, *Purples*, &c. producing many colors for which we want names.

XXX. Acid salts destroy a blew color: Sulphureous, Urinous or fixed restore it.

XXXI. Acid and *Alcalizate* salts with many bodies that abound with *Sulphureous* or oyly parts will produce a red, as is manifest in the Tincture of Sulphur, made with *Lixiviums* of Calcined Tartar or pot-ashes.

XXXII. *Lastly it may be worth trial (since it hath succeeded in some experiments) so to take away the color of a Liquor, as that it may be colorless:* which in what we have tryed, was thus: first by putting into the Tincture, Liquor, or Juice, a quantity of the solution of pot-ashes or oyl of Tartar *per deliquium*; and then affusing a good or strong solution of Alum, which in our observations precipitated the tinging matter, or gathered it into one body (like as it were curds) and so left the Liquor *transparent and clear as Crystal.*

CHAP.

CHAP. XXV.

Experimental Observations of Mineral-Colors.

I. *Sublimate* dissolved in fair water, and mixed with a little spirit of Urine, makes a milk white mixture in a moment: which by addition of *Aqua fortis*, immediately again becomes *transparent*.

II. If *Sublimate* two ounces, and *Tin-glass* one ounce be sublimed together, you will have a sublimate not inferior to the best *Orient Pearls* in the world.

III. *Silver* dissolved in *Aqua fortis* and evaporated to dryness, and fair water poured two or three times thereon, and evaporated, till the *calx* is dry, leaves it of a Snow whiteness: which rubbed upon the skin, (wetted with spittle, water or the like) produces a deep blackness, not to be obliterated in some days.

With this, Ivory, *Hair and Horns may be dyed in fair water of a lasting black.*

IV. *Coral* dissolved by oyl of Vitriol, Sulphur, or spirit of vinegar, and precipitated by oyl of Tartar yields a Snow whiteness. The same of Crude Lead and Quicksilver dissolved in *Aqua fortis*: So butter of *Antimony* rectified by bare affusion in much fair water, will (though Unctious) be precipitated into that Snow white pouder which (being washed from its corrosive Salts) is called *Mercurius Vitæ*: the like of which may be made without the addition of any *Mercury* at all.

V. *Mercury Sublimate* and *precipitate* yield (with the spirit of Urine, Hartshorn, or the like) *a white precipitate*: but with the solution of Pot-ashes or other *Lixiviate* Salts an *Orange Tawny*. And if on a filtrated solution of Vitriol, you put the solution of a *fixed salt*; there will subside a copious substance far from whiteness, which Chymists call the Sulphur of Vitriol.

VI.

VI. If Copper two ounces be mixt with Tin one ounce, the reddiſhneſs will vaniſh: and if Arſenick (calcined with Nitre) in a juſt proportion be mixed with melted Copper, it will be blanched both within and without.

VII. Fine pouders of blew Bice, and yellow Orpiment ſlightly mixed, give a good green: and a high yellow ſolution of a good Gold in *Aqua Regia*, mixed with a due quantity of a deep blew ſolution of crude Copper in ſtrong Spirit of Urine, produces a *tranſparent green*: And ſo blew and yellow *Enamel* fuſed together in the flame of a Lamp, being ſtrongly blowed on without ceaſing, produces at length a green color.

VIII. An urinous ſalt, largely put into the diſſolution of blew Vitriol in fair water, turn'd the liquor and corpuſcules (which reſided) into a yellowiſh color like yellow Oker.

IX. Verdigriſe ground with *Sal-Armoniack* and the like (digeſted for a while in a dunghil) makes a glorious blew.

X. The true glaſs of *Antimony* extracted with acid ſpirits (with or without Wine) yields a red tincture.

XI. Balſam of Sulphur (of a deep red in the glaſs) ſhaked about, or dropt on paper gives a yellow ſtain.

XII. If Brimſtone and *Sal-Armoniack* in pouder, of each five ounces, be mixed with quick-lime in pouder ſix ounces, and diſtilled in a Retort in ſand by degrees; you will have a volatile ſpirit of Sulphur of excellent redneſs, though none of the ingredients be ſo.

So alſo oyl of Anniſeeds mixed with oyl of Vitriol, gives in a trice a blood red Color, which ſoon decays.

XIII. Fine Silver diſſolved in *Aqua fortis*, and precipitated with ſpirit of Salt; upon the firſt decanting the liquor, the remaining matter will be purely white: but lying uncovered, what is ſubject to the ambient Air will loſe its whiteneſs.

XIV. *Sublimate* diſſolved in a quantity of water and filtred, till it is as clear as Cryſtal, mixed (in a Venice glaſs) with good oyl of Tartar *per deliquium* filtred, (three or four drops to a ſpoonful) yields an opacous liquor or a deep Orange color; after which if four or five drops of oyl of Vitriol be dropt in, and the glaſs ſtraightway be ſtrongly ſhaked, the whole liquor will (to admiration) be colorleſs without *ſediment*. And if the filtred ſolution of *ſublimed Sal-Armoniack*

niack and *Sublimate* of each alike be mixt with the solution of an *Alcali*, it will be white.

XV. Spirit of *Sal-Armoniack* makes the solution of Verdigrise an excellent *Azure*; but it makes the solution of *Sublimate* yield a white precipitate.

XVI. So the solution of filings of Copper in spirit of Urine (made by fermentation) gives a lovely *Azure* color which with oyl of Vitriol (a few drops to a spoonful) is deprived in a trice of the same, and makes it like fair water. And so a solution of Verdigrise in fair water, mixed with strong spirit of Salt, or dephlegmated. *Aqua fortis*, makes the greenness almost totally to disappear.

XVII. Quick-silver mixed with three or four times its weight of good oyl of Vitriol, and the oyl drawn off in sand, through a glass retort, leaves a Snow white *precipitate*; which by affusion of fair water, becomes one of the loveliest light yellows in the world, and a durable color.

XVIII. Tin calcined *per se* by fire, affords a very white *calx* called *Putty*: Lead, a red pouder called *Minium*: Copper a dark or greyish pouder: Iron a dirty yellowish color, called *Crocus Martis*: and Mercury a red pouder.

XIX. Gold dissolved in *Aqua regia* Ennobles the *Menstruum* with its own color: Silver Coyn dissolved in *Aqua fortis* yields a tincture like that of Copper; but fine Silver a kind of faint blewishness: Copper dissolved in spirit of Sugar (drawn off in a glass Retort) or in oyl or spirit of Turpentine, affords a green tincture; but in *Aqua fortis*, a blew.

XX. *Vermillion* is made of *Mercury* and *Brimstone* sublimed together in a due proportion.

XXI. Glass may have given to it a lovely golden color with Quick-silver; but it is now colored yellow generally with *calx* of Silver: yet shell-Silver, (such as is used with pen or pencil) mixed with a convenient proportion of poudered glass in three or four hours fusion, gave a lovely Sapphirine blew.

XXII. Glass is tinged green (by the Glass-men) with the *Calx of Venus*: which *Calx* mixed with an hundred times its weight of fair glass gave in fusion a blew colored mass.

XXIII. *Putty* (which is Tin calcined) as it is white of it self, so it turns the purer sort of glass metal into a white mass, which when opacous enough, serves for a white *Enamel*.

XXIV.

XXIV. This white *Amel* is as it were the *Basis* of all those fine Concretes, that Gold-smiths, and several Artificers use, in the curious Art of *Enameling*; for this white and fusible substance, will receive into it self, without spoiling them, the colors of divers other *Mineral* substances, which like it, will endure the fire.

XXV. Glass is tinged blew with the dark mineral called *Zaffora*: and with *Manganes* or *Magnesia* in a certain proportion, Glass may be tinged of a Red Color; and also of a Purplish or Murry: and with a greater quantity, into that deep color, which passes for black.

XXVI. Yellow Orpiment sublimed with sea-salt, yields a white and Crystalline Arsenick: *Arsenick* calcined with pure *Nitre* being duly added to *Venus* in the fusion, gives it a Whiteness both within and without.

XXVII. So *Lapis Calaminaris* turns *Venus* or Copper, into Brass.

XXVIII. And *Zink* duly mixed with *Venus* when it is in fusion, gives it the noblest golden Color, that was ever seen in the best *Gold*, but it will not endure various meltings.

XXIX. Copper dissolved in *Aqua-fortis* will imbue several bodies of the Color of the solution.

XXX. *Gold* dissolved in *Aqua Regia* will (tho not commonly known) dye Horns, Ivory, and other Bones of a durable *Purple Color*.

XXXI. Lastly, Crystals of Silver made with *Aqua fortis* (tho they appear White) will presently dye the Skin, Nails, Hair, Horns, and Bones, with a *Black* not to be washed off.

CHAP. XXVI.

Of Metals.

1. TO *harden Quick-silver.*

Cast your Lead separated from its dross into a vessel, and when it begins to cool, thrust in the point of a stick, which take out again and cast in the Argent Vive, and it will congeal: then beat it in a mortar, and do so often; when it is hard, melt it often and put it into fair water, doing it so

long till it is hard enough. then being all in a piece, boyl it in Linseed oyl, the space of six hours, and it will become Malleable, and may be hammered.

II. *To tinge Quick-silver of the color of Gold.*

Break it into small pieces (being hardned) which put into a Crucible, with the pouder of *Cadmia*, *stratum super stratum*, mixed with Pomegranate peels, Turmerick (beaten fine) and Raisons, cover the Crucible and lute it well, dry it well; and then set it on a fire for six or seven hours, that it may be red-hot; then blow it with bellows till it run, which then let cool whilst covered with coals, and it will have the color of gold.

III. *To fix Quick-silver being hardned.*

This is done with fine pouder of Crystal glass, laid with the Metal *stratum super stratum* in a Crucible covered and luted; heating it all over red-hot, and then melting of it.

IV. *To make Quick-silver malleable.*

First harden it by the first Section, then break the Metal into small pieces, and boil it a quarter of an hour in sharp vinegar: then add a little *Sal-Armoniack*, and digest all together for ten or twelve days; then boil all together in a luted Crucible, till it is red-hot, and by degrees crackt, Lastly, hang the Mercury in a pot with Brimstone at bottom: cover it, lute it and set it into the fire, that it may grow hot by degrees, and receive the fume of the Sulphur; do thus for a month once a day, and the Mercury will run and be hammered.

V. *Another way of tinging Mercury.*

Take purified Mercury one ounce, Sulphur two ounces, *Aqua fortis* three ounces, let them all stand till the water grow clear; distil this with its sediment, and at bottom of the Limbeck you shall find the Mercury hard, and of an exact color.

VI. *To color and soften Gold.*

Dissolve Verdigrise in vinegar, and strain it through a felt, then congeal, and when it begins to wax thick, put to it some Sal-Armoniack. and let it harden a good while, then melt gold with it, and it will heighten the color and make it soft.

VII. *To make Gold and Silver softer.*

Take Mercury Sublimate, Sal-Armoniack, of each alike; pouder them. melt the gold, and put to it a little of this pouder, and it will be soft.

VIII.

VIII. *Another way to do the same.*

Take Vitriol, Verdet, Sal-Armoniack, burnt Brass, of each half an ounce, mix them with *Aqua fortis*, let it so repose in the heat two days, then let it harden, do thus three times with *Aqua fortis*, and let it dry, make it into pouder, to one drachm put one ounce of gold three times, and it will be softer.

IX. Amber way to do the same in Silver.

Take Salt-peter, Tartar, Salt, Verdet, boil all together, till the water is consumed, then put to it Urine, and let it so consume, and you shall have an oyl, which put into melted Silver will do the same.

Or thus, *Take as many wedges as you have mleted, put them one night into a crucible in a furnace, but so as they melt not, and they will be soft and fair.*

Or thus, *Take honey, oyl, of each alike, in which quench the Gold or Silver three or four times, and it will be softer.*

Or thus, *Take Mastick, Frankincense, Myrrh, Borax, Vernix, of each a like in pouder.*

Or thus, *Quench the Gold or Silver in water of Sal-Armoniack, and it will be soft.*

X. To tinge Silver of a Gold color.

Take fine Gold, fine Silver, good Brass, and Brass or Copper calcined with Sulphur-vive, of each alike, melt them down together, and it shall appear to be gold of eighteen carets fine.

XI. Another way to tinge Silver.

Take Quick-silver, purged three ounces, leaf-gold one ounce, mix them and put them into a glass Retort well luted, put it on the fire till it grow hot; then take it off and add to it Quick-silver purged two ounces, *Sal-Armoniack* one ounce, *Sal Ellebrot* half an ounce, *Borax* two drachms, then seal up the glass hermetically, and put it into a continual fire for three days; then take it out, let it cool, open the Retort, take out the matter, and pouder it very fine; of which pouder mix one ounce with silver five ounces, and it will tinge it into a good gold color.

Note, Sal Ellebrot is thus made. Take pure common Salt, Sal Gem, Sal Alcali in pouder, of each one ounce, juice of Mints four ounces, spring water four pound, mingle them, and evaporate. And Quick-silver is purged by washing it in sharp Vi-

negar three or four times and ſtraining it thro' Shamoi Leather; or by ſubliming it, which is better.

XII. To bring Silver into a Calx.

This is done by amalgamating of it with Quick-ſilver, and then ſubliming of it; or by diſſolving it in *Aqua fortis*, and precipitating it with the ſolution of Salt in fair water, and then waſhing it with warm water often to free it from the ſalts: or elſe by mingling the filings with ſublimed Mercury, and in a Retort cauſing the Mercury to aſcend, which will leave at bottom the Calx of Silver, fit for Jewels, *&c.*

XIII. *To blanch Silver.*

Take *Sal-Armoniack, Roch-Alum, Alum Pulmoſum, Sal Gem, Argol, Roman Vitriol, of each alike*; powder and mix them, and diſſolve them in fair water, in which boil the Silver ſo long, till you ſee it wonderful white.

XIV. *To color Silver of a Gold color.*

Take Salt-peter two pound, Roch-Alum five pound, mingle, and diſtil them, keeping the water for uſe. When you uſe it, melt the Silver, and quench it in the ſaid water.

XV. *To tinge Braſs of a Gold color.*

Diſſolve burnt Braſs in *Aqua fortis* (made of Vitriol, Salt-peter, Alum, Verdigriſe and Vermilion) and then reduce it again, and it will be much of a gold color.

XVI. *To make Braſs through white.*

Heat Braſs red-hot, and quench it in water diſtilled from Sal-Armoniack, and Egg-ſhells ground together, and it will be very white.

XVII. *To make Braſs white otherwiſe.*

Take Egg-ſhells and calcine them in a Crucible, and temper them with the whites of Eggs, let it ſtand ſo three weeks; heat the Braſs red-hot, and put this upon it.

XVIII. *To make Braſs.*

Take Copper three pounds, *Lapis Calaminaris* one pound in powder, melt them together the ſpace of an hour, then put it out.

XIX The way to color Braſs white.

Diſſolve a penny weight of Silver in *Aqua fortis*, putting it to the fire in a veſſel, till the Silver turn to water; to which add as much powder of white Tartar as may drink up all the water, make it into balls, with which rub any Braſs, and it will be white as Silver.

XX. *To tinge Copper of a Gold color.*

Take

Take Copper, *Lapis Calaminaris*, of each four drachms, Tutty two drachms: heat the Copper red-hot twice, quenching it in piss: doing the like by the *Lapis* and Tutty: take of the dissolved Copper half an ounce, adding to it Honey one ounce, boil them till the Honey look black and is dry that it may be poudered, which then beat with the *Lapis* and Tutty: boil them again, till the Copper is melted, and it is done.

XXI. *Another way to make Copper of a Gold color.*

Take the Gall of a Goat, Arsenick, of each a sufficient quantity, and distil them; then the Copper being bright being washed in this water, will turn into the color of Gold.

XXII. *Another way to do the same.*

Melt Copper, to which put a little *Zink* in filings, and the Copper will have a glorious golden color.

XXIII. *To make Copper of a white color.*

Take Sublimate, Sal-Armoniack, of each alike; boil them in Vinegar, in which quench the Copper being made red-hot; and it will be like Silver.

XXIV. *Another way to whiten Copper.*

Heat it red-hot divers times, and quench it in oyl of Tartar *per deliquium*, and it will be white.

XXV. Another way to whiten Copper.

Take Arsenick three ounces, Mercury Sublimate two ounces, Azure one ounce, mix them with good and pure grease like an ointment, with which anoint any Copper vessel, then put that vessel into another, and set it into a digestive heat for two months, after which cleanse it with a brush and water, and it is done.

XXVI. *Another way to whiten Copper.*

Take Arsenick calcined with Salt-peter, and Mercury Sublimate, which cast upon melted Copper, and it will be white like Silver.

XXVII. To soften Copper.

Melt burnt Brass with *Borax* in a Crucible, quench it in Linseed-Oyl, and then beat it gently on an Anvil; boil it again, and quench it in oyl as before, doing thus five or six times, till it is soft enough; and this will neatly unite with Gold, of which you may put in more by half than you can of other Brass.

XXVIII. To tinge Iron with a Gold color.

Lay in a Crucible plates of Iron and Brimstone *stratum super stratum*, cover and lute it well, and calcine in a furnace, then take them out and they will be brittle: put them into a pot with a large mouth, and put in sharp distilled vinegar, digesting till they wax red over a gentle heat: then decant the vinegar, and add new, thus doing till all the Iron be dissolved; evaporate the moisture in a glass Retort or *Vessica*, and cast the remaining pouder on Silver, or other white Metal, and it will look like Gold.

XXIX To make Iron or Silver of a Brass color.

Take Flowers of Brass, Vitriol, *Sal-Armoniack*, of each alike in fine pouder; boil it half an hour in strong vinegar, take it from the fire, and put in Iron or Silver, covering the vessel till it be cold, and the Metal will be like to Brass, and fit to be gilded: or rub polished Iron with *Aqua fortis* in which filings of Brass are dissolved.

XXX To tinge Iron into a Brass color.

Melt the Iron in a Crucible, casting upon it Sulphur *vive*, then cast it into small rods, and beat it into pieces (for it is very brittle) then in *Aqua fortis* dissolve it, and evaporate the *menstruum*, reducing the pouder by a strong fire into a body again, and it will be good Brass.

XXXI. To whiten Iron.

First purge it, by heating it red-hot, and quenching it in a water made of Lye and Vinegar, boil'd with Salt and Alum, doing this so often till it is somewhat whitened. The fragments of the Iron beat in a mortar till the Salt is quite changed, and no blackness is left in the Liquor of it, and till the Iron is cleansed from its dross: then *Amalgamate* Lead and Quick-silver together, and reduce them into a pouder: lay the prepared plates of Iron and this pouder *stratum super stratum*, in a Crucible, cover it, and lute it all over very strongly, that the least fume may not come forth, and put it into the fire for a day; at length encrease the fire, so as it may melt the Iron (which will quickly be) and repeat this work till it is white enough: It is whitened also by melting with Lead, the Marchasit or fire-stone and Arsenick. If you mix a little Silver (with which it willingly unites) with it, it gives a wonderful whiteness, scarcely ever to be changed any more, by any art whatsoever.

XXXII. To keep Iron from Rusting.

Rub it over with vinegar mixt with Ceruse; or with the marrow

marrow of a Hart; if it be rusty, oyl of Tartar *per deliquium* will presently take it away and cleanse it.

XXXIII. To cleanse Brass.

Take *Aqua fortis* and water of each alike, shake them together, and with a wollen rag dipt therein rub it over; then presently rub it with an oyly cloth; Lastly, with a dry wollen cloth dipt in pouder of *Lapis Calaminaris*, it will be clear and bright as when new.

XXXIV To soften Iron.

Take Alum, Sal-Armoniack, Tartar, of each alike, put them into good Vinegar, and set them on the fire, heat the Iron, and quench it therein: or quench it four or five times in oyl, in which melted Lead hath been put six or seven times.

CHAP. XXVII.

The ways and manner of Gilding.

I. *To lay Gold on any thing.*

Take Red-lead ground fine, temper it with Linseed-oyl: write with it, and lay Leaf-gold on it, let it dry, and polish it.

II. *To lay Gold on Glass.*

Take Chalk and Red-lead, of each alike, grind them together, and temper them with Linseed-oyl: lay it on, and when it is almost dry, lay Leaf-gold on it; let it dry, then polish it.

III. *To gild Iron with a water.*

Take spring water three pound, Roch-Alum three ounces, Roman Vitriol, Orpiment, of Earth one ounce, Verdigrise twenty four grains, Sal-gem three ounces, boil all together, and when it begins to boil, put in Tartar and Bay-salt, of each half an ounce; continue the boiling a good while, then take it from the fire, strike the Iron over therewith, dry it against the fire, and burnish it.

IV. *To lay Gold on Iron or other Metals.*

Take liquid Varnish one pound, Linseed Oyl and Tur-

pentine, of each one ounce; mix them well together: ſtrike this over any Metal, and afterwards lay on the Gold or Silver, and when it is dry poliſh it.

V. *To Gild Silver or Braſs with Gold water.*

Take Quick-ſilver two ounces, put it on the fire in a Crucible, and when it begins to ſmoak, put into it an Angel of fine Gold; then take it off immediately, for the Gold will be preſently diſſolved: then if it be too thin, ſtrain a part of the Quick-ſilver from it, through a piece of Fuſtian: this done, rub the Gold and Quick-ſilver upon Braſs or Silver, and it will cleave unto it, then put the ſaid Braſs or Silver upon quick coals till it begin to ſmoak, then take it from the fire, and ſcratch it with a hair bruſh; this do ſo long till all the Mercury is rubbed as clean off as may be, and the Gold appear of a faint yellow: which color heighten with Sal-Armoniack, Bole and Verdigriſe ground together and tempered with water.

Where note, that before you gild your Metal, you muſt boil it with Tartar in Beer or water, then ſcratch it with a braſs wire bruſh.

VI. Another water to gild Iron, Steel, Knives, Swords, and Armour with.

Take Fire-ſtone in pouder, put it into a ſtrong red Wine-vinegar for twenty four hours, boil it in a glazed pot, adding more Vinegar as it evaporates, or boils away: into this water dip your Iron, Steel, *&c.* and it will be black; dry it, then poliſh it, and you will have a gold color underneath.

VII. *Another way to gild Iron with.*

Take Salt-peter, Roch-alum burnt, of each half an ounce, Sal-Armoniack an ounce, all being in fine pouder, boil with ſtrong Vinegar in a Copper Veſſel; with which wet the Iron, *&c.* then lay on Leaf-gold.

VIII. *Another way to gild Iron with.*

Take Roch-Alum, and grind it with boys Urine, till it is well diſſolved, with which anoint the Iron, heat it red-hot in a fire of wood coals, and it will be like Gold.

IX. To gild Books.

Take Bole-Armoniack four peny weight, Sugar-candy one peny weight, mix and grind them with glair of Eggs, then on a bound Book, (while in the preſs, after it hath been ſmeared with glair of Eggs, and is dryed) ſmear the ſaid compoſition, let it dry, then rub it well and poliſh it: then with fair water

water wet the edges of the Book, and ſuddenly lay on the gold, preſſing it down with Cotton gently, this done, let it dry, and then poliſh it exactly with a tooth.

X. Another way of gilding Iron.

Take water three pound, Alum two ounces, Sal-gem three ounces, Roman Vitriol, Orpiment of each one ounce, *flos Æris* twenty four grains; boil all with Tartar and Salt as at the third Section.

XI. To make Iron of the color of Gold.

Take Linſeed-oyl three ounces, Tartar two ounces, yolks of Eggs boiled hard and beaten two ounces, Aloes half an ounce, Saffron five grains, Turmerick two grains: boil all in an Earthen veſſel, and with the oyl anoint Iron, and it will look like Gold. *If there be not Linſeed-oyl enough, you may put in more.*

XII. A Golden liquor to color Iron, Wood, Glaſs, or Bones with.

Take a new laid Egg, through a hole at one end take out the white, and fill up the Egg with Quick-ſilver two parts, Sal-Armoniack finely poudered one part; mix them all together with a Wire or little ſtick: ſtop the hole with melted wax, over which put an half Egg-ſhell: digeſt in horſe-dung for a month, and it will be a fine golden colored Liquor.

XIII. To gild Silk and Linnen.

Take Glew made of Parchment, lay it on the Linnen, or Silk, *&c.* gently, that it may not ſink: then take Ceruſe, Bole and Verdigriſe, of each alike, mix and grind them upon a ſtone: then in a glazed veſſel mix it with varniſh, which let ſimper over a ſmall fire, then keep it for uſe.

XIV. Another of a pure Gold color.

Take juice of freſh Saffron, or (for want of it) Saffron ground, the beſt clear Orpiment of each alike: grind them with Goats gall or gall of a Pike (which is better) digeſt twenty eight days in horſe-dung, and it is done.

XV. To gild on Wood or Stone.

Take Bole-Armoniack, oyl of Ben, of each a ſufficient quantity; beat and grind them together: with this ſmear the wood or ſtone, and when it is almoſt dry, lay on the Leaf-gold, let it dry, then poliſh it.

XVI. To gild with Leaf-gold.

Take leaves of gold, and grind them with a few drops of honey

honey, to which add a little gum-water, and it will be excellent to write or paint with.

XVII. To gild Iron or Steel.

Take Tartar one ounce, Vermilion three ounces, Bole-Armoniack, *Aqua-vitæ* of each two ounces, grind them together with Linseed oyl, and put thereto *Lapis Calaminaris* the quantity of a hasle-nut; and grind therewith in the end a few drops of varnish; take it off the stone, strain it thro' a Linnen Cloth, (for it must be as thick as hony) then strike it over Iron, or Steel, and let it dry: so lay on your Silver or Gold, and burnish it.

XVIII To color Tin or Copper, of a Gold color.

Take Linseed Oil, set it on the fire, Scum it; and put in Amber, Aloes, Hepatick, of each a like; stir them well together till it grows thick; take it off, cover it close; and let it in the Earth three days: when you use it, strike the Metal all over with it, with a Pencil, let it dry, and it will be of a Golden color.

XIX. *To Silver any Metal.*

Take strong *Aqua-fortis* in which dissolve fine Silver, to which put so much Tartar in fine powder as will make it into Paste: with which rub any Metal, and it will look like fine Silver.

XX. *To gild so as it shall not out with any Water.*

Take Oker calcined, Pumice stone, of each alike, Tartar a little: beat them with Linseed Oil and five or six drops of Varnish; strain all thro a linnen cloth, and with this Liquor you may imitate Gilding.

XXI. *To gild Paper.*

Grind Bole Armoniack with Rain-water, and give one laying of it: being dry, take Glair of Eggs, and add to it a little Sugar Candy and Gum-water, which lay over the former, and upon this, (when in a fit dryness) lay your Leaf Silver, or Leaf Gold.

CHAP.

CHAP. XXVIII.

Of making White Colors, and Whitening Plaister Walls.

I. *Fine White for Water Colors.*

Take filings of fine Silver, or Leaf-Silver, which dissolve in *Aqua-fortis* or *Sp. Nitri*, evaporate the *Aqua fortis*, till it looks like Crystals in the bottom of the Glass: the other part of the *Aqua fortis* decant, and wash the Silver in fair common water, five or six times, till it is freed from the *Aqua fortis*, which you may know by tasting, then dry it for use. It must be used with Gum water, with a little water of Sugar-candy.

II. *An Incomparable fine white Lead.*

Take choice white Lead in Flakes, grind it well upon a Porphyry with Vinegar, and it will turn Blackish: then take a pot full of Water, in which wash your White Lead very well, let it settle, and pour off the Water: grind it again with Vinegar, and wash it in like manner again; repeat this work once or twice more, and you will have an Excellent White, as well for Water colors, as Painting in Oyl.

III. *To white wash plaister Walls.*

1. The wall is to be very well Plaistered, with very fine Plaister and well layed, which being throughly dry, it is to be whitened with Lime Milk very clear as follows. 2. Before you lay on the Lime Milk, the Wall is to be very well wetted with water; for in this consists the secret, that the Whitning may not dry too fast, but rather very slowly, for so by drying Leisurely, the Lime will have time to fasten, so as it will neither whiten your Hands nor your Cloths. 3. If it is an old wall and there is any dirt on it, or if it is free-stone and it is dirty, it ought to be scraped off. 4. Lime Milk is made of Lime which has been a long time slaked with a sufficient quantity of Water, stirring it till it makes a white Froth; the water is to be decanted after some days time, and the Lime dryed, and then it is to be made into Lime Milk, some say with New Milk, but it is certain, that skimed Milk will do, the Cream or Oily parts being taken off. 5. The Wall ought to be washt over three or four times, and then the last doing of it, ought

to

to be with Milk of unflack't Lime, that the white may be the Glossier.

IV. *Another way to do the same.*

The Wall being fitted and prepared as aforesaid, the Lime Milk may be made either of well flaked Lime, or rather of Whiting; which done the first time the Wall is washt over, the Lime Milk ought to be thin, the next time somewhat thicker: the third time still thicker, putting in less of the Milk as you think fit; and the fourth time thickest of all, so will your Wall be purely White.

CHAP. XXIX.

Of Mezo-tinto: and the taking off, an old Print on White Paper.

I. TAke a well polished Copper plate, which make all over rough one way, with an engine particularly designed for this purpose; then cross it over with the Engine again; and if you see occasion, cross it over again the third time, till it be made all over rough alike, *viz.* so as if it were to be printed it would print black all over.

II. This done, take Charcole, black Chalk, or black Lead, to rub over the plate, and draw your designs with white Chalk upon the same, then take a sharp Stiff, and trace out the outlines of the design which you drew with the white Chalk.

III. Where you would have the light strike strongest, take a burnisher, and burnish that part of the Plate, as clean and smooth as it was when it was first polished.

IV. Where you would have the light fainter; there you must not polish it so much: and after this manner you must either increase or decrease the light in your design, making it either fainter, or stronger, as the necessity of your work shall require.

V. The shape or form of the Engin or Instrument is various and manifold, according to the fancy of the Artist; those that desire them, may have them of several persons in *London*, who profess and practise the Arts of Drawing, Etching, and Engraving.

VI. *To take an old Print off, on a piece of white Paper, and not spoil the Print.* Take Linseed Oyl and smear it all over the Print with a clean cloth.

VII.

VII. Take a clean piece of Paper, lay it over the former Print; lay them both upon a polliſh'd Copper Plate, and paſs them thro' the Rouling Preſs; ſo will the white Paper receive the Reverſe of the Print, or the Print backwards.

VIII. But to take the Oil out of the Print, you muſt waſh it with Oil of Spike or Turpentine: then being dryed by or over the Fire, the Linſeed Oyl, with the Oyl of Spike will evaporate, and leave the Print as fair as it was at firſt.

CHAP. XXX.

Of making various ſorts of Ink.

I. *To make good black writing Ink.*

Take ponderous galls three ounces in pouder, rain-water three pound, infuſe them in the Sun, or in a gentle heat two days: then take Roman Vitriol well colored (common may do better)and poudered, three Ounce: which put therein, and ſet all in the Sun for two days more, ſhake all together, to which add of good Gum-Arabick an ounce.

II. *To make red writing Ink.*

Take Raſpings of Brazil one once, white lead, Alom, of each two drachms, grind and mingle them, infuſe them in Urine one pound, with gum-Arabick two ſcruples, or a drachm at moſt.

III. *Another way to make red Ink.*

Take Wine-vinegar two pound, Raſpings of Braſil two ounces, Alom half an ounce, infuſe all ten days; then gently boil, to which add gum Arabick five drachms, diſſolve the Gum, ſtrain, and keep it for uſe. Note, two drachms of the Gum in ſome caſes may be enough.

IV. *To make green Ink to write with.*

Make fine Verdigriſe into paſte with ſtrong Vinegar, and infuſion of green galls, in which a little Gum-Arabick hath been diſſolved, let it dry and when you would write with it, temper it with infuſion of green Galls aforeſaid.

V. *Another way to make green Ink to write with.*

Diſſolve

Dissolve Verdigrise in Vinegar, then strain it, and grind it with a little Honey, and mucilage of Gum Tragacanth, upon a porphyry stone.

VI. *To make another green Ink to write with.*

Boil *Verdigrise* with *Argol* in fair water; and then dissolve in it a little *Gum-Arabick*, and it will be good.

VII. *To make blew Ink to write with.*

Grind Indico with Honey mixed with glair of Eggs or glew-water; made of Ising-glass dissolved in water, and strained.

VIII. *To make red-writing Ink of Vermilion.*

Grind *Vermilion* well upon a porphyry stone, with common water; dry it and put it into a glass vessel, to which put Urine, shake all together, let it settle, then pour off the Urine; and putting on more Urine, repeat this work eight or ten times, so will the *Vermilion* be well cleansed; to which put glair of Eggs to swim on it above a fingers breadth, stir them together, and settling abstract the glair: then put on more glair of Eggs, repeating the same work eight or ten times also, to take away the scent of the Urine: lastly, mix it with fresh glair, and keep it in a glass-vessel close stop'd for use. When you use it, mix it with water or vinegar.

IX. *To make Printers black Ink.*

This is made by mingling Lamp-black with liquid Varnish, or Linseed Oyl, and boiling it a little, which you may make it thick at pleasure. You must make it moister in Winter, than in Summer; and note that the thicker Ink makes the fairer letter.

If it be too thick, you must put in more Linseed oil, or oil of Walnuts, so may you make it thicker or thinner at pleasure.

X. *To make red Printing Ink.*

Grind Vermilion very well with the aforesaid liquid Varnish or Linseed oyl.

XI. *To make green Printing Ink.*

Grind Spanish green with the said Varnish or Linseed oyl as aforesaid: And after the same manner, may you make *Printers Blew*, by grinding *Azure* with the said Linseed Oyl.

XII.

XII. *To make white Ink to write upon black Paper.*

Diſſolve *Tin Glaſs* or *Spelter* in *Aqua fortis*, made of *Nitre* and *Alum*: precipitate with *Oyl* of *Tartar*; edulcorate perfectly with fair water, and dry it in a glaſs Baſon: this pouder mix with Gum water, and it will be a White, with which you may write upon Black paper: and with pure *white Flowers of Antimony* you may do the ſame.

XIII. *To make China Ink.*

Take Lamp-black purified eight Ounces: Indico, two Ounces: Ivory black one Ounce: Peach ſtone black half an Ounce: beat all together and make a Maſs: make all into a body with water, in which a very little Gum Arabick has been diſſolved: and ſo form them into long ſquare Rods, or Tables.

XIV. *To make black writing Ink.*

Take Rain-water three pints: Nut Galls broken into little bits, three Ounces: digeſt in a Sand heat for a Week: Then take Vitriol or Copperas two Ounces, and diſſolve it in Rain-Water a pint, by gentle boiling; adding in the Diſſolution, a little Gum-Arabick: being diſſolved, mix it with the Water and Galls; digeſt a Week in a ſand heat, and keep the Clear for uſe.

XV. *A black Ink which Vaniſhes in twenty four hours time.*

Boil or Digeſt Nut Galls in groſs pouder in Aqua fortis: add to them Vitriol or Copperas, and a little Sal-Armoniack, and it is done: what is written with this will Vaniſh in twenty four hours.

XVI. *To make Indian Ink.*

Take Horſe Beans, burn them till they are perfectly black, grind it to a ſubtile pouder, and with a weak Gum-Arabick water, make it into a Paſte, which form into long ſquare Reds.

XVII. *To make another black writing Ink.*

Take White Wine two quarts: Logwood ground one pound: or ſhavings of it: boil till a quart is conſumed: ſtrain the Liquor from the Wood, and put into it Nut-Galls bruiſed, Eight Ounces: Pomegranate Peels four Ounces: mix and digeſt in a Sand heat for a Week, ſhaking it four or five times a day: then add to it Roman Vitriol or green Copperas four Ounces: digeſt two days more; after which add

add Gum Arabick four ounces: digeſt twenty four hours, and ſtrain all out into another Veſſel, and keep the Ink for uſe. Note, that theſe fæces will ſerve again for the ſame quantity of Liquor, or Logwood Infuſion. 2. That the Pomegranate Pecls are put in to make the Ink ſhine. 3. That Rain-water ſeems to be better for this purpoſe than White Wine. 4. That probably the quantity of the Gum-Arabick is too much.

XVIII. *Another very good black writing Ink.*

Take Thames or Rain Water a Gallon, Nut-Galls crackt only into ſmall bits one pound: Copperas four Ounces: Infuſe all in a Gentle Sand heat, for ſix Weeks, ſhaking the bottle four or five times every day: then diſſolve in it Gum-Arabick eight Ounces, (I fear the Gum is too much, and will make the Ink too thick:) and let it ſtand upon the fæces for uſe.

XIX. *Another black writing Ink.*

Take Rain Water a Gallon: Nut-Galls only Crackt into bits a pound; Copperas eight Ounces: Alum eight Ounces: Infuſe all in a Gentle Sand heat for a Month: add Gum-Arabick eight Ounces: which diſſolve in it, and keep the mixture for uſe.

XX. *Another writing Ink.*

Take ſtrong ſtale Beer a Gallon, (or White or Red-Wine the ſame quantity;) Old Nails ſix or eight pounds: digeſt in a Cold place for eight ten or twelve Months: then decant of the clear Tincture. Take Catechu in fine pouder ſix ounces: common Brandy a pint; mix and in a ſand heat make a ſtrong Tincture which decant; mix this with the former Tincture of and it becomes a black Ink.

XXI. *Another very excellent black writing Ink.*

Take *Mr. Youngs* Water at *Iſlington*, or Water in which a large quantity of old Nails has lain for a Year or two, a Gallon, Nut-Galls broken into little bits a pound; Common Vitriol, or Copperas four Ounces: Infuſe all together for a Month, ſtirring or ſhaking the Veſſel very well five or ſix times every day, then add Gum-Arabick cut into bits two Ounces: diſſolve and keep it continually ſtirring once or twice every day. Note, when you uſe it, you may put in a little white Sugar Candy, and diſſolve it, ſo will your writing ſhine; but you ought not to put it in but as you have occaſion to uſe it, for after three or four days, it ſpoils the *Ink*.

Explicit Liber Tertius.

POLYGRAPHICES

LIBER QUARTUS.

Containing the Original, Advancement and Perfection of the Art of Painting: Particularly exemplified in the various Paintings of the Ancients.

CHAP. I.

Of the Original of these Arts.

I. *THE Original of the Art of Painting was taken from the Forms of things which do appear; expressing the same (as* Isidorus Pelusiota *saith) with proper Colours, imitating the Life, either hollow or swelling, dark or light, hard or soft, rough or smooth, new or old.*

Of such things (amongst Vegetables) Flowers yield the greatest variety: of Animals, Man: of things Inanimate, Landskips, *&c.* For this matter of Imitation was presented in the chief things only, for who should learn to imitate all things in Nature? the greater being attained, the lesser will follow of themselves; if any shall attempt so great a burthen, two inconveniences, saith *Quintilian*, will necessarily follow, to wit, *Always to say too much, and yet never to say all.*

II. *And this Imitation of things seen with the Eye, was much helped by the Idea's of things conceived in the mind, from the continual motion of the Imagination.*

Wherefore as *Quintilian* saith (*lib.* 10. *cap.* 3. of his Institutions of Oratory) "We shall do well to accustome our minds to such a stedfast constancy of conceiving, as to overcome all other Impediments by the earnestness of our Intention, for if we do altogether bend this Intention upon things conceived, our mind need never take notice of any thing which the Eye sees, or the Ear hears. And therefore those which would profit much, must take care and pains to furnish their minds with all sorts of useful Images and Idea's. This treasury of the mind (saith *Cassiodorus cap.* 12. *de Anima*) is not over-loaden in haste: if it be once furnished, the Artist shall find upon any sudden occasion, all things necessary, ready at hand; whereas those which are unprovided shall be to seek. It is like to the Analytical Furniture in *Algebra*, without the knowledge of which, no notable thing can be performed. Now although the Imagination may be easily moved, yet this same excellency is not attained in an instant: And without the ability of expressing of the conceived Images, all the exercise of the fancy is worth nothing.

III. *These Forms and Idea's were not singly considered, but complicately.*

For whereas Nature scarcely ever represents any one thing perfect in beauty, (in all its parts) lest it should be said, that she had nothing more to distribute to others: so Artists of old chose out many Patterns, which were absolutely perfect in some of their parts, that by designing each part after that Pattern, which was perfect therein, they might at last present something perfect in the whole. And so when *Zeuxis* intended an exquisite Pattern of a beautiful Woman, he sought not for this perfection in one particular body, but chose five of the most well-favoured Virgins, that he might find in them that perfect beauty, which (as *Lucian* saith) must of necessity be but one. And *Maximus Tyrius* saith, you shall not find in hast a body so accurately exact, as to compare it with the beauty of a Statue. And *Proclus* saith, if you take a Man brought forth by Nature, and another made by Art of Carving, that by Nature shall not seem the statelier, because Art doth many things more exactly: to which *Ovid* assents, when that he saith, that *Pygmalion* did Carve the Snow-white Image of Ivory

ry, with such a happy dexterity, that it was altogether impossible that such a Woman should be Born.

IV. *From this manner of Imitation did arise the Skill of Designing; from whence sprang the Arts of Painting, Limning, Washing, Casting, and all others of that kind.*

These Arts in their infancy, were so mean, that the first Artist was forced (as *Ælianus* saith *lib.* 10. *cap.* 10. *of his History*) in Painting to write, This is an Ox, this a Horse, this a Dog: but as *Tully* saith, (*in libro de claris oratoribus*) there is nothing both invented and finished at a time. And *Arnobius in libro secundo adversus Gentes* " saith, " The Arts are not together with our minds, " brought forth out of the heavenly places; but are all " found out here on Earth, and in process of time, soft- " ned, forged, and beautified, by a continual meditati- " on: our poor and needy Life, perceiving some casual " things to fall out prosperously, whilest it doth imitate, " attempt, try, slip, reform, and change, hath out of " the same assiduous reprehension made up some small " pieces of Arts, the which it hath afterwards by study " brought to some perfection.

V. *The Persons who were the first Inventers of these Arts are scarcely known, (because daily new Inventions were added) but those famous Persons who either strove to bring them to perfection, or add to what was already invented, or otherwise were famous in any one particular thing, History has in part informed us of.*

The famous *Pausias* was the first that attempted to bring the Art of Painting to perfection. *Apelles* was the first that undertook the expressing of invisible things, as Thunder, Lightning, and the like; the which consideration of these almost Impossibilities, made *Theophylactus Simocatus* (in *Epist.* 37.) say, that Painters undertake to express such things, as Nature is not able to do: and the same *Apelles* had a certain Invention and Grace, proper to himself alone, to which never any other Artificer ever attained. And although *Zeuxis*, *Apelles*, *Aglaophon*, did none of them seem to lack any thing of Art, yet they differedvery much, and had each of them some peculiar Excellency, of which neither of the other two could boast. Here is but one Art of Casting, in which *Myron*, *Polycletus*, *Lysippus* have been excellent, yet did one very much differ from another: *Zeuxis* did surpass all other

Artizans in Painting Womens Bodies: *Lysippus* is most excellent in fine and subtile Workmanship: *Polycletus* made excellent Statues upon one Leg: *Samius* did excel in conceiving of Visions and Phantasies: *Dionysius* in Painting of Men only: *Polignotus* most rarely expressed the Affections and Passions of Men: *Antimochus* made noble Women: *Nicias* excellent in Painting of Women, but most excellent in four-footed Creatures, chiefly Dogs: *Calamis* made Chariots, with two or four Horses; the Horses were so excellent and exact, that there was no place left for Emulation: *Euphranor*, the first and most excellent in expressing the dignity, and marks of Heroical Persons; *Arestodemus* Painted Wrestlers: *Serapion* was most excellent in Scenes: *Pyreicus* (inferiour in the Art of Painting to none) Painted nothing but Coblers and Barbers: *Ludio* the first and most excellent in Painting Landskips: *Apollodorus*, *Asclepiodorus Androbulus*, *Alevas*, were the only Painters of Philosophers, *&c.*

VI. *Another Reason of the Invention hereof, was from the moving of the Passions.*

For as *Simonides* saith, (comparing Painting with Poesy) Picture is a silent Poesy, and Poesy is a speaking Picture: Upon the occasion of these words, *Plutarch* saith, *The things represented by Painters, as if they were as yet doing, are propounded by Orators as done already: Painters express in Colours and Lines, what Poets do in Words; the one doth that with the Pencil, which the other doth with the Pen.* When *Latinus Pacatus* had made a full Description of the miserable end of the wicked *Maximus*, he calls upon all the Painters to assist him: Bring hither, bring hither you pious Poets, (saith he) the whole care and study of your tedious nights: ye Artificers also, despise the vulgar Argument of ancient Fables; these, these things deserve better to be drawn by your cunning Hands: let the Market-places and Temples be filled with such Spectacles; work them out in Ivory; let them live in Colours; let them stand in Brass; let them exceed the price of precious Stones. It doth concern the security of all Ages, that such things might be seen to have been done, if by chance, any one filled with wicked desires, might drink in Innocency by his Eyes, when he shall see the (horrid and deplorable) Monuments of these our times. And *Gregory Nyssen*, upon the Sacrificing of *Isaac* saith,

saith, *I often saw in a Picture the Image of this Fact, upon which I could not look without Tears; so lively did Art put the History before my Eyes.*

VII. *The* Egyptians *were the first Inventers of Painting: The* Greeks *brought it (out of its rudeness) to proportion: The* Romans *adorned it with Colours: The* Germans *(following them) made their works more durable by Painting in Oil: of whom the* English, Dutch, Italian *and* French *are become Imitators.*

It is reported, that the *Grecians* were the first Painters, and that their Colours were (in the infancy thereof) only White and Black: but it appears more with reason and truth, that the Invention thereof should be ascribed to the *Egyptians*, who (before the Invention of Letters) signified their conceptions by *Hieroglyphicks* of Figures, Cyphers, Characters and Pictures of divers things, as *Birds*, *Beasts*, *Insects*, *Fishes*, *Trees*, *Plants*, and the like, which by Tradition they transfer'd to their Children; so they made the *Falcon* to signifie Diligence, Strength and Swiftness: the *Bee* a King; its *Honey*, Mildness; its *Sting*, Justice: a *Serpent*, (tail in mouth) the Revolution of the Year: the *Eagle*, Envy: the *Earth*, a labouring Beast: a *Hare*, Hearing, *&c.* Now, our bare learning to imitate, is not enough; it is requisite, that since we are not first in Invention, we should study rather to outgo than to follow. *If it were unlawful (saith* Quintilian*) to add any thing to things invented, or to find out better things, our continual labour would be good for nothing; for it is certain that* Phydias *and* Apelles *have brought many things to light, which their Predecessors knew nothing of. Apelles* did all things with compleatness: *Zeuxis* with an inestimable grace: *Protogenes* with an indefatigable diligence: *Timanthes* with a great deal of subtilty and curiosity: *Nicophanes* with a stately magnificence. Now, to attain to these kind of Excellencies, it is necessary to have recourse to variety of great Masters, that something out of the one, and something out of the other, may be as so many Ornaments to adorn our Works; and as so many steps to lead us on to the door of perfection.

VIII. *About the time of* Philip *King of* Macedon, *this Art began to flourish: growing into great estimation in the days of* Alexander *and his Successors: from thence through all the series of time even to this day, it hath received by de-*

grees, such wonderful advancements that it may be now said, it is arrived at perfection.

For without doubt there is a perfection of Art to be attained, and it is as possible that I, or thou, or he, may as well attain it, as any body else, if we resolve to strive, and take pains, without fainting, or fear of despair. And since the Art of Painting is (as *Socrates* saith) the resemblance of visible things, the Artist ought to beware that he abuses not the liberty of his Imagination, in the Shapes of monstrous and prodigious Images of things not known in Nature; but as a true lover of Art, prefer a plain and honest work, (agreeing with Nature) before any phantastical and conceited Device whatsoever.

IX. *Lastly, That from* Time, Form, Magnitude, Number, Proportion, Colour, Motion, Rest, Situation, Similitude, Distance, Imagination *and* Light, *in a single and complicate consideration, this Art hath its essence or being, and at last had by the help of industrious and unwearied Minds, its Original Production and Manifestation.*

Light is that only thing, without which all those other things from which this Art springs, would be useless; without which the Art it self cannot be. "It is "(as *Sanderson* saith) the Heavens Off-spring, the eldest "Daughter of God, *fiat lux*, the first days Creation: it "twinkles in a Star, blazes in a Comet; dawns in a "Jewel, dissembles in a Glow-worm; contracts it self "in a Spark, rages in a Flame, is pale in a Candle, and "dyes in a Coal. By it the Sight hath being, and the "Imagination life, which comprehends the Universality "of all things without space of place: the whole Hea-"vens in their vast and full extent, enter at once through "the Apple of the Eye, without any straitness of pas-"sage: the Sight is a Sense, which comprehends that "which no other Sense is capable of; it judgeth and di-"stinguisheth between two contraries in an instant, it "considers the excellency and beauty of every Object: "the spangled Canopy of Heaven by night, the wan-"dering Clouds by day, the wonderful Form of the "Rain-bow, the glorious matutine appearance of *Pha-*"*bus*; the meridional Exaltation, the golden Rays which "surround him, the mutability of his Shadows, his vel-"pertine Setting: the lofty tops of Mountains, unacces-"sible and ridgy Rocks, profound Valleys, large Plains,

"which

" which seem to meet Heaven, green Trees, and plea-
" sant Groves, delightful Hills, sweet and flowery Mea-
" dows, pleasant Streams, springing Fountains, flowing
" Rivers, stately Cities, famous Towers, large Bridges,
" magnificent Buildings, fruitful Orchards and Gardens,
" shapes of living Creatures, from the Elephant to the
" Ant, from the Eagle to the Wren, and from the Whale
" to the Shrimp, the wonderful forms of Insects, the
" marching of Armies, the besieging and storming of
" Garisons, the Insolencies of rude People, and flight
" of the Distressed, the desolation and depopulation of
" Kingdoms and Countries, the sailing of Ships, terrible
" Sea-fights, great beauty of Colours, together with thou-
" sands of other things, all which it digests, and mar-
" shals in ample Order, that when occasion may be, it
" may exert its store, for the benefit, advantage, advance-
" ment, and perfection of Art.

CHAP. II.

Of the farther Progress of these Arts.

I. *AS God Almighty (who is the Author of all Wisdom) was the first Institutor hereof, so also was he the Promulgator, by whom these Arts have made Progression in the World.*

Certainly, saith *Philostratus*, Picture is an Invention of the Gods, as well for the painted Faces of the Meadows adorned with Flowers, according to the several Seasons of the year; as for those things which appear in the Sky. What wonderful Eloquence is this! that in so few words, this Philosopher should clear so great a Point. But what saith *Gregorius Nyssenus?* Man, saith he, is an Earthen Statue: and *Suidas in Oratione prima de Beatitudinibus*, speaking of *Adam*, saith, This was the first Statue, the Image framed by God, after which all the Art of Carving used by Men received directions: *Lot*'s Wife was another, turned into a durable Pillar of Salt, of whom *Prudentius* (in *Harmartigenia*) saith, she waxed stiff, being changed into a more brittle substance, she

ſtandeth Metamorphoſed into Stone, apt to be melted, keeping her old poſture in that Salt-ſtone Image; her Comlineſs, her Ornaments, her Forehead, her Eyes, her Hair, her Face alſo (looking backward) with her Chin gently turned, do retain the unchangeable Monuments of her antient Offence; and though ſhe melteth away continually in Salt Sweat: yet doth the compleatneſs of her Shape ſuffer no loſs by that fluidity; whole droves of Beaſts cannot impair that ſavoury Stone ſo much, but ſtill there is Liquor enough to lick, by which perpetual loſs, the waſted Skin is ever renewed. To theſe let us add the Pattern of the *Tabernacle* ſhewed unto *Moſes* upon Mount *Sinai:* the *Brazen Serpent* made by the expreſs command of God: The *Pattern* of the *Temple* (which *David* gave unto *Solomon*) after the form which God made with his own Hand: *Ezekiel*'s Portraict of *Jeruſalem*, with its formal *Siege* upon a Tile, by expreſs command from God alſo: The *Brazen Statue* of our Lord *Jeſus Chriſt* erected by the Woman healed of the bloody Iſſue, as is mentioned by *Photius*, and *Aſterius* Biſhop of *Amaſa*, and other Eccleſiaſtick Writers.

II. *By virtue of this Divine Hand it was, that many Artiſts of old attained to a certain kind of perfection in theſe Arts.*

We will only refer the proof of this to the Examples in the 31 of *Exodus*, of *Bezaleel* and *Aholiab*; of whom God himſelf witneſſeth, that he called them by Name, to make the *Tabernacle*; and filled them with his Spirit, not only to deviſe curious Works *in Gold, in Silver, in Braſs, and in Silk*; but alſo gave them Skill to teach others the ſame.

III. *Nature alſo hath not been idle, but hath acted a Maſter-piece herein.*

To paſs by the glory of Flowers, the excellent comlineſs of Beaſts, (as in the ſpots of *Leopards*, tails of *Peacocks*, and the like) I will only remark the ſame of a Gem, which *Pyrrhus* (who made War with the *Romans*) had, of which *Pliny* in *lib.* 34. *cap.* 1. of his natural Hiſtory, reports, that it being an *Agath*, had the *nine Muſes*, and *Apollo* holding of a Lute depicted therein; the ſpots not by Art, but by Nature, being ſo ſpread over the Stone,

Stone, that each Muse had her peculiar mark. See *Gafferel, cap* 5.

IV. *The care of Parents in the Education of their Children, was another reason of the progress hereof.*

The *Grecians*, saith *Aristotle in cap.* 3. *lib.* 8. of his Politicks, did teach their Children the Art of Painting: and *Plutarch* saith, that *Paulus Æmilius* had Sculptors and Painters amongst the Masters of his Children, as well as Philosophers and Rhetoricians; and *Pliny* saith, that by the Authority of *Pamphilus*, this Art hath been ranked among the liberal Sciences, and that only Free-born Children should learn it. And *Galen* enumerating several Arts, as *Physick*, *Rhetorick*, *Musick*, *Geometry*, *Arithmetick*, *Logick*, *Grammar*, *and knowledge of Law*; add unto these, saith he, *Carving* and *Painting*. And as the *Grecians* were the first, that taught their Children these Arts, so also they provided betimes for them choice Masters.

V. *These Masters by their carefulness and vigilancy, not deceiving those that put their trust in them, became main Pillars of these Arts, and propagated them to Posterity; which by the addition of considerable Gifts and Rewards had an honourable Esteem in the World.*

Their care was manifest in laying down solid Principles of Art; of which *Quintilian in cap.* 2. *lib.* 12. of his Institutions of Oratory, saith, though Virtue may borrow some forward fits of Nature, yet she must attain to perfection by Doctrine. Their vigilancy was seen in watching, to apprehend their Scholars Capacities, that they might suit themselves accordingly; as in *Tully*'s Instance of *Isocrates*, a singular good Teacher, who was wont to apply the Spur to *Ephorus*, but the Bridle to *Theopompus*; and their Reward was eminent, as *Pliny* noted in *Pamphilus* his School, out of which *Apelles* and many other excellent Painters came, who taught no body under a Talent, (which is about 175 Pounds Sterling) thereby the better to maintain the Authority of Art.

VI. *Their Practice exactly agreed with their Precepts.*

As with *Seneca*, that Labour is not lost, whose Experiments agree with Precepts; so with *Quintilian* those Exam-

Examples may ſtand for Teſtimonies: and it was the Practice of Painters of old, as *Galen* witneſſeth concerning *Polycletus*, who hath not only ſet down in Writing the accurate Precepts of Art; but alſo that he made a Statue according to the Rules of Art contained in thoſe Precepts.

VII. *Theſe Precepts which they taught their Scholars, they delivered in Writing, that they might ever accompany them whereſoever they went.*

Apelles gave the Precepts of this Art to his Diſciple *Perſeus* in Writing, as *Polycletus* did to his: beſides innumerable others now in being, too tedious here to recite. The like did theſe following, *Adæus*, *Mylenæus*, *Alcetas*, *Alexis* the Poet, *Anaſimenes*, *Antigonus*, *Ariſtodemus*, *Carius*, *Artimon*, *Callixenus*, *Chriſtodorus*, *Democritus*, *Epheſius*, *Duris*, *Eupherion*, *Euphranor*, *Iſthmius*, *Hegeſander Delphicus*, *Hippias Elew*, *Hypſicrates*, *Iamblicus*, *Juba* Rex Mauritaniæ, *Malchus*, *Bizantius*, *Melanthius*, *Menæchmus*, *Menetor*, *Pamphilus*, *Polemon*, *Porphyrius*, *Praxiteles*, *Protogenes*; *Theophanes*, *Xenocrates*, and many others, the chief of whoſe Works are now loſt.

VIII. *As Arts came now into Eſtimation, ſo at length Laws were eſtabliſhed for their preſervation; and Puniſhments for their Prevarication.*

The beginning of theſe Laws was firſt at *Argos*, *Epheſus*, *Thebes* and *Athens*, as alſo in *Egypt*, where a Workman (ſaith *Diodorus Siculus*) is fearfully puniſhed, if he undertake any Charge in the Commonwealth, or meddle with any Trade but his own: the which Law, ſaith *Herodotus*, the *Lacedæmonians* did alſo approve of. By means of which Laws it was, that the Artiſts of thoſe Nations attained to ſuch a perfection of Art, as we ſhall hereafter relate.

IX. *The fervent deſire and love of Emulation to excel others; the commendable Simplicity of Art; together with the content and ſatisfaction of doing ſomething well, gave a large progreſs towards the advance of Art.*

It was nobly ſaid of *Scipio Africanus*, that every magnanimous Spirit compares himſelf, not only with them that are now alive; but alſo with the famous Men of all Ages; whereby it appears, that great Wits are always by the Sting of Emulation, driven forwards to great Matters; but he that by too much love of his own Works,

com-

compares himself with no body, must needs attribute much to his own Conceits. Dost thou desire the glory of Swiftness, saith *Martial*, (*in Epigr. 36. lib.* 12.) strive to out-go the *Tyger*, and the light *Ostrich*; it is no glory at all to out-run *Asses*. This *Emulation* is the force of great Wits, whereby our Imitation is provoked sometimes by Envy, and sometimes by Admiration, whereby it falls out, that the thing we earnestly seek after, is soon brought to some height of perfection; which perfection consists in exact Imitation, according to the Simplicity of Art, and not in gaudy Appearances, which adorns the Shadows much more than ever Nature adorned the Substance. This Imitation of the Life gave the *Artizan* Fame; which Fame quickened his aspiring Thoughts, adding more Fuel to the Flames, till such time as he brought forth a most absolute Work, whereby he conceived a joy, content and satisfaction, as durable as the Work it self, upon which he now conceived himself a happy Man, and through a just affiance of his Virtues, knows himself to be lifted up above the reach of Envy, where he stands secure of his Fame, enjoying in this Life (as if he were now Consecrated unto Eternity) the Veneration that is like to follow him after his Death; thus an honest *Emulation* and *Confidence*, bringing forth Works of general Applause, procureth unto its Author an everlasting Glory. Now, what a comfortable thing is this, to have a fore-feeling of what we shall afterwards attain to!

X. *Another reason of the Augmentation of these Arts, was the manifold uses thereof among Men, either for good or evil Purposes.*

As in natural Sciences, where words come short, a little Picture giveth us the knowledge of Beasts, Birds, Fishes, and other Forms, as well Inanimate as Animate: In the *Tacticks*, how should a General know how to set his Men in array, unless he try the case by Design or Delineation? so in *Architecture* to pourtray Platforms after any fashion, and to work out the Patterns of high and mighty Buildings in a little Wax, keeping in so small an Example, the exact proportion of the greater Structure: in *Geometry* the exactness of Lines, Angles, Surfaces and Solids: in *Botanologia* the exact shapes of Herbs, Plants and Trees: in *Zoologia* the shapes of all living

living Creatures: in *Anthropologia*, the exact Description of all the parts of Man's Body inward and outward: in *Chymia*, the forms of all Chymical Vessels and Operations: in *the Lives of Illustrious Men and Princes*, to express their Forms and Shapes to the Life, that Age might not prevail against them, deserving thereby (as *Varro* saith) the Envy of the Gods themselves: in *Geography*, to describe in small Maps Kingdoms, Countries, and Cities, yea, the whole World: in *Policy*, as *Michal* in saving her Husband *David*, *Ptolomæus* in the Image of *Alexander*, which he willingly let *Perdiccas* catch from him, supposing it to have been the Body it self, thereby avoiding much Blood-shed: *Cyrus* his wooden *Persians* in the Siege of *Sardis*, by which the Towns-men being frighted, yielded the City: *Epaminondas* at *Thebes*, by the Image of *Pallas* did Wonders: *Amasis* King of *Egypt*, his golden Image made of the Basin, in which his Feet used to be Washed, which the *Egyptians* religiously Worshipped, whereby he brought them to affect him, being now a King, who was of an ignoble and base Parentage; the wooden *Elephants* of *Perseus*, King of *Macedonia*, with which he wonted his Horses, that they might not be frighted in time of Battel. The Ornaments of Temples, Market-places and Galleries, places both publick and private. *Julius Cæsar*'s Image in Wax, hideous to look to, for 23 gaping Wounds he received, did mightily stir up the *Romans* to revenge his Death. Worthy Men, which had deserved well of the World, had their Memories conserved with their Images; by which all those that aspire to Goodness, and to follow their steps, are likewise filled with Hope. The *Athenians* have erected unto *Æsop* a most goodly Statue, saith *Phædrus*, and have set a contemptible Slave upon an everlasting Base, *that all might understand, how the way of Honour lieth open to every one, and that Glory likewise doth not so much follow the Condition of our Birth as the Virtues of our Life*. *Berosus* excelled in *Astrology*, wherefore the *Athenians*, for his Divine Prognostications, erected him a Statue with a golden Tongue, set up in their publick Schools, as *Pliny* saith, *lib. 7. cap. 37*. Publick Libraries were furnished also with Golden, Silver, and Brass Images of such, whose Immortal Souls did speak in those places. The Provocations of Vices have also augmented the Art; it hath been plea-

pleasing to Engrave wanton Lusts upon their Cups; and to drink in *Ribauldry* and *Abominations*, as *Pliny* saith in the Proem of his 33. Book.

XI. *The use therefore of these Arts extending it self so universally to all Intents both in War and Peace, it came to pass that Artificers were honoured by all sorts of Men, which themselves perceiving, did still endeavour to encrease this enjoyed favour, by a daily advance of their Skill.*

By Kings they were Honoured; for *Demetrius*, whilest at the Siege of *Rhodes*, came to *Protogenes*, leaving the hope of his Victory to behold an Artificer. *Alexander* the Great came also to *Apelles* his Shop, often accompanied with many Princes. It was his will that none but *Polycletus* alone should Cast his Statue in *Brass*, that none but *Apelles* alone should Paint him in *Colours*, that none but *Pyrgoteles* alone should *Engrave* him. The Estimation of the Artists were also understood from the Esteem and high Rates their Works were prized at: a Picture of *Bularchus*, a Painter, was valued at its weight in Gold by *Candaules* King of *Lydia*: *Aristides* was so singular in his Art, that it is reported of King *Attalus*, that he gave an hundred Talents (which is about 17500 Pounds Sterling) for one of his Pictures. As much had *Polycletus* for one of his. *Apelles* had for Painting the Picture of *Alexander* the Great 3500 Pounds, given him in Golden Coin. *Cæsar* paid to *Timomachus* 80 Talents (about 14000 Pounds Sterling) for the Pictures of *Ajax* and *Medea*. Many more Examples we might produce, but these may suffice; at length no Price was thought equal to their worth: so *Nicias*, rather than he would Sell his Picture, called *Necyia* to King *Attalus*, who proffered him 60 Talents, (worth near 11000 Pounds Sterling) bestowed it as a Present upon his Country.

XII. *Art meeting with such Successes, created a boldness in Artificers, to attempt even the greatest Matters.*

The great *Colosses* of the Antients may serve here for an Example; *Zeuxes*, above all the rest, hath been admired for his Boldness: *Euphranor* also excelled *Parrhasius* in this kind, in that the *Theseus* of the one so infinitely excelled the *Theseus* of the other. So great an Excellency of Spirit arose in the old Artificers, as not to be daunted by the Authority of those, who were like to censure their Works: it was a great mark they aimed at, to avoid a pre-

prepoſterous Shame or Fear. And this they accompliſhed by taking care, not only to give them content, who muſt of neceſſity be contented with the Work, but alſo that they might ſeem admirable unto them, which may judge freely without controul. So they heeded to do well in the Opinion of accurate and judicious Spectators, rather than to do that which liked themſelves. And therefore whatſoever is dedicated unto Poſterity, and to remain as an Example for others, had need be well done, Neat, Poliſhed, and made according to the true Rule and Law of Art, foraſmuch as it is likely to come into the hands of skilful Artificers, judicious Cenſurers, and ſuch as make a narrow ſcrutiny into every defect. But as it is impoſſible to attain to an Excellency, or height of any thing without a beginning, ſo do the firſt things in going on of the Work, ſeem to be the leaſt; the height of Arts, as of Trees, delighteth us very much, ſo do not the Roots; yet can there be no height without the Roots. And therefore we ſhall find, that a frequent and continual Exerciſe, as it is moſt laborious, ſo it is moſt profitable; ſeeing *Nature doth begin, hope of Profit doth advance, and Exerciſe doth accompliſh the thing ſought after.* In ſum, by doing quickly, we ſhall never learn to do well; but by doing well, it is very likely we may learn to do quickly. To this ſpeedy and well doing there belongeth three things, *viz.* To add, to detract, and to change. To add or detract, requireth leſs Labour and Judgment; but to depreſs thoſe things that ſwell, to raiſe thoſe things that ſink, to tye cloſe thoſe things which are ſcattered, to digeſt things that are without order, to compoſe things that are different, to reſtrain things that are inſolent, requireth double pains: for thoſe things may be condemned, which once did pleaſe, to make way for Inventions not yet thought of. Now without doubt, the beſt way for Emendation, is to lay by the Deſign for a time, till it ſeem unto us as new, or anothers Invention; leſt our own, like new Births, pleaſe us too much.

XIII. Laſtly, *That which gave the greateſt, and as it were, the laſt ſtep towards the augmentation of Art, was that free liberty which Artizans gave every one, to cenſure, to find fault with their Works, and to mark their Defects.*

It was the Opinion of *Seneca*, that many would have attained unto Wiſdom, if they had not conceived themſelves

selves to be Wise already. When *Phydias* made *Jupiter* for the *Eleans*, and shewed it, he stood behind the Door listning what was commended, and what discommended in his Work: one found fault with the grosness of his Nose, another with the length of his Face, a third had something else to say: now, when all the Spectators were gone, he retired himself again to mend the Work, according to what was liked of the greater part; for he did not think the Advice of such a Multitude to be a small matter, judging that so many saw many things better than he alone, though he could not but remember himself to be *Phydias*. But yet Artificers did not from hence admit their Judgments generally in every thing, but they followed their Directions only *in such things as did belong to their Profession*. As when *Apelles* made a Work, he exposed it in a place where all that passed by might see it; hiding himself in the mean time behind the Picture, to hear what faults were marked in his Works, preferring the common People before his own Judgment. And he is reported to have mended his Work, upon the *Censure of a Shoo-maker*, who blaming him for having made fewer Latchets in the inside of one of the Pantoffles, than of the other: the Shoo-maker finding the Work the next day mended according to his Advice, grew proud, and began to find fault with the Leg also; whereupon *Apelles* could not contain himself any longer, but looking forth from behind the Picture, said, *Ne sutor ultra crepidam*, he bid the Shoo-maker not go beyond his Last; from whence at last came that Proverb. He is the best Man that can advise himself what is fit to be done; and he is next in goodness, that is content to receive good Advice: but he that can neither advise himself, nor will be directed by the Advice of others, is of a very ill Nature.

CHAP.

CHAP. III.

Of the Consummation or Perfection of the Art of Painting.

I. *AS Invention gave way to the advancement of Art, so the advancement of the same made way for its Perfection.*

The Invention arose from the appearance of things natural, conceived in *Idea's*, as we have abundantly signified *(in the first Chapter of this Book)* the Advance from the bringing of those *Idea's* to light through practice *(by Chap. 2.)* from whence arose things *very excellent for Greatness, very good for their Usefulness, choice for their Novelty, and singular for their kinds.*

II. *Ease of Invention, plenty of Matter, and neatness of Work, were steps by which Art was Consummated. For ease of Invention gave Encouragement, plenty of Matter gave Formation, and Neatness gave Delight*; all which so conspired together, to put so much of Emulation into the Artificer, to undertake or endeavour to do those things, which in their kind might never after be exceeded: this indeed was their aim of old, which although the Antients of this Art could never attain unto, yet did they make such way, that some of their Followers have done those things, which never any after them could ever mend, nor themselves scarcely come near. Easie Invention springs out of a great and well rooted fulness of Learning; by being conversant in all sorts of Studies, having familiarity with Antiquities; the knowledge of innumerable Historical and Poetical Narrations, together with a through Acquaintance with all such Motions and Idea's of the Mind, as are naturally incident unto Men: for the whole force of this Art doth principally consist in these things, nothing bearing a greater sway in the manifold varieties of *Painting*.

III. *It was the Opinion of* Pamphilus *(the Master of* Apelles*) that without the knowledge of Arithmetick, Geometry, and the Opticks, this Art could not be brought to Perfection.*

The

The Examples of *Phidias* and *Alcamenes* is pertinently brought here: The *Athenians* intending to set up the Image of *Minerva* upon a high Pillar, employed those two Workmen, purposing to chuse the better of the two; *Alcamenes* (having no Skill in *Geometry* nor the *Opticks*) made her wonderful Fair to the Eye of them that saw her near. *Phidias* contrariwise (being Skilful in all Arts, chiefly the *Opticks*) considering that the whole Shape would change according to the height of the place, made her Lips wide open, her Nose somewhat out of order, and all the rest accordingly, by a kind of Resupination: the two Images being brought to view, *Phidias* was in great danger to have been Stoned by the Multitude, until at length the Statues were set up; where the sweet and excellent stroaks of *Alcamenes* were drowned, and the disfigured distorted hard-favouredness of *Phidias* his Work vanished (and all this by the height of the place;) by which means *Alcamenes* was Laughed at, and *Phidias* much more Esteemed. Of like perfection is *Annulus* his *Minerva*; the Image of *Juno* in the Temple of the *Syrian* Goddess; the Head of *Diana* exalted at *Chios*, made by *Bupalus* and *Anthermus*, *Hercules* in the Temple of *Antonia*, *&c.* An Artificer, saith *Philostratus* in *Proœmio Iconum*, must understand the Nature of a Man throughly, to express all his Manners, Guise, Behaviour, *&c.* he must discern the force in the Constitution of his Cheeks, in the turning of his Eyes, in the casting of his Eye-brows; in short, he must observe all things which may help the Judgment; and whosoever is thus furnished, will doubtless excel and bring things to perfection; he then may easily Paint a Mad-man, an Angry-man, a Pensive-man, a Joyful-man, an Earnest-man, a Lover, *&c.* in a word, the perfection of whatsoever may possibly be conceived in the Mind.

IV. *Continual observation of exquisite Pieces, (whether Artificial or Natural) nimble Conceptions, and Tranquility of Mind, are great means to bring Art to Perfection.*

The Works of the Antients could never have been so exquisite in the Expression of Passions, but by these means. How perfectly did *Zeuxis* Paint the modest and chaste Behaviour of *Penelope*; *Timomachus* the raging mad Fit of *Ajax*; *Silanion* the Frowardness of *Apollodorus*; *Protogenes* the deep Pensiveness of *Philiscus*; *Praxiteles* the Re-

joycings of *Phryne*; *Parrhasius* a Boy running in Armour; and *Aristides* his *Anapauomenos* Dying for Love of his Brother? *Bodius* his Image of *Hercules*, is of the same nature: *Themistius* shews us the true Image of feigned Friendship; *Agellius* a most lively Image of Justice; *Apelles* an admirable Picture of Slander; thousands of Examples more might be drawn out of antient Authors, to approve these things, if these may be thought not sufficient.

V. *This Perfection also lyeth in the truth of the matter, the occasion thereof, and Discretion to use it.*

The most antient and famous Painters did make much account of Truth, and had rather lose the neatness and glory of their Pieces, than to endanger the truth of their Story; which indeed is the great Commendation of a Picture, for as much as *Lucian* saith, That nothing can be profitable but what proceeds from Truth. Occasion also is a great matter; the Picture of *Bacchus* may here serve for an excellent Example, whose Passion of Love was so clearly expressed therein; casting aside his brave Apparel, Flowers, Leaves, Grapes, *&c.* Now, in representing things truly according to the occasion, Discretion ought to be your Guide; for as in Tragedies, so also in Pictures all things ought not to be represented; let not *Medea* (saith *Horace in libro de Arte*) Murder her own Children in the presence of all the People; let not the wicked *Atreus* Boil Humane Flesh openly; there are doubtless many things, which had better be left out, though with some loss of the Story, than with the loss of Modesty; wanton, unlawful and filthy Lusts, (though they may gain the vain title of Wit) yet they diminish not only the Estimation of the Work-man, but also the Excellency of the Work, debarring it of perfection. Precepts help Art much, in propounding unto us the right way; but where they fail, our Wits must supply, by warily considering what is decent and convenient; for this Art requireth studious Endeavours; assiduous Exercitations, great Experience, deep Wisdom, ready Counsel, Veracity of Mind, diligent Observations, and great Discretion.

VI. *To the former add Magnificence, which gives Authority to things excellent.*

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Great minded Men are moſt of all given to entertain ſtately Conceits; therefore an *Artizan* ought to be of a magnanimous Nature; if not, yet that at leaſt he ought with a determined Reſolution to aim at magnificent things. So it ſeems, that Nature did diſpoſe *Nicophanes* to a high ſtrain of Invention; *Nicophanes* (ſaith *Pliny, lib.* 35. *cap.* 10.) was gallant and neat, ſo that he did Paint *Antiquities* for *Eternity*, whereby he was commended for the magnificence of his Work, and gravity of his Art. Such Artificers therefore as do bring any thing to perfection, muſt be of an exceeding great Spirit, and entertain upon every occaſion great Thoughts and lofty Imaginations; by this means they ſhall gain an everlaſting Fame; but this is impoſſible (ſaith *Longinus*) for any who buſie the Thoughts and Studies of their Life about vile and ſlaviſh Matters, to bring forth any thing which might deſerve the admiration of ſucceding Ages. If any *Artizan* be not naturally of ſo great a Spirit, let him help himſelf by the reading of Hiſtory and Poeſie. Hiſtory cannot but inſpire a magnanimous Spirit, when ſhe repreſents to us ſo many rare Exploits, and the Examples of ſo many great, noble and valiant Souls, who throughout all Ages, in the midſt of moſt eminent Dangers, have demonſtrated their Virtues and Spirits not only to thoſe preſent, but all ſucceeding times. Poeſie alſo being of a haughty and lofty Stile, doth much enlarge the Mind, and from thence many excellent things are brought: the much admired *Elean Jupiter* which *Phidias* made, himſelf confeſſed to be formed after the Image of *Jupiter* deſcribed in *Homer*. From the ſame Poet did *Apelles* Paint the Image of *Diana* among the Sacrificing Virgins. It is not the preſent Age, but the Sacred Memory of all Poſterity, which gives unto us a weighty and durable Crown of Glory.

VII. *Exact Analogy or Proportion, not only advanced Art, but alſo brought it a degree nearer Perfection.*

Philoſtratus calls it *Symmetrie*, ſome *Analogy*, others *Harmony*; this is the Appellation of the *Greeks*; what the *Latins* called it ſcarcely appears, (as *Pliny* ſaith *lib.* 34. *cap.* 8.) yet words equivalent in power thereto are found, as *Congruens*, *Equality*; and *Tully (libro primo de Officiis)* calls it *Agreement* and apt *Compoſition*, *Vitrivius*, *Commodulation*; *Agellius* calls it a *natural Competence*; *Quintilian* approves the word *Proportion*; by which, ſaith

Plutarch, beautiful things are perfected: it is one of those things which the most High used in the Fabrication of the World, (*Wisd.* 11. 20.) *He hath disposed all things in measure, and number, and weight.* The first giver of *Symmetrie* or *Analogy* was *Parrhasius*; *Polycletus* was a diligent Observer thereof; *Asclepiodorus*, an exact Practiser thereof, whose Admirer was *Apelles*, who esteemed it to proceed out of some Perfections in an Artificer surpassing in Art, and which is most apparent in naked and undisguised Bodies. *Strabo* saith, that *Phidias* exactly observed this proportion in the Image of *Jupiter Olympicus* sitting. The same *Phidias*, as *Lucian* reports, could exactly tell upon the first sight of a Lions Claw, how big a Lion he was to make in proportion to the same Claw. Lineal Picture is the Foundation of all Imitation, which if it be done after the true Rules of Proportion, will lively represent the thing delineated: this is a Perfection in kind, which yet cannot be compared to the perfection of a coloured Picture.

VIII. *This point of Perfection was farther advanced by the exquisiteness of Colouring.*

The perfection of Colouring ariseth from a certain right understanding of each Colour severally, without which it is impossible to mix any thing rightly, as *Hermogenes* saith. The *Greeks* (as *Porphyrius*) call this mixtion of Colours, *Corruption*, which word *Plutarch* also used, when he said, that *Apollodorus* (who first found out the Corruption, or way of Shadowing in Colours) was an *Athenian*. *Lucian* calls it *Confusion*, where he saith, that by the Art of Painting, Images were made by a moderate confusion of Colours, as White, Black, Yellow, Red, *&c.* by which, as *Philostratus* saith in *Prooemio Iconum*, we know how to imitate the Diversities of looks in a Mad-man, in a sad or cheerful Countenance: the colour of the Eye, as brown, gray or black; of the Hair, as golden, ruddy, bright or flaxen; of the Cloaths, as Cloth, Leather, or Armour; of Places, as Chambers, Houses, Forests, Mountains, Rivers, Fountains, *&c.* this is done by the accurate mixtion, due Application, and convenient Shadowing, as *Lucian* saith in *Zeuxide*; through the Observation of light, shadow, obscurity and brightness, as *Plutarch* will have it. For this cause, saith *Johannes Grammaticus*, is a white or golden Picture made upon a black ground. Light

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is altogether neceſſary, ſeeing there can be no ſhade without it: Light and Shadow cannot ſubſiſt aſunder, becauſe by the one the other is apparent, for thoſe things which are enlightned ſeem to ſtick out more, and to meet the Eyes of the Beholder; thoſe which are ſhaded to be depreſſed. This ſame of Light and Shadow, *Nicias* the *Athenian* did moſt accurately obſerve; as alſo *Zeuxis*, *Polygnotus* and *Euphranor*, as *Philoſtratus* ſaith in *libro ſecundo de vita Apollonii, cap. 9.* *Apelles* Painted *Alexander* as if he held Lightning in his Hand; *Philoſtratus* obſerved the ſame in the Picture of an Ivory *Venus*, ſo that one would think it an eaſie matter to take hold of her; *Pauſias* arrived to ſuch an excellency in this, as ſcarcely any after could attain unto, as in the Painted Ox, ſaith *Pliny*, which he made inimitable. Obſcurity or Darkneſs is only the duskineſs of a deeper Shadow, as Brightneſs is the Exaltation of Light: if White and Black be put upon the ſame Superficies, the White will ſeem neareſt, the Black farther off: this being known to make a thing ſeem hollow, as a Ditch, Cave, Ciſtern, Well, *&c.* it is coloured with Black or Brown; and ſo much the blacker, ſo much the deeper it ſeems; extream Black repreſenting a bottomleſs depth; but to make it riſe, as the Breaſts of a Maid, a ſtretched-out Hand, *&c.* there is laid round, or on each ſide, ſo much black or brown, as may make the parts ſeem to ſtick out, by reaſon of the adjacent hollowneſs; brightneſs is ſometimes uſed for neceſſity, but generally for Ornament, (as in the Pictures of *Angels*, *Gems*, *Armour*, *Flame*, *Flowers*, *Gold*, and the like) the which is made always with a mixture of light; which mixtion Painters call *Harmoge*, but is nothing elſe ſave an undiſcernable piece of Art, by which the *Artizan* ſtealingly paſſeth from one colour into another, with an inſenſible diſtinction; this *Harmoge* is moſt perfect in the Rainbow, which containing evident variety of Colours, yet leaves them ſo indiſtinguiſhable, as that we can neither ſee where they begin, nor yet where they end, as *Boethius* obſerves in *libri quinti de arte muſica capite quarto.* The laſt and chief perfection of Colouring lieth in the out-lines or extremities of the Work, being cut off with ſuch a wonderful ſubtilty and ſweetneſs, as to preſent unto us things we do not ſee, but that we ſhould believe that behind the Pictures, there is ſomething more to be ſeen, than can

eaſily be diſcerned; thereby ſetting forth, as it were, thoſe things which are really concealed, this was *Perrhaſius* his chief glory; but herein *Apelles* exceeded all others whatſoever, as *Petronius* in *Satyrico* ſeems to affirm.

IX. *Action and Paſſion is next to be conſidered, in which conſiſts Life and Motion.*

There is not any thing that can add a more lively grace to the Work, than the extream likeneſs of Motion, proceeding from the inward Action or Paſſion of the Mind. It is therefore a great point of Art, which leads unto Perfection, the which we are to learn by caſting our Eyes upon Nature, and tracing her ſteps. Conſider all the Geſtures of the Body, as the Head, by which is expreſſed the Affections of the Mind. The caſting down of the Head, ſheweth dejection of Mind; being caſt back, Arrogance; hanging on either ſide, languiſhing; being ſtiff or ſturdy, churliſhneſs: by it we grant, refuſe, affirm, threaten; or paſſively, or baſhful, doubtful, ſullen, envious, *&c.* by the motions of the Countenance appears Sorrow, Joy, Love, Hatred, Courteſie, Courage, Dejection, *&c.* by the motions of the Countenance, are expreſt the Qualities of the Mind, as Modeſty and Shamefacedneſs, or Boldneſs and Impudence: but of all the parts of the Countenance, the Eyes are moſt powerful, for they, whether we move or move not, ſhew forth our Joy or Sorrow; this is excellently expreſt by the Prophet, in *Lam.* 3. 48. פלג מים תרד עיני על שבר בת עמי *palge majim terrad gueni, gnal ſheber bat gnammi*, which *Tremellius* renders, *Rivis aquarum perfluit oculus meus, propter contritionem filiæ populi mei:* and again עיני נגרה ולא חדמה *gueni niggerah velo tidmah*, i. e. *oculus meus defluit nec deſiſtit.* For the ſame purpoſe it is that Nature hath furniſhed them with Tears; but their Motion doth more eſpecially expreſs the Intention, as Meekneſs, Pride, Spiteſulneſs, and the like; all which are to be imitated, according as the Nature of the Action ſhall require, as ſtaring, cloſed, dull, wanton, glancing, asking or promiſing ſomething. The Eye-brows alſo have ſome actions, for they chiefly command the Fore-head by contracting, dilating, raiſing and depreſſing it; wrinkled Brows ſhew Sadneſs and Anger; Diſplayed, Cheerfulneſs; Hanging, Shame; Elation, Conſent; Depreſſion, Diſſent, *&c.* The Lips ſhew Mocking, Scorning, Loathing, *&c.* The Arm gently caſt forth, is graceful in fami-

familiar Speech; but the Arm ſpread forth towards one ſide, ſhews one ſpeaking of ſome notable Matter; without the motion of the Hands all motion is maimed: the Hands, as it were, *call, diſmiſs, threaten, requeſt, abhor, fear, ask, demand, promiſe, deny, doubt, confeſs, repent, number, meaſure, rejoyce, encourage, beſeech, hinder, reprove, admire, relate, commend*, &c. In admiration we hold the Hand up, bent ſomewhat backward, with all the Fingers cloſed: in relating we join the top of the Fore-finger to the Thumb-nail: in promiſing we move it ſoftly: in exhorting or commending, more quick: in penitence and anger, we lay our cloſed Hand to the Breſt: we cloſe the Fingers ends, and lay them to our Mouth when we conſider, *&c.* It is not yet enough that the Picture or Image reſembles the proportion and colour of the Life, unleſs it likewiſe reſembles it in the demeanour of the whole Body; therefore *Calliſtratus* calls this Art, the Art of Counterfeiting Manners. *Ulyſſes* is evidently, ſaith *Philoſtratus*, diſcerned by his Auſterity and Vigilancy; *Menelaus* by his gentle mildneſs; *Agamemnon* by a kind of Divine Majeſty; *Ajax Telamonius* by his grim look; *Locrus* by his readineſs and forwardneſs. The beſt Artiſts ever change their Hands, in expreſſing of *Gods, Kings, Prieſts, Senators, Orators, Muſicians, Lawyers*, &c. *Zeuxis* Painted the Modeſty of *Penelope: Echion* made a new Married but Shamefaced Woman: *Ariſtides* Painted a running Chariot drawn with four Horſes: *Antiphilus* made a Boy blowing the Fire: *Philoxenus Eretrius* depicted the Picture of Wantonneſs: *Parrhaſius* made the *Hoplitides* or Pictures of two Armed Men, as may be ſeen in *Pliny lib.* 35. *cap.* 9, 10, and 11. *Boethius* made a Babe ſtrangling a Gooſe: *Praxiteles* made a weeping Woman, and a rejoycing Whore: *Euphranor* drew the Picture of *Paris* as a Judge, a Wooer and a Soldier: ſee *Pliny lib.* 34. *cap.* 8. where you may have many other Examples. It is worth our pains to ſee in *Calliſtratus* theſe Deſcriptions at large, whereby we may ſee it is a ſingular *perfection of Art.*

X. *The laſt ſtep of Perfection is the right ordering and diſpoſing of things.*

This Order or Diſpoſition muſt be obſerved as well in a Picture conſiſting of one Figure, as in a Picture of many Figures. The Nature of Man, ſaith *Xenophon* in *Oeconomico*, cannot name any thing ſo uſeful and fair, as Or-

der; a confused piece of Work cannot deserve admiration; those things only affect us, wherein every part is not only perfect in it self, but also well disposed by a natural Connexion. It is not enough in a Building to bring Hair, Lime, Sand, Wood, Stones, and other Materials, unless we take care that all this confused Stuff be orderly disposed to the Intent. Nature it self seems to be upholden by Order, and so are all things else which are subjugated to the same Law. Now, the way to attain to this true order of Disposition, is, *First*, To conceive the *Idea* of the History in the Imagination, that the presence of the things in the mind may suggest the order of disposing each thing in its proper place, yet with that subtility, that the whole may represent one entire Body. *Secondly*, That the fraime of the whole Structure of this Disposition may be analogous to the things themselves; so that we may at once represent things which are already done, things which are doing, and things which are yet to be done; perfecting, as *Philostratus* saith, in every one of these things, what is most proper, as if we were busied about one only thing. *Thirdly*, An Historical Picture must represent the series of the History, which although the Picture be silent, yet that the Connexion might (as it were) speak, putting the principal Figures in the principal places. *Fourthly*, The parts must be connected, easily rolling on, gently flowing or following one another, hand in hand, seeming both to hold and be upheld, free from all abruption, well grounded, finely framed, and strongly tyed up together; that the whole may be delightsome for its Equality, grave for its Simplicity, and graceful for its universal Analogical Composure. *Fifthly*, That most excellent pieces (if the History will suffer it) be shadowed about with rude Thickets, and craggy Rocks, that by the horridness of such things, there may accrew a more excellent grace to the principal; (just as Discords in Musick make sometimes Concords) from whence results a singular Delight. *Sixthly*, That to these things be added *Perspicuity*; which, as *Lucian* saith, through the mutual Connexion of things, will make the whole compleat and perfect. *Seventhly*, *and lastly*, That the disposition of the proportion be observed, in the due distance of each Figure, and the position of their parts, of which we have said something, *Section seventh*; but in general

Pliny

Pliny (*lib.* 35. *cap.* 10.) saith, that in this general disposition of proportional distances, we have no Rules; our Eye must teach us what to do; to which *Quintilian* assents, where he saith, that these things admit no other Judgment, but the Judgment of our Eyes.

XI. Lastly, *For the absolute Consummation or Perfection of the Art, Excellency of Invention, Proportion, Colour, Life and Disposition, must universally concur, and conspire, to bring forth that comely gracefulness, which is the very Life and Soul of the Work, the entire and joint Summ of all Perfections.*

It is not enough, that a Picture is excellent in one or more of the aforesaid Perfections, but the Consummation is, that they all concur; for if but one be wanting, the whole Work is defective. A good Invention affects the Mind; true Proportion draws the Eyes; lively Motion moves the Soul; exquisite Colours beguile the Phantasie; and an orderly Disposition wonderfully charms all the Senses; if all these unite and center in one piece, how great an Excellence and Perfection will appear? *What a comely Grace?* this Grace it is, which in beautiful Bodies is the Life of Beauty, and without which, its greatest Accomplishments cannot please the Beholder. For it is not so much the perfection of Invention, Proportion, Colours, Motion and Disposition apart, which affect the Senses, but all those Perfections absolutely united, which brings forth that comely Grace, and highest Perfection, which Art aims at, and the Artizan strives after. This Grace proceeds not from any Rules of Art, but from the excellent Spirit of the Artificer; it is easier attained by Observation and a good Judgment, than learned by Precepts, as *Quintilian* in his Institutions, *lib.* 11. *cap.* 1. learnedly observes. And this Grace is most graceful when it flows with Facility, out of a free Spirit, and is not forced or strained out with Labour and Toil, which quite spoils and kills the life of the Work: Now, this Facility springs from Learning, Study and Exercitation. Art and Nature must concur to the Constitution of this Grace; Art must be applied discreetly to those things which we naturally affect, and not to things which we loath; lest we miss of that Glory which we seek after.

CHAP. IV.

How the Antients Depicted their Gods; and first of Saturn.

WE here intend to comprehend the various ways of the Antients in Depicting their Idols, according to the Customs of those several Nations, where they were Adored and Worshipped, and that from the most antient, chiefest and best approved Authors now extant.

I. The antient *Romans* figured *Saturn* like an old Man, with a Scythe or Hook in his Hand, by some signifying *Time*, as his name *Chronos* also intimates.

II. They also figured him in the shape of a very Aged Man, as one who began with the beginning of the World, holding in his Hand a Child, which by piecemeals he seems greedily to devour.

By this is signified the Revenge he took for being expulsed Heaven by his own Children, of which those which escaped his Fury, were only four, Jupiter, Juno, Pluto *and* Neptune, *by which is shadowed forth the four Elements,* Fire, Air, Earth *and* Water, *which are not perishable by the all-cutting Sickle of devouring Time.*

III. *Martianus Capella* Depicts him an old Man, holding in his Right Hand a Serpent, with the end of its Tail in its Mouth, turning round with a very slow pace, his Temples girt with a green Wreath, and the Hair of his Head and Beard milk white.

The Wreath on his Head shews the Spring-time, his snowy Hair and Beard the approach of churlish Winter; the slowness of the Serpents motion, the sluggish Revolution of that Planet.

IV. *Macrobius* describes him with a Lions-head, a Dogs-head, and a Wolfs-head.

By the Lions-head is signified the time present, (which is always strongest, for that which is, must needs be more powerful than that which is not) by the Dogs-head, the time to come, (which always fawns on us, and by whose alluring Delights we are drawn on to vain and uncertain hopes) and by the Wolfs-head, time past, (which greedily devoureth whatsoever it finds, leaving no memory thereof behind.)

V. *Macro-*

V. *Macrobius* also saith, that among the rest of his Descriptions, his Feet are tyed together with threads of Wooll.

By which is shewed, that God does nothing in haste, nor speedily castigates the Iniquities of Man, but proceeds slowly and unwillingly, to give them time and leisure to amend.

VI. *Eusebius* saith, that *Astarte* (the Daughter of *Cœlum*, Wife and Sister of *Saturn*) did place also upon his Head two Wings, demonstrating by the one, the excellency and perfection of the Mind; by the other, the force of Sense and Understanding.

The Platonicks understand by Saturn *the Mind, and its inward Contemplation of things Cœlestial, and therefore called the time in which he lived, the Golden Age, it being replete with Quietness, Concord, and true Content.*

CHAP. V.

How the Antients Depicted Jupiter.

I. ORpheus describes him with golden Locks, having on his Temples peeping forth two golden Horns, his Eyes shining, his Brest large and fair, having on his Shoulders Wings.

By the golden Locks is signified the Firmament, and its glorious Army of Tralucent Stars: by his two Horns, the East *and* West: *by his Eyes, the Sun and Moon: by his Brest, the spacious Ambulation of the Air; and by his Wings, the Fury of the Winds.*

II. *Porphyrius* and *Suidas* Depicted the Image of *Jupiter* sitting upon a firm and immoveable Seat; the upper parts naked and uncloathed, the lower parts covered and invested; in his Left Hand a Scepter; in his Right Hand a great Eagle, joined with the Figure of *Victoria*.

This Image was erected in Piræus, *a stately and magnificent Gate of* Athens: *by the Seat is shewed the Permanency of God's Power: the naked parts shew that the Compassion of the Divine Power is always manifest to those of an understanding Spirit: the lower parts covered, shew that while we wallow in the World, and as it were rock'd asleep with the illicebrous Blan-*

Blandiſhments thereof, that the Divine Knowledge is hid and obſcured from us: by the Scepter is ſignified his Rule over all things: Eagle and Victoria *how all things ſtand in Vaſſalage and Subjection to the all-commanding Power.*

III. *Martianus* Depictures him with a regal Crown, adorned with moſt precious and glittering Stones; over his Shoulders, a thin Vail (made by *Pallas* own Hands) all white, in which is inſerted divers ſmall pieces of Glaſs repreſenting the moſt reſplendent Stars; in his Right Hand he holdeth two Balls, the one all of Gold, the other half Gold half Silver; in the other Hand an Ivory Harp with nine Strings, ſitting on a Foot-cloth, wrought with ſtrange Works, and Peacocks Feathers; and near his Side lieth a Tridental Gold Emboſſed Maſs.

IV. *Plutarch* ſaith, that in *Crete*, he had wholly Humane Shape and Proportion, but without Ears.

By that was ſignified, that Superiours and Judges ought not to be carried away by Prejudice nor Perſwaſion, but ſtand firm, ſtedfaſt and upright to all without Partiality.

V. Contrariwiſe the *Lacedæmonians* framed his Picture with four Ears.

By that they ſignified, that God heareth and underſtandeth all things; and that Princes and Judges ought to hear all Informations, before they deliver definitive Sentence or Judgment.

VI. *Pauſanias* ſaith, that in the Temple of *Minerva* (among the *Argives*) the Statue of *Jupiter* was made with three Eyes; two of them in their right places; the other in the middle of his Fore-head.

By which is ſignified his three Kingdoms; the one Heaven, the other Earth, the laſt Sea.

VII. With the *Eleans* (a People of *Greece*) the Statue of *Jove* was compacted of Gold and Ivory, empaled with a Coronet of Olive Leaves; in his Right Hand the Image of *Victoria*; in his Left a Scepter, on the top of which was mounted the Portraicture of an Eagle, upon a Seat of Gold, enchaſed with the forms of many unknown Birds and Fiſhes, upheld and ſupported by four Images of *Victoria*.

VIII. In *Caria* (a Place of the leſſer *Aſia*) the Statue of *Jupiter* was made holding in one of his Hands a Pole-Axe.

The

The reason of this was, as Plutarch *saith from* Hercules, *who overthrowing* Hippolyta *the* Amazonian *Queen, took it from her, and gave it to* Omphale *his Wife, a* Lydian. *The* Platonists *understand by* Jupiter, *the Soul of the World; and that Divine Spirit, through whose Almighty Power every thing receives its Being and Preservation.*

IX. He is also Painted with long curled black Hair in a purple Robe, trimmed with Gold, and sitting on a golden Throne, with bright yellow Clouds dispersed about him.

CHAP. VI.

How the Antients Depicted Mars.

I. *Macrobius* saith, that the Pictures of *Mars* were adorned and beautified with the Sun-beams, in as lively a manner as could be devised; with an Aspect fierce, terrible, and wrathful, hollow red Eyes, quick in their motion, Face all hairy, with long curled Locks on his Head, depending even to his Shoulders, of a coal black colour, standing with a Spear in the one Hand, and a Whip in the other.

II. He is also sometimes Depicted on Horseback, and sometimes in a Chariot, drawn with Horses called *Fear* and *Horror:* some say the Chariot was drawn with two Men, which were called *Fury* and *Violence.*

III. *Statius* saith he wore on his Head a Helmet most bright and shining, so fiery as it seemed there issued flashes of Lightning; a Breast-plate of Gold, insculp'd with fierce and ugly Monsters; his Shield depainted all over with Blood, enchased with deformed Beasts, with a Spear and Whip in his Hands, drawn in a Chariot with two Horses, *Fury* and *Violence*, driven with two churlish Coach-men, *Wrath* and *Destruction.*

IV. *Isidorus* saith, that the Picture of *Mars* was depainted with a naked Breast.

By which is signified, that Men ought not to be timorous in War, but valiantly and boldly expose themselves to Hazards and Dangers.

V. *Statius*

V. *Statius* saith, that the House of *Mars* was Built in an obscure corner of *Thracia*, made of rusty, black Iron; the Porters which kept the Gates, were *Horror* and *Madness*; within the House inhabited *Fury*, *Wrath*, *Impiety*, *Fear*, *Treason* and *Violence*, whose Governess was *Discord*, seated in a regal Throne, holding in one Hand a bright Sword, and in the other a Basin full of Humane Blood.

VI. *Arioſto*, describing the Court of *Mars*, saith, that in every part and corner of the same were heard most strange Echoes, fearful Shrieks, Threatnings, and dismal Cryes; in the midst of this Palace was the Image of *Virtue*, looking sad and pensive, full of Sorrow, Discontent and Melancholy, leaning her Head on her Arm: hard by her was seated in a Chair, *Fury* in Triumph: not far from her sate *Death*, with a bloody stern Countenance, offering upon an Altar in Mens Skulls Humane Blood, Consecrated with Coals of Fire, fetch'd from many Cities and Towns, burnt and ruinated by the Tyranny of War.

CHAP. VII.

How the Antients Depicted Phœbus *or* Sol.

I. *Macrobius* saith, that in *Assyria* was found the Statue of *Apollo*, *Phœbus* or *Sol*, the Father of *Æsculapius*, in the form of a young Man, and Beardless, Polished with Gold, who stretching out his Arms, held in his Right Hand a Coach-man's Whip; and in his Left a Thunderbolt, with some Ears of Corn.

The Tyrant of Syracuse, Dionysius, *with fury pulled off the Beard from the Figure of* Æsculapius, *saying it was very Incongruous that the Father should be Beardless, and the Son have one so exceeding long.*

II. *Eusebius* saith, that in *Egypt* the Image of *Sol* was set in a Ship, carried up, and supported by a *Crocodil*: and that they (before Letters were invented) framed the shape of the Sun, by a Scepter, in the top of which was dexterously Engraven an Eye.

The

The Scepter signified Government: the Eye, the Power which oversees and beholds all things.

III. The *Lacedæmonians* Depicted *Apollo* with four Ears, and as many Hands.

By which was signified the Judgment and Prudence of God, being swift and ready to hear, but slow to speak, and from thence grew that Proverb among the Grecians.

IV. *Herodotus* reporteth, that the *Phœnicians* had the Statue of the Sun made in black Stone, large and spacious at bottom, but sharp and narrow at top, which they boasted to have had from Heaven.

V. *Lactantius* saith, that in *Persia*, *Phœbus* or *Apollo* was their chiefest God, and was thus described; he had the Head of a Lion habited according to the *Persian* Custom, wearing on his Head such Ornaments as the Women of *Persia* used, holding by main force a white Cow by the Horns.

The Head of the Lion sheweth the Suns Dominion in the Sign Leo; *the Cow shews the Moon, whose Exaltation is* Taurus; *and his forceable holding, the Moons Eclipse, which she cannot avoid.*

VI. *Pausanias* telleth, that in *Patra*, a City of *Achaia*, a metalline Statue of *Apollo* was found in the proportion of an Ox or Cow.

VII. *Lucianus* saith, that the *Assyrians* shaped him with a long Beard, (shewing his perfection;) upon his Brest a Shield; in his Right Hand a Spear, in the top of which was *Victoria*; in his Left Hand *Anthos*, or the Sun Flower: this Body was covered with a Vestment, upon which was painted the Head of *Medusa*, from which dangled downwards many swarms of Snakes; on the one side of him *Eagles* flying, on the other side a lively *Nymph*.

VIII. The *Egyptians* composed the Statue of the Sun in the shape of a Man, with his Head half Shaven.

By the Head half Shaven, is signified, that though his Beauty or Shining may be clouded for a time, yet that he will return and beautifie the same with his pristin Brightness; as the growing of the Hairs (which signifie his Beams) to their full extent and perfection again, may denote.

IX. *Martianus* thus describes him; upon his Head (saith he) he wears a Royal and Gorgeous Crown, inchased with multitudes of precious Gems; three of which beau-

beautifie his Fore-head; ſix his Temples; and three other the hindermoſt part of the Crown: his Hair hanging down in treſſes, looks like refined Gold, and his Countenance wholly like Flame: his Veſtment is thin, ſubtil, and wrought with fine Purple and Gold; in his Right Hand he holds a bright Shield, and in his Left a flaming Firebrand: on his Feet he hath two Wings, beſet with fiery Carbuncles.

X. *Euſebius* writeth, that in *Elephantinopolis* (a City in *Egypt*) the Image of *Apollo* was framed to the due likeneſs of a Man throughout the Body, ſave only, that he had the Head of a Ram, with young and ſmall Horns, and his Aſpect of a *Cerulean* and blewiſh Green, not unlike to that of the Sea.

The Head of the Ram ſignifies the Suns Exaltation in the Sign Aries; *and the young Horns the change or new of the Moon, made by her Conjunction with the Sun, in which ſhe looks blewiſh.*

XI. He is alſo Drawn with long curled golden Hair, Crowned with a Lawrel, in a purple Robe, a ſilver Bow in his Hand, ſitting on a Throne of Emeralds.

There might you ſee with greateſt Skill intexed,
The Portraicture of Phœbus *lively drawn;*
And his fair Siſters Shape thereto annexed,
Whoſe ſhining parts ſeem'd ſhadow'd o're with Lawn.
And though with equal Art both were explain'd,
And Workmens care gave each of them their due,
Yet to the view great difference remain'd,
In Habit, Shape, Aſpect, and in their Hue.
For one of them muſt give the day his light:
And th' other reign Commandreſs of the night.

CHAP. VIII.

How the Ancients Depicted Venus.

I. HER Statue is framed in the ſhape of a moſt beautiful and young Woman, ſtanding upright in a huge Shell of Fiſh, drawn by two other moſt ugly and ſtrange Fiſhes, as *Ovid* at large noteth. II. *Pan-*

II. *Pausanius* saith she is drawn in a Coach, through the airy passages, with two white Doves, (as *Apuleius* also affirmeth) which are called the Birds of *Venus*.

III. *Horace* and *Virgil* affirm, that the Chariot of *Venus* is drawn by two white Swans, of which *Statius* also maketh mention, who saith that those Birds are most mild, innocent, and harmless, and therefore given unto *Venus*.

IV. *Praxiteles* an excellent Engraver in the Island of *Gnidos*, made her Image Naked, and without Cloths, as also did the *Grecians*.

By which was signified, that all Luxurious and Licentious People were, by their inordinate Lusts, like Beasts, deprived of Sense, and left, as it were, Naked, and despoiled of Reason, and Understanding; and oftentimes also stripped thereby of their Riches, Goods, and Estates.

V. *Lactantius* saith, that the *Lacedemonians* framed and composed the Image of *Venus* all Armed like a Warrior, holding in one hand a Spear, in the other a Shield or Target.

And this was by reason of a certain Victory which the Women of that Place got over their Enemies, the People of Messenia, *which success they supposed to have proceeded from the Power and Assistance of* Venus, *as inspiring these Womens Hearts with Courage, Stoutness and Resolution.*

VI. She is also depicted with Yellow Hair, attired with Black; a Scarlet, or else Dun-coloured Robe.

CHAP. IX.

How the Ancients depicted Mercury.

I. THE Ancients described him in the shape of a Young Man without a Beard, with two small Wings fixed behind his Shoulders and Ears, his Body almost all Naked, save that from his Shoulders depended a thin Veil, which winded and compassed about all his Body; in his Right Hand he held a Golden Purse, and in his Left a *Caduceus*, or Snaky Staff, to wit, a slender White Wand, about which two Serpents do annodate

and entwine themselves, whose Heads meet together just at the top, as their Tails do at the lower end.

This resemblance was called Concordia *or* Signum Pacis; *upon which it came to pass, that Ambassadours, and great Men in matters of State, carried always in their hand such a like Staff, and were called* Caduceators.

II. *Apuleius* writeth that *Mercury* was a very youth, having very short Hair on his Head, of an Amber Colour, and Curled, having for a Vestment only a subtil and thin Veil made of purple Silk.

III. *Martianus Capella* describes him young, yet of a strong and well composed Body, with certain young Hairs, of a yellowish colour sprouting out of his Chin.

IV. *Pausanias* saith, that in a Province of *Corinth*, he was depicted like a young Man carrying a Ram upon his Shoulders: And that a Statue (brought from *Arcadia* unto *Rome*) erected in the Temple of *Jupiter Olympicus*, had on its Head a Helmet of Engraven Steel; and over his Shoulder, a Coat, who held under his Arm the Image of a Ram.

V. Among some of the *Egyptians* his Image was framed with a Head like a Dog's, holding in his Right Hand a *Caduceus*, or Snaky Wand; shaking with his Left a green Bough of Palm.

By the Head of the Dog was understood subtilty and craftiness (no Beast being so subtil as a Dog;) by the Snaky Wand, the power of Wisdom and Eloquence in producing of Peace, signified by the green Palm.

VI. By some he was depicted in the Similitude of a very aged Man, his Head almost bald, save that on the sides there remained some few Hairs, short and curled; his Looks grim, severe and sowre; his Complexion of a tawny, ancient hue; his upper Garment, of a Lions skin; in his Right Hand a huge Poll-ax, in his Left Hand an Iron Bow; at his Back hanging a Quiver of Steel-headed Arrows; to the end of his Tongue were fastned many small chains of Gold, at whose ends were tied multitudes of all sorts of Men, which he seemed to draw unto him; looking always backward, to behold the innumerable Troops of People following him.

By this description is signified the All-powerful and Attractive Virtue of Eloquence; which by his Age is understood to be found only in Old, Wise, and Experienced Men, as being in

in them more mature and perfect, than in those of younger Years, of which Homer *speaks at large in his Commendation and Praise of* Nestor: *from whose Mouth (saith he) plentifully rolled forth most pleasant and dulcid Streams; whose Pen distilled Crystalline drops of delicious Sweetness; whose Works and Fruits so compleatly adorned with Golden Sentences, assageth the malice of Time, and mitigateth and allayeth the spight of Forgetfulness, that his Perpetuity is Ingraven in the Brass-leav'd Books of Eternal Memory, never to be Blotted out.*

VII. He is also drawn with long curled yellow Hair, in a Coat of flame colour, and with a Mantle purely white, trimmed with Gold and Silver; his Beaver white, with white Feathers, his Shoes Golden, his Rod Silver.

CHAP. X.

How the Ancients depicted Diana *or* Luna:

I. *Diana, Cynthia, Lucina* or *Luna*, was, according to *Propertius*, depicted in the likeness of a young Beautiful Virgin; having on either side of her forehead two small glistering horns, newly putting forth, drawn through the Air in a Purple Coloured Coach, by two swift paced Horses, the one of a Sad Colour, the other of a White.

These two differing Horses, Boccace *saith, shew that she hath power both in the Day and Night.*

II. *Claudianus* saith, that her Chariot is drawn by two White Bullocks, (which Image the *Egyptians* worshipped with great zeal and reverence) having one of their flanks bespotted with divers Stars, and on their heads two such sharp horns as the Moon hath in her chiefest Wane.

III. *Cicero* describes her Statue (which he brought out of a Temple in *Cilicia*) of a wonderful height, and large dimension, the whole Body covered with a large thin Veil, of a youthful Aspect, holding in her right hand a lively burning Torch, and in her left an Ivory Bow, with a Quiver of Silver-headed Arrows hanging at her back.

IV. The Poets (who call her the Goddeſs of Hunting, and Imperial Governeſs of Woods and Groves) deſcribe her in the habit of a young *Nymph*, with her Bow ready bent in her hand, and a Quiver of Arrows hanging by her left ſide; a ſwift paced Grey-hound faſt tyed to her right ſide, with a Collar about his Neck; and after her followed Troops of *Sylvan Virgins*, which are Chaſt, and are called the *Nymphs* of *Diana*.

V. Theſe Virgins and Votreſſes of the Goddeſs, are thus deſcribed.

Scarce mounted Sol *upon his glorious Car,*
When o're the lofty Hills, and lowly Plain,
Running apace you might perceive afar
A Troop of Amazons to poſt amain:
But when they nearer came unto your view,
You might diſcern Diana *and her Crew.*
A careleſs Crew of lively Nymphs, deſpiſing
The joyous Pleaſures and Delights of Love;
Waſting their Days in Rural Sports deviſing:
Which know no other, nor will other prove.
Wing'd with deſire to overtake the chaſe,
Away they flung with unreſiſted pace.
Their Necks and purple Veined Arms are bare,
And from their Ivory Shoulders to their Knee,
A Silken Veſtment o're their Skin they ware,
Through which a piercing Eye might chance to ſee.
Cloſe to their Bodies is the ſame engirted,
Bedeck'd with pleaſing flowers there inſerted.
Each in her Hand a Silver Bow doth hold,
With well-ſtor'd Quivers hanging at their Backs:
Whoſe Arrows being ſpent they may be bold
To borrow freely of each others Packs.
Thus are theſe nimble skipping Nymphs diſplay'd,
That do attend that Goddeſs, Queen and Maid.

VI. In *Arcadia*, ſaith *Pauſanias*, was a Statue of *Diana*, covered over with the skin of a Hind, and from her ſhoulders hung a Quiver of Arrows; in one Hand a burning Lamp, the other leaning upon the Heads of two Serpents, and before her Feet a Hound.

VII. The *Egyptians* worſhipped her under the name of *Iſis*; and depictured her covered with a Black and Sable

Sable Veſtment, in token that ſhe her ſelf giveth no light; holding in one hand a Cymbal, in the other an Earthen Veſſel of Water, upon which, as *Servius* ſaith, many thought her to be the Genius of *Egypt*.

By the Cymbal is ſhewed the murmurings and roarings of Nilus, *when it overflows* Egypt; *and by the other veſſel the nature of the Country, which is moiſt and full of Lakes, Pools and Rivers.*

VIII. She is alſo depicted with Yellow Hair, a Graſs Green Mantle, trimmed with Silver; Buskins Silver; Bow Golden, Quiver of various Colours.

IX. *Nymphæ Dianæ* in White Linnen to denote their Virginity, and their Garments girt about them, their Arms and Shoulders naked, Bows in their Hands, and Arrows by their Sides.

CHAP. XI.

How the Ancients depicted Janus.

I. *Janus* is depicted with two Faces; in the one of his Hands is a long Rod or Wand; in the other a Key.

The two Faces of Janus *ſignifie time; the one being withered and hoary, ſhews time paſt, the other Youthful and Beardleſs, time to come.*

II. *Pliny* ſaith that *Numa*, King of the *Romans*, cauſed the Statue of *Janus* to be hewed out in ſuch ſort, that the Fingers of his Hands appeared to be three hundred ſixty five, to ſhew that he was God of the Year, whereupon they called the firſt Month in the Year *Januarius*, from *Janus* their God.

Under the Feet of Janus *are oftentimes placed twelve Altars, ſhewing thereby the Months of the Year, or Signs of the Zodiack, thro' which* Sol *makes his Revolution.*

III. The *Phœnicians*, as *Cicero* and *Macrobius* report, framed his Image in the form of a Serpent, holding her Tail in her Mouth, and continually turning round.

IV. Some depicted *Janus* with four Faces, (as were thoſe Statues which were found in divers places of *Tuſcany*.

By the four Faces were signified the four Seasons of the Year, Spring, Summer, Autumn, *and* Winter: *which some think to be* Venus, Ceres, Bacchus *and* Vulcan ; *and sometimes the Winds, with* Æolus *their Commander.*

CHAP. XII.

How the Ancients depicted Aurora.

I. *Homer* describes her like a young Virgin, having her Hair dishevelled, and hanging loose about her shoulders, being of the colour of the purest Gold, sitting in a Golden Chair, with all her Vestments of that hue and colour.

II. *Virgil* saith, that upon the instant time of the Sable Nights departure, she cometh with one of her hands full of Roses, Gilliflowers and Lillies, taken out of a Basket which she carries in the other hand, which she besprinkles on the Marble Pavement of the lower Heavens, adorning the Sun with unspeakable Beauty.

III. Others describe her, holding in one hand a flaming Torch, and drawn in a Gorgeous and Star-bespotted Chariot, by winged *Pegasus* ; which favour she obtained of *Jupiter* by many importunate requests, presently after the downfal of *Bellerophon.*

IV. She is as it were the Herald and Messenger of *Phœbus,* who receives her being from the Virtue of his Beams; and is no other but that Rubicund and Vermillion blush in Heaven, which *Sol*'s first appearance worketh in the *Orient,* and from thence descending, beautifies our *Hemisphere* with such a resplendency.

V. She is also depicted in a purple Robe, in a blue Mantle fring'd with Silver.

CHAP.

CHAP. XIII.

How the Ancients depicted Juno.

I. SHE was set forth by the Ancients like a middle aged Woman holding in one hand a Silver Vessel, in the other a sharp Spear; and *Homer* saith she was drawn in a Chariot glistering with Precious Stones; whose Wheels were Ebony, and their Nails fine Silver, mounted upon a Silver Seat; and drawn with Horses, which were fastned with Chains of Gold.

II. She is oftentimes depicted with a Scepter in her hand, to shew that she hath the bestowing of Governments, Authorities and Kingdoms.

III. *Martianus* depicts her (sitting in a Chair under *Jupiter*) with a thin Veil over her Head, with a Coronet upon it, inchased and adorned with many Precious Jewels; her inward Vestment fine and glittering, over which depended a Mantle of a sad darkish colour, yet with a secret shining Beauty; her Shoes of an obscure and sable colour; in her right Hand a Thunderbolt; and in her other a loud noised Cymbal.

IV. *Pausanias* saith that in a Temple in *Corinth*, her Statue (made of Gold and Ivory) was adorned with a glorious Crown, on which was insculped the Pictures of the *Graces*; with a *Pomegranate* in the one hand, and a Scepter (on the top of which was a Cuckow) in the other: for that *Jupiter*, when he was first enamoured of *Juno*, transformed himself into that Bird.

Touching this Story (and others of like kind) Pausanias *saith, that although he did not believe such things to be true, nor any others, which are so written of the Gods; yet, saith he, they are not altogether to be rejected, in that there were no such things, as reported, but that they were impleated and filled with Mysteries, and carried in themselves an inward meaning, and secret understanding, the which no doubt some might by their writings have unshadowed, if the Tyranny of fore-passed times had not destroyed and obliterated the same.*

V. *Tertullian* writeth, that in *Argos*, a City in *Greece*, the Statue of *Juno* was covered all over with the boughs

of a Vine, and underneath her Feet lay the skin of a Lion, which discovered the hatred and disdain she bare towards *Bacchus* and *Hercules*, to whom (as the Poets say) she was Step-mother.

VI. Some have Painted her a middle aged Woman, holding in one Hand a Poppey-flower, or Head: with a Yoke, or pair of Fetters lying at her Feet.

By the Yoke was meant the Band of Marriage, which tyeth Man and Wife together: And by the Poppey, fruitfulness, or the innumerable issue of Children, which are brought forth into the World (signified by the roundness of the Poppey head, and its numberless Seeds therein contained.) From hence many suppose her to be the Goddess of Marriage.

VII. She is also Painted with Black Hair and Eyes, adorned with a Sky-coloured Mantle, or Pied; wrought with Gold and Peacocks Eyes, like the Orient Circles in the Peacocks Train.

CHAP. XIV.

How the Ancients depicted Ops *and* Tellus.

I. *Martianus* saith, that *Ops* (the Wife of *Saturn*) is an Old Woman, of great bigness, continually bringing forth Children, with whom she is encompassed and set round, going in a Green Vestment, with a Veil over her Body, spotted with divers colours, wrought with infinite curious knots, and set with all sorts of Gems and Metals.

II. *Varro* (out of *Boccace*) thus describes her: She is Crowned (saith he) with a Crown insculpt with Castles and Towers; her Apparel Green, overshaded with Boughs; in the one hand a Scepter, in the other a Ball or Globe; and near to her a Chariot of four Wheels, drawn by four Lions.

By the Crown is signified the Habitations of the Earth; by the Greenness and Boughs, the Increase thereof; by the Scepter, the Kingdoms and Governments of the World; by the Ball, the roundness thereof; by the Chariot, the continual Motion, Change and Alteration of Things; by the Lions, the Wisdom

Wisdom and Strength of Mankind, by which things are carried on and managed.

III. *Isidorus* saith, that this Goddess was Painted holding a Key in one of her hands: which shews, that in the Winter the Bowels of the Earth are Locked up by reason of cold; which at the approach of Spring and Summer are unlocked again.

IV. She was sometimes depicted in the form of an Ancient Woman, having her Head Circumcinct with Ears of Corn, holding in her hand a Poppey-head; drawn in a Chariot (as *Orpheus* saith) with two fierce and untamed *Dragons*.

V. The Earth is also called *Ceres*, which many have depicted with Torches, Lights and Fire-brands in her Hands; as *Praxiteles* in a Temple, seated upon a Promontory of *Attica*.

VI. She is also Pictured in a long Green Mantle.

CHAP. XV.

How the Ancients depicted Neptune, *and the Sea Gods.*

I. NEptune among the Ancients is depainted with several Countenances, sometimes with Mild and Pleasant Looks, sometimes with Lowring and Sad, and at other times with a Mad, Furious and Angry Aspect; Naked, holding in his Hand a Silver Trident or forked Mace, standing upright in the Concavity of a great Sea Shell, forcibly drawn by two Monstrous Horses, which from the middle downwards have the proportion and shape of Fishes, as *Statius* saith.

That variety of Aspects (according to Virgil *and* Homer) *is given him from the Sea, in that it at sundry times sheweth it self so: And the Trident, the three Gulfs of the Mediterranean Sea.*

II. Sometimes he is depainted with a thin Veil hanging over one of his Shoulders, of a *Cerulean* or Blewish Colour.

III. *Lucianus* setteth him down with marvellous long Hair

Hair hanging down over his Shouders, of a very Sad and Darkiſh Colour.

Yet Servius *and others affirm, that all the Gods of the Sea were for the moſt part in the ſhape of Old Men with White and Hoary Hairs, proceeding from the Froth or Spume of the Sea.*

IV. *Plato* deſcribes him in a ſumptuous Chariot, holding in one hand the Reins of a Bridle : in the other a Whip, drawn by Sea-Horſes Galloping.

V. *Martianus* deſcribes him of a Greeniſh Complexion, wearing a White Crown : ſignifying thereby the Spume and Froth of the Sea.

VI. *Glaucus* (another Sea God) ſaith *Philoſtratus*, hath a long white Beard and Hair, ſoft and dropping about his Shoulders, his Eyes green and gliſtering ; his Brows full of wrinkles, and green ſpots ; his Breſt all overgrown with greeniſh Sea-weed, or Moſs, his Belly, and from thence downwards, Fiſh-like, full of Fins and Scales.

VII. *Galatea* (a Sea Goddeſs) is deſcribed (by the ſaid *Philoſtratus*) to be drawn in a ſtrange framed Chariot, by two mighty Dolphins, which were guided by two Silver Reins held in the hands of old *Triton*'s daughters ; over her head, a Canopy made of Purple, Silk, and Silver, with her Hair hanging careleſly over her Shoulders. *See her deſcribed as a Nymph, Chap. 32. Sect. 7.*

VIII. *Oceanus*, (the Father of all the Sea Gods) ſaith *Thales Mileſius*, is depainted, drawn on a glorious Chariot, accompanied and attended with a mighty company of *Nymphs* ; with the Face of an Old Man, and a long white Beard.

IX. *Æolus* is depainted with ſwoln blub Cheeks, like one that with main force ſtrives to blow a blaſt ; two ſmall Wings upon his Shoulders, and a fiery high Countenance.

He is called the God and Ruler of the Winds, whoſe deſcriptions are in Chap. 34. of this Book.

X. *Thetis* (another Sea Goddeſs) is depicted by the ſixth Section of the two and thirtieth Chapter of this Book.

XI. *Neptune* is alſo depicted with long hoary Hair, in a Blue or Sea-green Mantle trimmed with Silver, riding in a Blue Chariot, or on a Dolphin of Brown Black Colour, with a Silver Trident in his hand.

CHAP.

CHAP. XVI.

How the Ancients depicted Nemesis.

I. SHE was by *Macrobius* described with Wings on her Shoulders; hard by her side the Rudder of a Ship, she her self standing upright upon a round Wheel; holding in her Right Hand a Golden Ball, in the other a Whip.

II. She is often depicted, holding a Bridle of an Horse in one hand, and in the other a Staff.

III. *Chrysippus* (as *Aulus Gellius* saith) describes her like a young Virgin, beautiful and modest, with an Eye prying round about her, for which cause the Ancients called her the all discerning Lady.

This Nemesis, *as* Pausanias *and* Ammianus Marcellinus *say, was held to be the Goddess of Punishments, who castigates the offences of Malefactors, with Pains and Torments according to their Sins and Demerits; and Rewarding the Vertuous with Honour and Dignities: She was the Daughter of* Justitia *(who dwells and inhabits very secretly within the House of Eternity, recording the offences of the wicked) and a most severe and cruel punisher of arrogancy and vain-glory.* Macrobius *saith, that this* Nemesis *was adored among the* Egyptians *(by them called also* Rhamnusia*) as the revenger and chief Enemy of Pride, Insolency, and Haughtiness; and that she had erect and dedicated unto her, a most stately and magnifick Statue of Marble.*

CHAP. XVII.

How the Ancients depicted Pan.

I. PAN (the God of Flocks and Sheep) is from the middle upwards in proportion like a Man, with his Face ruddy and sanguine, being very hairy; his Skin and Breast covered with the Skin of a spotted *Doe* or *Leopard;*

pard; in the one hand a Shepherds Hook, in the other a Whistle: from the middle downwards the perfect shape of a Goat, in Thighs, Legs and Feet.

II. *Justine* saith, that *Pan*'s Statue was made in a Temple in *Rome*, near the Hill *Palatine*, appearing to the view all Naked, saving that it was slightly enshadowed and covered with a Goats Skin.

Thereby is signified that (as it was reputed in those Days) Pan *kept his habitation among Hills, Woods and Groves, who was indeed most of any Adored and Worshipped by Shepherds, as he that had the peculiar Care and Government of their Flocks.*

III. *Goat-ear'd* Pan, *his small tipt new grown horns*
Advance themselves, about whose either side
A flow'ry Garland twines, and there adorns
His curled Temples with a wond'rous Pride.
His Face is of a high and reddish blush,
From which hangs down a stiff rough Beard or bush.
And for his Bodies vesture he doth wear
The finest skin of the most spotted Doe,
That ever any in those Woods did bear,
Which from his Shoulder loose hangs to his Toe.
And when he walks, he carries in his hand
A Shepherds Hook, made of a knotless Wand.

Servius saith, by the horns is signified either the Beams of the Sun, or New of the Moon, at what time she is Horned: his red Face signifies the Element of Fire: his long Beard, the Air: his spotted Garment, the Starry Firmament: his Shepherds Hook, the Rule and Government of Nature.

IV. After the form of *Pan* were the *Fauns*, *Sylvans*, *Satyrs* and *Fairies* set forth, having little short horns growing on their heads, with small ears and short tails.

These are held among some people in very great regard and observance, being of a wonderful speed in running. Plutarch *writeth, that there was one of these brought and presented for a rare gift unto* Sylla, *as he returned from the Wars against* Mithridates.

V. *Plato* understandeth by *Pan*, Reason and Knowledge; which is twofold; the one of a Man, the other of a Beast: by the upper part of *Pan*, he signifies Truth, accompanied with *Reason*, which being Divine, lifteth Man up

up towards *Heaven:* by the lower parts of him is signified the Falseness, Beastlineſs and Rudeneſs of those, who living here in the World, are only delighted with the Pleasures and Foolish Vanities thereof.

CHAP. XVIII.

How the Ancients depicted Pluto.

I. *Martianus* saith, that *Pluto* sitteth (in the lower Region) Majestically in a Chair, holding in one of his Hands a black Imperial Scepter, and on his Head a stately Crown; at whose Left Hand sitteth his Wife *Proserpina*, attended with many Furies, and Evil Spirits, and at whose Feet lieth chained the Dog *Cerberus*.

II. The Ancients also have painted him in a Chariot, drawn with four furious black Horses, from whose fiery Nostrils proceedeth thick and ill-savoured Smoak, as *Claudianus* saith.

III. Some say, that his Head is encircled with a Garland of *Cypress* leaves; others with *Narcissus* leaves.

The first shew Sadness and Horrour, used in Burials, and about the Dead: the other more grateful, and are used in memory of the untimely Death of that Youth.

IV. *Charon* (*Pluto*'s Ferriman, which carries Souls over the three Rivers of Hell, *Acheron*, *Cocytus*, and *Styx*) is described old, yet exceeding strong, with a black Mantle hanging loosely over his Shoulders, as *Boccace* and *Servius* say.

By Charon *is understood time; and whereas he is supposed to have the transportation of Souls from the one side of those Rivers to the other; thereby is signified, that time, so soon as we are born and brought forth into the World, doth carry us along by little and little unto our deaths; and so setteth us over those Rivers, whose names, by interpretation, signifie Sorrowfulness, for that we pass this Life with Misery and Adversity.*

V. He is also depicted with long curled black Hair; in a Robe of Cloth of Gold.

CHAP.

CHAP. XIX.

How the Ancients Depicted the Parcæ, *or Sisters.*

I. THE Sisters, which are called *Parcæ*, are said to attend upon *Pluto*, which are three, and are called *Clotho*, *Lachesis* and *Atropos*.

II. *Clotho* takes the charge of the Births and Nativities of Mortals: *Lachesis* of all the rest of their Life; and *Atropos* of their Death, or Departure out of this World.

III. They are all three depicted sitting on a row, very busily employed in their several Offices; the youngest Sister drawing out of a Distaff a reasonable big Thread: the second winding it about a Wheel, and turning the same, till it becomes little and slender: the eldest (which is Aged and Decrepit) stood ready with her Knife, when it should be Spun, to cut it off.

IV. And they are described to be invested with white Veils, and little Coronets on their Heads, wreathed about with Garlands made of Flowers of *Narcissus*.

CHAP. XX.

How the Ancients Depicted Minerva, *or* Pallas.

I. *Minerva*, (as taken for *Bellona*) as *Licophrones* saith, was depicted with a flaming Fire-brand in her Hand by the Ancients.

II. Most Writers have described *Minerva* in the shape of a young Woman, of a lively and fresh Countenance, yet of an angry look, fix'd stedfast Eye, of a blewish green colour, compleatly armed at all Weapons, with a long Spear in the one Hand, and in the other a Crystal Shield, or Target: upon her Helmet a Garland of Olive Branches, and two Children, *Fear* and *Horror* by her side, with naked Knives in their Hands, seeming to threaten one another.

III. *Pau-*

III. *Pauſanias* ſaith, that in *Greece* the Statue of *Minerva* was made with an Helmet, on the top of which was the Shape of a *Sphynx*; and on the ſides thereof two Carved *Griffins*.

IV. *Phidias* making her Statue in *Greece*, placed on the top of her Helmet the form of a Cock.

V. She was alſo painted in *Greece*, ſitting on a Stool, and drawing forth little ſmall Threads from a Diſtaff; for that the Ancients ſuppoſed her to be the Inventreſs of Spinning, and the like.

VI. *Laſtly*, She is depicted with a blew Mantle Embroidered with Silver: and is called the Goddeſs of Wiſdom.

CHAP. XXI.

How the Ancients Depicted Vulcan.

I. *Vulcan* is depicted ſtanding, working and hammering in a Smiths Forge, on the Hill *Ætna*, framing Thunderbols for *Jupiter*, and faſhioning Arrows for the God of Love. *The Opinions which the Ancients had of* Vulcan *were various, in which reſpect he is ſhaped ſometimes in one form, ſometimes in another.*

II. Some make him Lame of one Leg, of a very black and ſwarthy Complexion, as it were all ſmoaky; of a general ill ſhaped proportion in all his Lineaments; and becauſe that he is the Husband of *Venus*, often depicture her with him.

III. *Alexander Neapolitanus* relateth, that in one place of *Egypt* was erected the Statue of *Vulcan*, which held in one of its Hands the true and lively Proportion of a Mole, and in his other Hand a Thunderbolt.

The Mole was ſo placed, becauſe they thought he ſent unſpeakable numbers of Moles among them, as a Plague to them, which did eat, gnaw and deſtroy every thing which was good.

IV. He is alſo painted Lame in a Scarlet Robe.

CHAP.

CHAP. XXII.

How the Ancients Depicted Bacchus.

I. *Philostratus* saith, that his Statue was framed in the likeness of a young Man without a Beard, of a corpulent and gross Body, his Face of an high colour and big; about his Head a Garland of Ivy Leaves; upon his Temples two small Horns; and close by his Side a certain Beast, called a *Leopard* or *Panther*.

This Description is drawn from the nature of Wine, (of which, as the Poets feign, Bacchus *is the God) whose Inventer and Finder out was certainly* Noah, *which not only* Moses, *but also* Josephus *and* Lactantius *specially affirm; wherefore some suppose him to be this God* Bacchus.

II. *Claudianus* saith, that his Image or Statue is made all naked; thereby shewing the Nakedness of those which abuse themselves with Wine, by which they reveal and open those things which ought to be concealed and kept hid.

III. *Diodorus Siculus* saith, that *Bacchus* among the *Grecians* was depicted in two several forms, the one of a very aged Man, with a long Beard, stiff and thick, the other of youthful years, of a pleasant and amorous Aspect.

By the first is shewed the effects of the intemperate Use of Wine, which overcomes Nature, and brings with it old Age: by the other, how it Cherishes and Revives the Heart, used moderately.

IV. *Macrobius* saith, that *Bacchus* was framed sometimes in the likeness of a young Child, sometimes of a Youth, sometimes of a Man; and sometimes in the likeness of decrepit old Age.

By these was signified the four Seasons of the Year, the Vine being dedicated to Sol, *in whom they all exist.*

V. This Picture was made in the likeness of a Bull, among the *Cyrenians*, (a People Inhabiting the farther part of *Persia.*)

The reason hereof was, because Proserpina *(the Daughter of* Jove) *brought him forth in that form.*

VI. *Philo-*

VI. *Philostratus* saith, that *Bacchus* was oftentimes drawn cloathed in Womens Garments, and in a long purple Robe; wearing upon his Head a Coronet of Roses, with Companions and Followers, all of them in like loose and wanton Garments, fashioning themselves some like Rural *Nymphs*, as the *Dryades*, *Oreades*, &c. some like Sea *Nymphs*, as the *Nereides*, *Syrens*, &c. some like *Satyres*, *Fauns* and *Sylvans*, &c.

The Womens Garments shew, that Wine makes a Man Faint, Feeble and Unconstant, like to a Woman.

VII. *Pausanias* saith, that among the *Eleans*, the Picture of *Bacchus* was made with a long Beard, and cloathed with a long Gown hanging to the Feet; in one Hand a sharp Hook, and in the other a Bowl of Wine, and round about him many Vine-trees and other fruitful Plants.

VIII. The Statue of *Bacchus* also was sometimes set forth and adorned with Coronets made of Fig-tree Leaves, in Memory of a *Nymph* (as some say) called *Psyche*, which was by the Gods Metamorphosed into that Plant.

In like manner the Nymph Staphilis *(on whom* Bacchus *was also Enamoured) was Transformed into the Vine, from whence it is that those Plants are so exceeding grateful and pleasant unto this God.*

IX. He is painted also with short brown curled Hair, with a Leopards Skin, or in a green Mantle, a tawny Face, with a Wreath of Vine Branches.

CHAP. XXIII.

How the Ancients Depicted Fortune.

I. *Fortune* was depicted by some with two Faces, one white and well-favoured; the other black and ugly.

And this was, because it was held, that there were two Fortunes, *the one good, from whom came Riches, Happiness, Quiet, Content and Pleasure: the other bad, from whom came Wars, Afflictions, Crosses, Disasters, Calamities, and all other Miseries whatsoever.*

II. The *Thebeans* made her in the ſhape of a Woman; in one of her Hands a young Child, to wit, *Pluto* or Riches.

So that in the Hands of Fortune, *they put the diſpoſing of Wealth, Honour, Glory, and all Happineſſes.*

III. *Martianus* deſcribes her a young Woman, always moving; covered with a Garment of the thinneſt Silk; her ſteps uncertain, never reſting long in a place; carrying in her ſpacious Lap the univerſal fulneſs of the Treaſures, Riches, Honour and Glory of this World; which in haſty manner (with her Hand) ſhe offers; which Offer, if not inſtantly received, was utterly loſt; in her Right Hand a white Wand, with which ſhe ſmites ſuch as Offend her, ſlight her Kindneſs, or are not nimble enough to receive them. An old Poet thus ſung:

Oh cruel Fortune, *Stepdame to all Joys,*
That diſinherit'ſt us from ſweet Content,
Plunging our Hopes in troubled Seas annoys;
Depriving us of that which Nature lent!
When will thy proud inſulting Humour ceaſe,
T' aſſwage the Sorrows of an only one?
That free from care, its Soul may live in peace,
And not be Metamorphos'd into Stone.
But why entreat I thy unſtable Heart,
Knowing thy greateſt Pleaſure, thy Delight
Conſiſts in aggravating Mortals ſmart
Poiſon'd with Woes, by Venom of thy Spight?
'Tis what thou will', muſt ſtand, the reſt muſt fall,
All Humane things pay Tribute to thy Might:
And this muſt riſe, when pleaſeth thee to call,
The other Periſh in a woeful Plight.
And this is it, that chokes true Virtues Breath,
Making it Die, though ſhe Immortal be:
Fruitleſs it makes it; ſubject unto Death,
To fatal Darkneſs, where no Eye can ſee.
Oh come you wounded Souls, conjoin with me;
In ſome adumbrate Thicket let us dwell,
Some place which yet the Heavens ne'r did ſee,
There let us build ſome deſpicable Cell.
Strength, Beauty periſh: Honours fly away:
And with Eſtates, Friends vaniſh and decay.

IV. In

IV. In a Temple in *Greece*, *Fortune* was made in the form of a grave Matron, clothed in a Garment agreeable to such Years, whose countenance seemed very sad; before her was placed the Image of a young Virgin of a beauteous and pleasant Aspect, holding out her hand to another; behind these, the Image of a young Child, leaning with one of of its Arms upon the Matron.

The Matron is that Fortune, which is already past; the young Virgin, that which now is; and the young Child beyond them both, is that which is to come.

V. *Quintus Curtius* saith, that among the people of *Scythia*, *Fortune* was depicted in the form of a Woman without feet, having round about her at her right hand a number of little Wings.

VI. *Alexander Neapolitanus* relateth, that in *Greece*, her Image was made wholly of Glass; to shew that her favours are brittle, and subject to sudden decays.

VII. *Cebes* the Philosopher resembled *Fortune* unto a Comedy, in which many Actors appear often, as Kings and great Monarchs; and presently after become poor Fishermen, Slaves, Bond-men, and the like.

VIII. *Socrates* compared her to a Theatre, or Common Meeting Place, where without all Order or Observance Men take their Places and Seats, without respect to the Dignity of any.

Hereby is shewed, that she (without respect of birth, worth, merit or state,) blindly, unadvisedy, and without any order or reason, bestows felicities, riches and favours.

IX. In *Egira*, a City of *Achaia*, *Fortune* was drawn in the shape of a Beautiful Woman, who held in one of her hands a *Cornucopia*; in the other, the Boy *Cupid*.

By which is signified (as Pausanias *saith) that Beauty without Riches avails nothing; and indeed I may say he is doubly fortunate, who in his Love enjoys the fruition of both Beauty and Riches: but he is happy in the Superlative Degree, who, with the other two, meets with Vertue and Love also.*

X. *Giraldus* saith, that *Fortune* was with some depicted riding on a Horse galloping; with which swiftness she seems to pass invisible, after whom followeth *Destiny* with great wrath and fury, holding in her hand an Iron Bow, and aiming to strike Fortune at the heart.

By her swift galloping, is signified her mutability. See Sect. 4. Chap. 28. *where she is taken for one of the Powers.*

CHAP. XXIV.

How Vertue, Truth, Peace, Honour, Fame *and* Opinion, *were depicted.*

I. *VErtue* in *Greece* was made in the form of a *Pilgrim*, like a grave and austere Woman; sitting alone upon a four squared Stone, Melancholly, and leaning her Head upon her Knees.

Being a Pilgrim, shews she hath no resting place, secure abode, or certain habitation upon the Earth: the form of her sitting, shews her life to be full of troubles, dangers, crosses, and miseries. See Sect. 1. Chap. 30. *of this Book.*

Hæc angusta via horrendis scatet undique monstris,
Et vita innumeris est intercluſa periclis.
Sed tamen incolumes hac virtus ducit alumnos,
Extrema ut vitent, ne pes hinc inde vacillet.
Proclamat longe spes, hic sunt digna laboris
Præmia, & excipient mordaces gaudia curas.
Pax, sincera quies nullo temeranda dolore,
Lætitia hic, habitant longum, sine fine, per ævum.

Fierce Monsters do this narrow passage bound,
And deadly dangers it encompass round.
Yet Vertue doth her Followers safely guide,
Lest they should go astray on either side.
And Hope proclaims afar; lo here you shall
Have Joy for Sorrow; Honey for your Gall.
Here Peace and Joyful Rest for ever dwell,
Which neither Cross nor time shall ever quell.

II. *Truth*, saith *Hippocrates*, was framed in the similitude and likeness of a Beautiful Woman, attired with Gravity and Modesty: *Philostratus* saith that she remaineth in the Cave of *Amphiarus*, clothed all in white Garments of a Beautiful hue: *Lucianus* saith, that her Statue was made in the form of a young Woman, habited in rags, and base attire, with a Superscription over her Head, how she was *wronged and abused by Fortune.*

III. *Peace,*

III. *Peace*, saith *Aristophanes*, was framed in the shape of a young Woman, holding between her Arms the Infant *Pluto*, the God of Riches, and Ruler of the lower Regions.

She is also called Concordia, *and is a special friend to the Goddess* Ceres, *from whom comes the encrease of Fruits, Corn, and other nutriments. See* Chap. 28. Sect. 4.

IV. *Honour* is depicted with two Wings on its Shoulders; which, as *Alciatus* saith, was made in the form of a little Child, clothed in a purple Garment, having a Coronet or Wreath of Laurel about his Head; holding hand in hand the God *Cupid*, who leads the Child to the Goddess *Vertue*, which is depainted right over against it.

V. *Fame* is Painted like a Lady, with great Wings, and seeming to proffer a flight, and to mount from the *Earth*, and rove abroad: having her Face full of Eyes; and all over her Garments an infinite number of Ears and Tongues. *See the XXI. Section of the twenty ninth Chapter of this Book.*

VI. *Opinion*, saith *Hippocrates*, resembles a young Woman, not altogether so fair and lovely as *Truth*, yet not deformed, or ill proportioned; being rather impudent than modestly bold in her demeanour, with her hand stretched forth to take whatsoever is offered and presented to her.

CHAP. XXV.

How Night, Sleep, Silence, Pleasure *and* Fear, *were depicted.*

I. NIght (the Mother of *Sleep* and *Death*) was depicted by the Ancients in form of an old Woman, having two great Wings growing on her shoulders, all coal black, and spread abroad, as if she seemed to offer a flight; and that she is drawn in a Chariot, whose Wheels are made of Ebony: having a sad Countenance, and an upper Garment of a deep black, spotted all over with Silver spots like Stars, as *Boccace* saith,

She is also depicted like an old Woman in a black Mantle, spotted with Stars of Gold.

II. *Sleep*, (the Brother of *Death*) saith *Hesiod*, was Painted of a most sowre, lowring and sad Aspect; aged, and holding in her left hand a young Child, very beautiful; and in her right, another Child, of a most swarthy, black and dull Complexion, with Legs and Arms very crooked. *Philostratus* in a Tablet (which he made for *Amphiarus*) makes her like an aged Woman, slothful and sluggish, clothed with several Garments, the under black, the upper white, holding in one of her hands, a Horn, pouring forth Seed.

By the Garment is signified Night and Day; by the Seed, Rest, Ease and Quiet.

III. *Harpocrates* (the God of *Silence*) called in *Greek*, *Sigaleon*, was made, as *Martianus* and *Apuleius* say, in likeness of a young Child, who close to his Lips held one of his Fingers, as a sign of Secrecy. Some pourtraict him without any Face at all; all covered with the skin of a Wolf, painted full of Eyes and Ears:

Shewing it to be good to See and Hear much, but to speak little.

IV. *Voluptia* or Pleasure, was depainted a Lady, having a pale and lean Countenance, sitting in a Pontifical and Majestick Chair, Embroidered and Embossed with Stars of Gold, Treading and Trampling upon *Vertue*.

V. *Fear*, saith *Pausanius*, was shaped in several forms by the Ancients; sometimes with the Head of a Lion among the *Grecians* (as on the Shield of *Agamemnon*:) and sometimes with the deformed Face and Body of a Woman.

The Corinthians *dedicated this Picture so made unto the Sons of* Medea; *which were slain for bringing such fatal gifts to the Daughter of old* Creon, *whereby she, and all that Regal Family perished, and were for ever Extinct.*

CHAP.

CHAP. XXVI.

How the Ancients depicted several Wisemen, Philosophers, Lawgivers, Emperours, Kings and Queens.

I. *Sidonius Apollinarius* in the ninth Epistle of his ninth Book, saith, that the Philosopher *Zeuxippus* was Painted with a crooked Neck: *Aratus* with a Neck bowed downwards: *Zeno* with a wrinkled Forehead.

II. *Epicurus* was painted with a smooth skin: *Diogenes* with a hairy rough Beard: *Socrates* with whitish bright Hair.

III. *Aristotle* was painted with a stretched out Arm: *Zenocrates* with a Leg somewhat gathered up: *Heraclitus*, his Eyes shut with crying.

IV. *Democritus* with his Lips open, as laughing: *Chrysippus* with his Fingers close pressed together, for numbering: *Euclid* with his Fingers put asunder, for the space of measures.

V. In some ancient Bibles, and many Pictures *Moses* is described with horns.

"The ground of this absurdity was a mistake of the "*Hebrew* Text, in that of *Moses* descending from the "Mount, upon the nearness of the words, קרן *Keren*, "*Cornu*, an horn, and קרן *Karan*, *Lucco*, to shine. The "vulgar Translation (of *Exodus* 34. 29. 35.) agrees with "the former, to wit; *Ignorabat quòd cornuta esset facies "ejus. Qui videbant faciem* Mosis *esse cornutam.* The "Translation of *Paulus Fagius* is otherwise, *viz.* Moses "*nesciebat quòd multus esset splendor gloriæ vultûs ejus. Et "viderunt filii* Israel, *quod multa esset claritas gloriæ faciei* "Mosis. *Tremelius* and *Junius* have it thus, *Ut ignoraret* "Mosche *splendidam esse factam cutem faciei suæ. Quod* "*splendida facta esset cutis faciei* Moschis: agreeing with "the Septuagint, δεδόξασται ἡ ὄψις τῆ χρώματι τῆ προσώπου, "*glorificatus est aspectus cutis seu coloris faciei.*

VI. But *Moses* is generally depicted with bright Hair, a very beautiful Visage, with radiant Scintillations about his Head, in form of Hoarinesse, which in Painting is called Glory.

VII. *Alexander* the Great, with brown Hair, and a ruddy Complexion, riding upon his Horse; but by some riding upon an Elephant.

The reason of this is hard to be discerned; for as much as I find not in History, that ever he used that beast in his Armies, much less in his own Person: except it were for that remarkable battel which he fought with Porus *King of* India, *wherein were many Elephants: In which himself (as* Curtius, Arianus *and* Plutarch *relate) was on Horseback, the name of which Beast yet lives, and is famous in History to this day.*

VIII. *Numa Pompilius* with white Hair Crowned with a Silver Bend or Diadem; his Robe Crimson, trimmed with Gold; his Mantle Yellow, trimmed with Silver; his Buskins Watchet and Silver.

IX. *Æneas* the *Trojan* Prince in a Purple Mantle trimmed with Gold.

X. *David* (the King of *Israel*) with Brown Hair, a ruddy Complexion, and a long Beard.

XI. *Elizabeth* Queen of *England*, pale Faced, light brown Hair, and gray Ey'd.

XII. *Dido* Queen of *Carthage* in a Purple or Scarlet Mantle, her Under-garments Purple; a Golden Quiver; Hair Yellow, tyed up with Spangles and Knots of Gold.

XIII. *Gustavus Adolphus* King of *Sweden* with Yellow Hair.

XIV. *Mahomet* the *Turks* great Prophet in Garments all of Green.

XV. *German Emperours* in a Violet-coloured Robe, Watchet, or Light-coloured.

XVI. *Roman Emperours*, with Yellow Carrusters Embroidered with Silver; the Labels of their Sleeves, and short Bases of Watchet; the under Sleeves, and long Stockings White; a Laurel Wreath, with a Silver Jewel before; and Rays of Gold issuing from the Wreath.

XVII. *Pythagoras* in White Garments with a Crown of Gold.

XVIII. *Empedocles*, in Violet, Murry, or Purple, and so generally the rest of the *Grecian Philosophers*.

XIX. *Erasmus Roterdamus*, Yellow Hair'd, gray Ey'd, and somewhet Pale.

XX. The

XX. The *Virgin Mary* is commonly represented in Purple and Azure: *John the Evangelist* in Scarlet: *John Baptist* in a Hairy Mantle: The *rest of the Apostles*, in Green or Crimson.

CHAP. XXVII.

The Painting of the Sibyls.

I. *Sibylla Agrippina*, a Woman in Years, in a Roseal Garment. She is by divers Authors called *Ægyptica*. *Suidas* writes, that she Prophesied in *Ægypt* in the days of *Pharaoh*: She Prophesied thus, *That hands should be laid on the invisible Word, his Beauty shall not appear, his Mothers Womb shall enclose him, and He (who is Eternal Joy) shall Weep.*

II. *Sibylla Libyca*, an Elderly Woman, Crowned with a Garland of Flowers, in Purple Garments. She was Born in *Libia*, (otherwise called *Elissa*) and lived in the time of *Euripides*: *Lactantius* gives her the second place among the *Sibyls* for her admirable Predictions, *viz. The time draws on, and is not far off, when the God of Light shall be environed with the radient beams of the Sun.*

III. *Sibylla Delphica*, with a Black Garment, a young Woman with a Horn in her Hand. She was so called, because she was Born at *Delphos*. She lived before the Siege of *Troy*, and foretold the manner of that War: and Prophesied of Christ thus; *Know him for thy Lord, who it the Son of God; a Prophet shall be Born of a pure Virgin without the Seed of Man.*

IV. *Sibylla Phrygia*, in red Garments, having an old Saturnian hard favoured Face. She is supposed by many to be *Cassandra*, and Prophesied very Divinely of the day of Judgment. *A Trumpet* (said she) *from Heaven shall give a very terrible and dreadful sound; all Kings shall stand before the Judgment Seat of God, who will at once Judge both Just and Unjust.*

V. *Sibylla Herophila*, a young Woman, very fair, in a Purple Garment, and Head covered with a Vail of Lawn. She was also called *Erithrea*, who (as *Apollodorus*

dorus Erithreus says) was a Citizen of *Erithrea* in *Ionia*; she Prophesied to the *Greeks*, that they should overcome *Troy*: and also of *Christ*, *That the Earth shall sweat as a token of Judgment*; *a King shall come from Heaven, whose Kingdom shall be Everlasting.*

VI. *Sibylla Europea*, a comely young Woman, having a high, red-coloured Face, a fine Vail on her Head, and clad in a Garment of Gold work. It is said, that she was Born in *Jerusalem*, but the place of her Birth is not certainly known: She Prophesied thus; *The Almighty shall come accompanied with his Legions of Angels, he shall walk over the Hills and Clouds, he shall live Poorly, and in Silence shall he bear rule.*

VII. *Sibylla Persica*, with a White Vail, and a Golden Garment. She lived in the CXX. *Olympiade*, and was Born in a Town called *Noe*, by the Red Sea: She Prophesied thus: *O Death, thou shalt be trodden under foot; the Son of God shall be Born into the World, and he shall bring to Man Salvation: the Invisible Word shall be made Visible.*

VIII. *Sybilla Samia*, a middle aged Woman, clothed in Willow weeds, having a Palm in her hand. She was Born at *Phiton* in the Ille of *Samos* in the *Ægean* Sea, near *Thrace*: *Cassiodorus* says, she Prophesied 665. Years before the Birth of Christ, and yet Prophesied as though she had lived in his days; *viz. O ill advised and indiscreet People of* Judea, *who did not turn to the Lord your God: you have not truly known him, but have Crowned him with Thorns; and given him Gall to drink.*

IX. *Sibylla Hellespontica*, a young Woman in green Garments, with a round, lovely, fresh coloured Face; holding in her Left Hand a Book; and in her Right Hand a Pen. She was Born in the Territories of *Troy*, in a place called *Marmissia*, near the Town of *Gergitha*: *Heraclides Ponticus* says, that she lived in the Days of *Solon*, and Reign of *Cyrus*, about the LX. *Olympiade*: She Prophesied thus; *Be comforted, O Nations, call upon your God, your Iniquities shall be forgiven, and you shall find Mercy at the hands of the Lord.*

X. *Sibylla Tiburtina*, an old Woman in Purple Garments, of a hard Visage, holding in her Apron the Books of the Sibyls. She was Born in *Italy*, in a Town near *Rome*, upon the Banks of the *Tybur*, from whence she took

took her name: She Propheſied, *viz. A Branch ſhall bud from a ſweet Root, a Flower ſhall ſpring from theuce, and the Spirit of the Lord ſhall reſt upon it.*

XI. *Epirotica*, called alſo *Cimmeria*; ſhe is Painted like an old Woman in a *Grotto*, with a hard favoured Face, and in purple or dark coloured Cloths. She was ſaid to be Born near the *Boſphorus*; but others ſay in *Cimmeria*, a Town of *Campania* in *Italy*: She Propheſied a while after the deſtruction of *Troy*, thus; *That a Virgin ſhould bring forth a Son, without the help of a Man, and nouriſh him with the milk of her Breaſts.*

XII. *Cumana*; ſhe is Painted like a grave Matron, with a Veil, and in blue coloured Robes, hiding her feet. She was Born in *Cuma*, a Town of *Campania*, in *Italy*, and lived in the LV. *Olympiade*, in the time of *Numa Pompilius*, and *Tarquinus Superbus*: She Propheſied thus; *After three Days* (ſays ſhe) *he ſhall triumph over Death, return to the Light, and be the firſt who ſhall give Evidence to the Reſurrection, thereby to ſtrengthen the Faithful in the Hope of Eternal Life.*

XIII. *Theſe* Sibyls *for their Prophecies of Chriſt are in high eſteem: they are Ten in number, as* Varro *ſaith; yet others make Twelve, of which we are not ſatisfied*; Boyſardus *in his Treatiſe of Divination, beſides theſe Ten, addeth Two others,* Epirotica *and* Cumana.

XIV. *Some, as* Martianus, *will have but Two*; Pliny *and* Solinus, *but Three*; Ælian *Four*; *and* Salmaſius *but the firſt Seven. They are generally deſcribed as young Women, yet ſome were old, as ſhe that ſold the Books unto* Tarquin, *from whence we conclude the* Licentia pictoria *is very large.*

CHAP. XXVIII.

The Painting of Arts, Vertues, Paſſions, and Minor Gods.

I. *Arithmetick* is painted in cloth of Gold: *Geometry* ſallow faced, a green Mantle fringed with Silver, and a Silver wand in her right hand: *Aſtronomy* with a Siver

Silver Crescent on her Fore-head, an Azure Mantle, a Watchet Scarf, with Gold Stars.

II. *Faith* is painted in white Garments, with a Cup of Gold: *Hope* in blue, with a Silver Anchor: *Charity* in yellow Robes; on her head a tyre of Gold with precious Stones; her Chair Ivory.

III. *Religion* in a Silver Vail, with a Garment or Mantle of white: *Justice* in a white Robe, and a white Mantle; with a Coronet of Silver, and white Buskins: *Innocency* in white.

IV. *Concord* in a Sky-coloured Robe, and a Yellow Mantle; *Peace* in White, scattered with Stars, or a carnation Mantle fringed with Gold, a Vail of Silver, Green Buskins, and a Palm in her hand in black: *Unanimity* in a blue Robe, Mantle and Buskins; with a chaplet of blue Lillies.

V. *Wisdom* in a white Robe, blue Mantle, seeded with Stars: *Law* in purple Robes, seeded with Golden Stars; a Mantle of Carnation fringed with Gold; purple and yellow Buskins: *Government* in Armour.

VI. *Watchfulness* in a yellow Robe: a sable Mantle fringed with Silver, and seeded with waking Eyes; a chaplet of Turnsole; in her Right Hand a Lamp; in her Left, a Bell: *Confidence* in a parti-coloured garment: *Modesty* in blue.

VII. *Eternity* in blue, seeded with Golden Stars; the *Soul* in white Garments, branched with Gold and Pearl; and Crowned with a Garland of Roses; *Felicity* in purple trimmed with Silver.

VIII. *Love* in Crimson fringed with Gold, a flame-coloured Mantle, a chaplet of red and white Roses: *Natural Affection*, in Citron colour: *Envy*, in a discoloured Garment full of Eyes.

IX. *Joy*, in a green Robe, and a Mantle of divers colours, embroidered with Flowers; a Garland of Myrtle; in her Right Hand a Crystal Cruise, in her Left a Golden Cup: *Pleasure* in light Garments, trimmed with Silver and Gold: *Laughter* in several colours.

X. *Wit*, in a discoloured Mantle: *Follity*, in flame colour: *Pastime* in purple trimmed with Gold.

XI. *Opinion* in black Velvet, black Cap, with a white fall: *Impudence*, in a party-coloured garment: *Audacity*, in bluish colour.

XII. *Ho-*

XII. *Honour*, in a purple Robe, wrought with Gold: *Liberty*, in white: *Safety*, in Carnation.

XIII. *Cupid* was painted (by *Zeuxis*) in a green Robe: *Hymen* in long yellow hair, in a Purple or Saffron coloured Mantle: *Triton* (*Neptunes* Trumpeter) with a blue Skin, in a purple Mantle.

XIV. *Urania*, in a Mantle of azure, filled with Lamps: *Astrea* the Goddess of Justice, in a Crimson Mantle, trimmed with Silver: *Graces* all alike, as Sisters, in Silver Robes.

XV. *Tellus*, the Goddess of the Earth in a green Mantle: *Ceres*, with yellow hair, and a straw-coloured Mantle trimmed with Silver: *Vesta*, daughter of *Saturn*, in white Garments filled with flames.

XVI. *Flora* in a black Mantle, of divers colours: *Proserpine* in a black Mantle trimmed with Gold flames: *Echo*, (the Goddess of the Air, and Daughter of Speech, the intirely beloved of *Pan*) is an invisible Goddess.

XVII. *Ausonius Gallus* reporteth that she hath oftentimes disswaded, and reprehended such, who would undertake to depaint her, and repeats the same in an Epigram, whose sence in *English* is this:

Surcease thou medling Artist thy endeavour,
Who for thy skill hast reapt such long liv'd fame:
Strive not to paint my Body, Shape, for never
Did any humane Eyes behold the same.
In concave Caverns of the Earth I dwell,
Daughter o'th' Air, and of each tatling Voice,
In Woods and hollow Dales I build my Cell,
Joying to re-report the least heard noise,
To grief oppress, and Men disconsolate,
That tell each Grove their Souls vexation,
Their dying Agonies I aggravate,
By their dole accents iteration.
And he that will describe my form aright,
Must shape a formless sound, or airy sprite.

CHAP.

CHAP. XXIX.

To expreſs the Powers.

I. *Eternity*, It is expreſſed in the form of a fair Lady, having three heads, ſignifying Time paſt, preſent, and to come; in her left hand a Circle, pointing with the Forefinger of her right hand up to Heaven: the Circle ſignifies ſhe hath neither beginning nor end.

II. *In the Medals of* Trajan, *ſhe was figured red, ſitting upon a Sphear, with the Sun in one Hand, and the Moon in the other:* (by her ſitting is ſignified perpetual conſtancy.)

III. *In the Medals of* Fauſtina, *ſhe is drawn with a Veil, and in her right hand the Globe of the World.*

IV. Boccace, *writing of the Progeny of the Gods, ſaith, that the Ancients derived it from* Demogorgon, *as the principal and firſt of them all, who inhabited in the Middle or Center of the Earth*, encircled round about, and circumveſted with a dark and obſcure Cloud, breathing from his mouth a certain liquid humidity.

But however what Eternity *is, the name doth clearly diſcover, containing in it ſelf all Worlds and Ages, and not limited, or meaſured by any ſpace of time.*

V. Claudius *deſcribes it by a Serpent that encompaſſeth round with her Body, the Cave or Den wherein it lieth, ſo as making a Circle, ſhe holds in her mouth the end of her tail, which with the* Ægyptians *was the Emblem of a year.*

> *All in a Circle thus ſhe ſits involv'd,*
> *Whoſe firm tenacity is ne'r diſſolv'd:*
> *She ſends forth times, and them recals again,*
> *Ages to come, and paſt ſhe doth retain.*

VI. *But according to* Boccace, *as Eternity hath an abſolute command over all times, ſo ſhe lives far hence in ſome remote and unknown Vale, where humane ſteps never approached, but is even unfound out of the Cœleſtial inhabitants, thoſe happy Souls, who ſtand before the preſence of the greateſt, that only knows all things.*

VII. *Time.*

VII. *Time*, It is drawn ſtanding upon an old Ruine, winged, and with Iron Teeth. *Or thus*, An old man in a garment of Stars; upon his head a Garland of Roſes, Ears of Corn, and dry Sticks, ſtanding upon the Zodiack, with a Looking-Glaſs in his Hand; two Children at his Feet, the one Fat the other Lean, writing both in one Book; upon the Head of one the Sun, upon the other the Moon. *Or thus*, An old Man, Bald behind, Winged, with a Scithe and an Hour-Glaſs, having a lock of Hair on his Forehead.

VIII. *Fate*, a Man in a fair, long, flaxen Robe, looking upwards to two bright Stars encompaſſed with thick Clouds, from whence hangs a Golden Chain.

IX. *Fortune*, a Naked Lady, having an Enſign or Veil overſhadowing her, ſtanding upon a Globe or Ball.

Lactantius *ſaith that Fortune is a vain, idle and ſenſeleſs name, ſhewing forth Mans weakneſs in attributing any thing thereto: which* Marcus Tullius *confirmeth, where he ſaith, That this name of Fortune, was firſt brought in to cover the ignorance of Man.* Alexander Neapolitanus *ſaith, that in* Præneste, *in a Temple, ſhe was depicted in the ſhape and form of two Siſters, both conjoined in one and the ſame Statue.*

X. Pauſanias *ſaith, That her moſt ancient Statue was that which* Bupalus *made in* Greece *in ſhape of a Woman, upon whoſe Head was a round Ball, and in one of her Hands a* Cornucopia, *ſhe is called the blind Goddeſs, and partial Lady, by reaſon of the beſtowing of her unconſtant and mutable Favours.*

Imperious Ruler of the Worlds deſigns,
Lady of Solace, Pleaſure and of Pains:
Like Tennis Balls thou beat'ſt us to and fro,
From Favours to Diſgrace, from Joy to Woe;
From Wars to Peace, from Rule to be commanded:
But with unconſtancy thou now art branded.

XI. Macrobius *ſaith ſhe was ſet forth with Wings on her Shoulders, (to ſhew that ſhe was always at Hand among Men) had by her ſide the Rudder of a Ship (to ſhew that ſhe doth Rule and Command) her ſelf placed upon a Wheel, holding in her Right Hand a Golden Ball, and in the other a Whip; ſhewing where ſhe ſmiled, Wealth and Honour; and where ſhe frowned, Croſſes and Miſery ſhould follow.*

In

XII. *In* Ægypt *Fortune was depicted like a Lady turning a great Glass Wheel, on whose Top were many Men playing, others climbing up; and others having attained it, precipitating themselves, and falling down back again.*

XIII. *Equality*, A Lady lighting two Torches at once.

XIV. *Victory*, is expressed by a Lady clad all in Gold, in one Hand a Helmet, in the other a Pomegranate: *By the Helmet is meant Force, by the Pomegranate unity of Wit and Counsel.*

XV. Augustus *drew her with Wings ready to fly, standing upon a Globe, with a Garland of Bays in one hand, in the other a Coronet of the Emperor, with these Words,* Imperator Cæsar.

XVI. *In the Medals of* Octavius, *she is drawn with Wings, standing on a Base, in one Hand a Palm, in the other a Crown of Gold.*

XVII. *Peace*, is drawn like a Lady, holding in her right Hand a Wand or Rod downwards towards the Earth, over a hideous Serpent of sundry colours; and with her other Hand covering her Face with a Veil, as loth to behold Strife or War.

XVIII. Trajan *gave a Lady, in her Right Hand an Olive Branch, in her Left a* Cornucopia. *In the Medals of* Titus, *a Lady having in one Hand an Olive Branch, the other leading a Lamb and a Wolf coupled by the Necks in one Yoke. The Olive was always the Emblem of Peace.*

XIX *Providence*, A Lady lifting up both her Hands to Heaven, with these Words, *Providentia Deorum. Or thus*, A Lady in a Robe, in her Right Hand a Scepter, in her Left a *Cornucopia*, with a Globe at her Feet.

XX. *Concord*, A Lady sitting, in her Right Hand a Charger for Sacrifice, in her Left a *Cornucopia*, with the Word *Concordia. Or thus*, A fair Virgin, holding in one Hand a Pomegranate; in the other a Mirtle Bunch.

The nature of these Trees are such, that if planted, though a good space one from another, they will meet, and with twining embrace one another.

XXI. *Fame*, A Lady clad in a thin and light Garment, open to the middle Thigh, that she might run the faster; two exceeding large Wings; Garments embroidered with Eyes and Ears, and blowing of a Trumpet.

XXII. *Destiny*, A Lady, who with great fury, and exceeding celerity holds in her Hand an Iron Bow ready bent, aiming to strike Fortune even at the very Heart.

Destiny

Destiny *and* Fortune *can never agree; and therefore as* Fortune *flies from* Destiny, *so* Destiny *pursues* Fortune; *for where* Destiny *sets foot, there* Fortune *is, as it were, Inchanted and Conjured, as having no Power, Efficacy or Vertue.*

CHAP. XXX.

Of Vertues and Vices.

I. *VErtue* is represented by *Hercules*, naked, with his Lyons Skin, and knotted Club, performing some one of his Labours; as offering to strike a Dragon keeping an Apple-tree: or holding in his Hand three Golden Apples.

Hercules *is nothing else but Vertue, his name in the* Greek *Tongue is* Ἡρακλῆς, *quasi* ἥρας κλεὸς, Junonis gloria: vel quia κλησεῖ τες ἥρωας celebrat aut commemorat Heroas, *which is the property of Vertue: he is drawn naked to demonstrate her simplicity: by the Dragon is set forth all manner of Vices: by the Lions skin, magnanimity and greatness: by his Oaken Club, Reason and Policy: by its knottiness, the difficulty, pains and labour in seeking after Vertue: by the three Golden Apples, the three Heroical Vertues, Moderation, Content and Labour.*

II. *Piety* is drawn like a Lady, with a sober countenance; in her Right Hand she holdeth a Sword stretched over an Altar; in her Left Hand a Stork; and by her side is placed an Elephant and a Child.

The Stork is so called of στοργὴ, *the reciprocal or mutual love of Parent and Child, of which this Bird was ever an Emblem, for the love and care she hath of her Parents being old. The Elephant seems to Worship towards the rising of the Sun.*

III. *Hope* is drawn like a beautiful Child in a long Robe hanging loose, standing upon Tip-toes, and a Trefoil, or Three-leav'd Grass in its Right Hand, in its Left an Anchor.

The loose Vestment shews, she never pincheth or binds Truth, standing on Tip-toes shews she always standeth dangerously;

the branch of Trefoil shews Knowledge, (the ground of Faith) Faith (the ground of Hope,) and Hope it self.

IV. *Mercy*, a Lady sitting upon a Lion, holding in one hand a Spear, in the other an Arrow; which she seemeth to cast away.

In the Medals of Vitellius *she sits with a branch of Bays in her hand, and a Staff lying by her.*

V. *Justice*, a fair young Virgin, drawing after her, with her Left Hand, a black, hard, ill favoured Woman, haling her by main force, and striking her over the Face in a severe manner.

The young Virgin was Justice, *the other* Injuria: *She is drawn young, and a Virgin, to shew, that Judges and Administrators of Law ought to be incorrupt and free from Bribes, Partiality or Flattery, but Just, Constant and Sincere.*

VI. *Felicity*, a Lady sitting in an Imperial Throne, in the one hand she holdeth a *Caduceus* or Rod, in the other hand a *Cornucopia*.

VII. *Fruitfulness*, a Lady sitting upon a Bed, and two little Infants hanging about her Neck.

VIII. *Dissimulation*, a Lady wearing a Vizard of two Faces, in a long Robe of changeable colour; and in her right hand a Magpye.

IX. *Security*, a Lady leaning against a Pillar, before an Altar, with a Scepter in her hand.

X. *Calumnia*, a beautiful, rich and young Woman, approaching towards a Judge, gorgeous in her habit, with an angry, scornful and discontented look, and red and fiery Eyes; she holds in her left hand a flaming Torch: and with her right she by force draws a young Man by the hair of the head.

XI. *Envy*, a wonderful lean old Man, with a pale and meagre face, in whose withered cheeks Age hath wrought deep furrows and wrinkles.

XII. *Penitence*, a Women in vile, ragged and base Attire, infinitely deploring her being: and bemoaning her self in passionate fits above all measure, continually weeping.

CHAP.

CHAP. XXXI.

Of Rivers.

I. HErein you ought to obſerve the Adjuncts and Properties of the ſame; which conſiſts in ſome notable Accident done near them; ſome famous City, Trees, Fruits, or Reeds ſituate upon their Banks; ſome Fiſh only proper to their ſtreams; or recourſe of Shipping from all Parts of the World.

II. Therefore you had beſt place the City upon their Heads; their Fruits in a *Cornucopia*; Reeds, Flowers and Branches of Trees in their Garlands, and the like.

III. The River *Tiber*. It is expreſſed (in the *Vatican* at *Rome*) in a goodly Statue of Marble lying along (for ſo you muſt draw them) holding under his Right Arm a She Wolf, with two little Infants ſucking at her Teats, leaning upon an Urn or Pitcher, out of which iſſueth its ſtream: In his Left a *Cornucopia* of delicate Fruits, with a grave Countenance and long Beard; a Garland of Flowers upon his Head; and reſting his Right Leg upon an Oar.

IV. The River *Nilus*. It is ſeen (in the *Vatican*) cut out in white Marble, with a Garland of ſundry Fruits and Flowers, leaning with his Left Arm upon a *Sphynx*; from under his Body iſſueth its ſtream: In his Left Arm a *Cornucopia* full of Fruits and Flowers on one ſide, with Sixteen little Children, ſmiling and pointing to the flood.

The Sphynx *was ſometimes a Monſter which remained by* Nilus: *the* Crocodile ἀπὸ τῦ κρόκου δειλιᾶν, *from his hatred of Saffron*; *the moſt famous Monſter of* Egypt: *The ſixteen Children, the ſixteen Cubits of height, the uttermoſt of the flowing of* Nilus: *their ſmiling looks, the profit of it, which glads the hearts of the Sun-burnt Inhabitants.*

V. The River *Tigris*. It was drawn like an old Man (as the reſt) and by his ſide a *Tiger*.

This Beaſt was given as well for its fierce ſtreams, as for the ſtore of Tigers *which are there.*

VI. The River *Ganges*. It bears the ſhape of a rude and barbarous Savage, with bended brows, of a fierce and cruel Countenance, crowned with a Palm, having, as other floods, his Pitcher, and by his ſides a *Rhinoceros*.

This River runneth through India, *and hath its head from a Fountain in Paradiſe.*

VII. The River *Indus*. It is drawn with a grave and jovial Aſpect, with a Garland of its Countrey Flowers, by its ſide a Camel (from χάμαι) it is repreſented pleaſantly, grave, as an Emblem of the *Indian* Policy.

This is the greateſt River in the World, receiving into its Chanel threeſcore other great and famous Rivers, and above an hundred leſſer.

VIII. The River *Thamiſis*. In the Houſe of an Honourable Friend, I ſaw the *Thames* thus drawn: A Captain or Soldier lying along, holding in his Right Hand a Sword, and under his Arm the Auguſt Tower: in the other a *Cornucopia* of all fragrancies, with a Golden Chain which held four Crowns; and with this he encompaſſed the ſtreams, from under which bending of his Left Arm, they ſeemed to flow: his temples were adorned with Bays, the River was empaled on one ſide with Anchors, and on the other ſtood *Cæſar*'s *Auguſta*.

IX. The River *Arnus*. It is a famous River in *Italy*, drawn like an old Man leaning upon his Pitcher, pouring out water: upon his Head a Garland of Beech, by his right ſide a Lyon, holding forth in his dexter Paw a red Lilly or Flower-de-luce, the ancient Arms of the chief City of *Tuſcany*.

By the Garland of Beech is ſet forth the great abundance of Beech Trees growing about Falterona *in the* Appennines, *where* Arnus *hath his head.*

X. The River *Po* or *Padus*. It is depicted with an Ox's face, having a Garland of Reeds or Poplar on his Head.

It is ſo called from the Siſter of Phaeton, *whom the Poets feign deſtroyed with Lightning, and drowned here: the head of the Ox, is from its horrid noiſe and roaring, whoſe crooked banks reſemble the horns thereof; by the ſides whereof grows much Reed, and many Poplars.*

XI. The River *Danubius*. In an ancient Medal of the Emperour *Trajan*, it is depicted with its heads covered with a Veil.

It

It is so drawn, because its Head or first Spring is unknown, Ausonius *saith,*

Danubius periit caput occultatus in ore.

XII. The River *Achelous*. *Ovid* describes it with a Garland of Reeds, Willow, and the like: having two Urns or Earthen Pitchers, the one empty, the other casting out water; and upon its head two horns, the one whole, the other broken.

This River, as it is the most famous of all Greece, *so it divides* Ætolia *from* Arcadia, *and then falls into the Sea. This is fetch'd from the Fable of* Hercules, *who combated him in the likeness of a Bull, and broke one of his horns for* Deianira's *sake, there turning both its streams into one, whereupon one of the Urns is empty.*

XIII. The River *Niger*. It is drawn like a *Black-Moor*, with Glory, or a Coronet of Sun-beams falling upon his Urn, having by its side a Lion.

By the Sun-beams and Black, is shewed the Clime, lying under the Torrid Zone, whose inhabitants are Blacks *or* Moors; *the Lyon is that which the Countreys* Mauritania *and* Barbary *breed, being the fiercest in the World.*

CHAP. XXXII.

Of Nymphs.

I. ΝΥΜΦΗ *Nympha*, a Bride (*from* νεὸν *and* φάνεσθαι *as it were a fresh or new Creature: or as some will have it*, Nympha quasi Lympha, *by changing* L. *into* N. *after the Dorick dialect:*) it is nothing else but an Allegory, from the Vegetative Humidity, which gives life to Trees, Herbs, Plants and Flowers, by which they grow and increase.

II. They are feigned to be the Daughters of the Ocean, the Mother of Floods, the Nurses of *Bacchus*, and Goddesses of Fields, who have the protection and charge of Mountains, Herbs, Woods, Meadows, Rivers, Trees, and generally of the whole Life of Man.

III. *First*, Napæa,, *Nymphs of the Mountains.*

Let them be drawn of a sweet and gracious Aspect, in green Mantles, girded about in the middle; and upon their heads Garlands of Honeysuckles, Wild-roses, Tyme, and the like; their actions, dancing in a Ring, making Garlands, or gathering Flowers.

They are so called from Νάπος *the Top of an Hill, or woody Valley.*

IV. *Secondly*, Dryades, *Nymphs of the Woods.*

Draw these less fair than the former, of a brown or tawny Complexion, hair thick like Mos, and their Attire of a dark green.

They are so called from Δρῦς *an Oak, having their beginning with Trees, and dying again with them.*

V. *Thirdly*, Naiades, *Nymphs of the floods.*

Draw them beautiful, with Arms and Legs naked, their Hair clear as Crystal; upon their Heads Garlands of Water-cresses, with red leaves: their actions pouring out water.

They are so called from Νάω *to flow, or bubble, as water doth.*

VI. *Thetis*, a Lady of a brown Complexion, her Hair scattered about her Shoulders, crowned with a Coronet of Periwinkle and Escallop shells, in a Mantle of Sea-green, with Chains and Bracelets of Amber about her Neck and Arms, and a branch of red Coral in her Hand.

VII. *Galatea*, a most beautiful young Virgin, her Hair carelesly falling about her Shoulders like Silver threads, and at each Ear a fair Pearl; with a double string of them (sometimes) about her Neck and Left Arm; a Mantle of pure thin and fine white, waving, as it were, by the gentle breathing of the Air, viewing in her hand a spunge made of Sea-froth: *She is so called from* γάλα, *lac, milk.*

VIII. *Iris*, a Nymph with large wings, extended like to a Semicircle, the Plumes set in rows of divers colours, as yellow, green, red, blue or purple; her Hair hanging before her Eyes, her Breasts like Clouds, drops of Water falling from her Body, and in her hand *Iris*, or the *Flower-de-luce.*

Virgil makes her the Messenger of *Juno* (where she is taken for the Air) when he saith, *Irin de Cœlo misit Saturnia Juno.*

IX.

IX. *Nymphæ Dianæ*; Let them be cloathed in white Linnen to denote their Virginity, and their Garments girt about them; their Arms and Shoulders naked; Bows in their hands, and Arrows by their ſides.

X. *Aurora*, the Morning. A young Virgin with carnation Wings, and a yellow Mantle; in her Fore-head a Star, and Golden Sun-beams from the Crown of her Head, riding upon *Pegaſus*, with a vial of Dew in one hand, and various Flowers in the other, which ſhe ſcattereth upon the Earth.

CHAP. XXXIII.

Of the Nine Muſes.

I. *Clio*, She is drawn with a Coronet of Bays; in her right hand a Trumpet, in her left a Book, upon which may be written *Hiſtoria*; her names is from Praiſe or Glory.

II. *Euterpe*, Is crowned with a Garland of Flowers, holding in each hand ſundry Wind-inſtruments; her name is from giving delight.

III. *Thalia*. Draw her with a ſmiling look, and upon her Temples a Coronet of Ivy, a Mantle of Carnation embroidered with Silver twiſt, and Gold ſpangles, and in her left hand a Vizard; her Ivy ſhews ſhe is Miſtreſs of Comical Poeſie.

IV. *Melpomene*. Draw her like a Virago, with a majeſteck and grave Countenance, adorn her head with Pearls, Diamonds and Rubies; holding in her left hand Scepters with Crowns upon them, other Crowns and Scepters lying at her feet: and in her right hand a naked Poniard, in a Mantle of changeable Crimſon. Her gravity befits Tragick Poeſie.

V. *Polyphymnia*. Draw her acting a Speech with her Fore-finger, all in white, her Hair hanging looſe about her Shoulders, of an Orient Yellow, upon her Head a Garland of the choiceſt Jewels intermixt with Flowers, and in her left hand a Book, upon which let be written *Suadere*; her name imports Memory to whom the Rhetorician is beholden.

VI. *Erato.* She hath her name from Ἔρως, *Amor, Love:* draw her with a ſweet and comely Viſage, her Temples girt with Myrtles and Roſes, bearing an Heart with an Ivory Key; by her ſide *Cupid*, winged, with a lighted Torch; at his Back, his Bow and Quivers.

VII. *Terpſicore*; a cheerful Viſage, playing upon ſome Inſtrument; upon her head a Coronet of Feathers of ſundry Colours, but chiefly green; in token of the Victory which the Muſes got over the Syrens, *&c.* by ſinging.

VIII. *Urania.* A beatiful Lady in an Azure Robe; upon her Head a Coronet of bright Stars; in her right hand the Celeſtial Globe, and in her left the Terreſtrial. Her name imports as much as Heavenly; *Urania Cæli motus ſcrutatur & Aſtra.*

IX. *Caliope.* Upon her Head draw a Coronet of Gold; upon her left Arm Garlands of Bays in ſtore, for the reward of Poets; and in her right Hand three Books, upon which write *Homerus, Virgilius, Ovidius.*

The Muſes had their names, as Euſebius *ſaith,* παρὰ τὸ μυεῖν, *which is to inſtruct, becauſe they teach the moſt honeſt and laudable diſciplines.*

CHAP. XXXIV.

Of the four Winds.

I. EUrus, the Eaſt-wind. Draw a Youth with puffed and blown Cheeks (as all the other Winds muſt be) Wings upon her Shoulders, his Body like a Tawny-Moor, upon his Head a Red Sun.

II. *Zephyrus*, the Weſt-wind. Draw a Youth with a merry look, holding in his Hand a Swan, with Wings diſplay'd as about to ſing, on his Head a Garland of all ſorts of Flowers.

'Tis called Zephyrus quaſi ζωὴν φέρων, *bringing life, becauſe it cheriſheth and quickneth*

III. *Boreas*, the North-wind. Draw it like an old Man, with a horrid, terrible look; his Hair and Beard covered with Snow, or the hoar Froſt; with the Feet and Tail of a Serpent.

IV. *Au-*

IV. *Auſter*, the South-wind, is drawn with Head and Wings wet, a Pot or Urn pouring forth Water, with which deſcend Frogs, Graſhoppers, and the like Creatures, which are bred by moiſture.

CHAP. XXXV.

Of the Months of the Year.

I. *Januury* muſt be drawn all in white, like Snow or hoar Froſt, blowing his Fingers; in his left Arm a Billet, and *Aquarius* ſtanding by his ſide.

II. *February* is drawn in a dark sky colour, carrying in his right hand *Piſces*, or Fiſhes.

III. *March* is drawn tawny with a fierce look, a Helmet upon his Head, leaning upon a Spade: in his right hand *Aries*; in his left Almond Bloſſoms and Scions; and upon his Arm a Basket of Garden-Seeds.

IV. *April* is drawn like a young Man in green, with a Garland of Myrtle and Hawthorn-buds, winged; in the one hand Primroſes and Violets; in the other *Taurus*.

V. *May* is drawn with a ſweet and lovely Aſpect, in a Robe of white and green, embroidered with Daffadills, Haw-thorn and Blue-bottles; on his Head a Garland of white and red Damask Roſes; in the one Hand a Lute; upon the Fore-finger of the other a Nightingal.

VI. *June* is drawn in a Mantle of dark graſs-green; upon his Head a Coronet of Bents, King-cobs, and Maiden-hair; in his left hand an Angle; in his right *Cancer*; and upon his Arm a Basket of Summer Fruits.

VII. *July* is drawn in a Jacket of a light yellow, eating Cherries, with his Face and Boſom Sun-burnt, on his Head a Garland of Centaury and Time, on his Shoulder a Sithe; with a Bottle at his Girdle, carrying a Lion.

VIII. *Auguſt* is like a young Man of a fierce look, in a flame-coloured Robe; upon his Head a Garland of Wheat; upon his Arm a Basket of Summer fruits; at his Belt a Sickle, bearing a Virgin.

IX. *Septem-*

IX. *September* is drawn in a purple Robe, with a cheerful look, and on his Head a Coronet of white and purple Grapes; in his left hand a handful of Oats, with a *Cornucopia* of Pomegranates, and other Summer Fruits; and in his right hand a Ballance.

X. *October* is drawn in a Garment of the colour of decaying flowers and leaves; upon his head a Garland of Oak-leaves with the Acorns; in his right hand a Scorpion; in his left, a Basket of Services, Medlars and Chestnuts.

XI. *November* in a Robe of changeable green and black; upon his Head, a Garland of Olives, with the Fruit; in his right hand *Sagitarius*; and in his left bunches of Parsnips and Turneps.

XII. *December* is drawn with a horrid Aspect, clad in an *Irish* Rug, or course Freeze girt about him: upon his Head three or four Night-Caps, and over them a *Turkish* Turbant; his Nose red, Beard hung with Iceikles; at his Back a bundle of Holly and Ivy, holding in Furred Mittens a Goat.

Where note, it will be good to give every Month its proper and natural Landskip; not making Blossoms and Fruits upon Trees in December; *nor a barren face of the Earth and Trees in* June.

Explicit Liber Quartus.

POLYGRAPHICES

LIBER QUINTUS.

An Idea of the Arts of Beautifying *and* Perfuming.

CHAP. I.

Of Painting of the Face and Skin.

I. *TWO ways there be of adorning of the Face and Skin; the first is by Painting: the second is, by application of excellent Cosmeticks, which give a very natural, absolute and lasting Beauty.*

II. The first way, which is that of Painting, is the subject matter of this Chapter. Some may wonder that we should meddle with such a Subject as this, in this place; but let such know, the Painting of a deformed Face, and the licking over of an old, withered, wrinkled and weather-beaten Skin, are as proper appendices to a Painter, as the rectification of his Errors in a piece of Canvase: Nor is there any reason, but that the Artist should shew his care in the one, as well as to express his skill in the other, since a *single deformity in the Body, begets a complication of miseries in the Mind, and a unity of Defects, a multiplication of Evils.*

III. And though some think that natural Deformity brings with it a torrent of Dejections, yet let such under-

underſtand, that when time ſhall have made its full revolution, themſelves may be the product of ſuch a Conception: But we confeſs it ſeeks darkneſs, and only ſolaces it ſelf in obſcurity, and dusky ſolitudes.

IV. For ſuch whoſe Bodies have paſt the ſtamp with ſome faults, and have miſſed the impreſſions or reflections of Beauty, which might make them delectable in humane Society, *ever make choice of darkneſs as their chief Companion.*

V. *Deformity* is a Diſeaſe eſteemed the moſt pernicious, and its iſſue is a matter of dangerous conſequence, chiefly *obſtructions to Ladies Preferment.* Now to prevent this danger, to take away theſe obſtructions, and to deliver you from the embraces of ſo hideous a Monſter, theſe *Coſmeticks* we have offered upon the *Altar* of your defects; proteſting that the uſe of theſe Beautifiers, will make your *ruſty Skin*, and *ill-looked Faces*, to out-ſhine, with a radiant luſtre, the moſt ſplendid of all the *Nymphs* of *Diana.*

VI. Though you may look ſo much like the Image of Death, as that your Skins might be taken for your Winding-ſheets, yet by our directions you may attain ſuch a roſie color, and ſuch a lively cheerfulneſs, as ſhall not only make you look like natures workmanſhip, but alſo put admiration into the beholders.

VII. Thus we teach you, *lippid Mortals*, to retrace the ſteps of youthfulneſs, and to transform the wrinkled Hide of *Hecuba*, into the tender skin of the greateſt of Beauties; which then you will dull by the advance of your Features, and make all conceited ſhadows of glory, to vaniſh in your preſence. When once your Artificial heat ſhall appear, others ſhall ſeem pale with Envy for your perfections; and their *natural ruddineſs* ſhall only ſerve them to *bluſh*, to ſee their features clouded by your ſplendor.

VIII. By this means your ſparkling Glories ſhall fire *Platonick* Lovers, ſo that none, though as cold as *Saturn*, ſhall be able to reſiſt your actuating flames, but ſhall force the ſtouteſt heart, to be a *Sacrifice to love.* If any remain unſcorched, it muſt be only thoſe leaden hearted *Cowards*, who dare not *approach* your flames, for fear of *melting*; or thoſe undeſerving Soldiers of *Venus* (of a frigid Conſtitution) who dare not ſo much as *look* upon

on your youthful fire, for fear of being burnt to ashes. But it may chance that some one or other, may condemn your *hearts* for *evil*, because you strive to make your *faces good*, and may like your *in-side* the *worse*, because your *outside* may look *so well*.

IX. Avoid not company for want of Beauty, when Art affords an innocent supply, but with *confidence* crucifie that evil Conscience, which forbids the use of a little Oil to make a cheerful Countenance, and the drinking of a little Wine to make a merry Heart. Borrow our Artificial Beautifiers, and become *splendid*, that you may be fit to be gathered by the hand of some Metamorphosed *Hero*; lest in the Garden of *Deformities*, growing *green* with *sickness*, you should be taken for *Thistles*, and so cropp'd by *Asses*.

X. *To cleanse the Face and Skin.*

Before any thing be used to Paint, or make the Skin beautiful, it must be made very clean thus: first wash with warm Water, and sweet scented Wash-balls very well; then rub the Face with a cloth, and wash well with water in which Wheat-bran is boiled; so is the Skin prepared.

XI. *Or thus:* Take *Sublimate* two drams in fine pouder, glair of six Eggs, boil them in a glass vessel, till they grow thick, then press out the water, with which wash the Skin.

XII. *To make a white Fucus or Paint.*

Take Talck and pouder it, by beating of it in a hot Mortar, to the pouder of Talck add distilled Vinegar, boil it at a gentle fire in a wide glass, let the fat froth that swims at top, be taken off with a spoon; then evaporate the Vinegar, and mix the remaining Cream with flegm of common Salt, or a little *Pomatum*, with which wash or anoint the Face, and it will beautifie it much.

XIII. *Another very excellent.*

Take crude Talck in pouder one ounce, Oil of Camphire two ounces, digest till the Oil is white; it is a noble *Fucus* for Ladies Faces.

XIV. *To make the aforesaid Oil of Camphire.*

Take Camphire four ounces, Bole twelve ounces, make them into Balls,, and dry them in the Sun, then distil them in Sand in a glass Retort, into a Receiver that hath distilled

distilled Rain water therein: first there will come forth a white matter, which melts in the Alembick, and falls into the Receiver, then a clearer water; and at last with a stronger fire, the Oil we speak of, sweet scented, which rectified with Spirit of Wine will be yellow as Gold.

XV. *Another excellent Fucus made of Pearl.*

Dissolve Pearl in distilled Vinegar; precipitate with Oil of *Sulphur per Campanam*; then sweeten and digest with Spirit of Wine; abstract the Spirit, and you have a magisterial *Fucus* will melt like Butter.

XVI. *To make the best Fucus or Paint as yet known.*

Take *Venetian* Talck, cleave it into slices, digest it in the heat of the Sun, or of a Horse-dunghill for a Month, with distilled Vinegar, made of *Spanish* Wine, adding every Day new distilled Vinegar to the former, till the Vinegar be mucilaginous; which then distil by a luted Retort and a large Receiver, with a naked fire. First there comes forth the Vinegar; then a white Oil, which separate. After you have cleansed the Skin by the second Section, then first wash with the Vinegar, after anoint with the Oil: if the Face be first well wash'd from all impurity, this one anointing may hold for a Month without fading. *This Cosmetick, if rightly prepared, is worth about five pound an ounce.*

XVII. *An excellent Fucus made of Bulls gall.*

Take Bulls galls dried in the Sun, whose tincture extract with Spirit of Wine, with which besmear the Face (being cleansed by the tenth Section) leaving it on for three or four Days, without going abroad, or exposing the Skin to the Air: at the end of the time cleanse the Face again by the said tenth Section: so almost to a miracle, the skin of the Face and Neck is rendred most gratefully white, soft, delicate and amiable. This is the *Spanish Fucus* which several Ladies now use.

XVIII. *To make an excellent Red Fucus.*

Make a decoction of red Sanders in double distilled Vinegar, adding a little Alum, with a few grains of Musk, Amber-grise, or of some sweet Spices, and you will have a perfect red *Fucus* for the Face.

XIX. *Another very excellent.*

Take juice of Clove-gilliflowers, with which mix a little juice of Limons: with this Paint your Face, and you shall have a pleasing red colour.

XX. *To*

XX. *To do the same another way.*

Make a strong infusion of Clove-gilliflowers in rectified Spirit of Wine, adding a few drops of Oil of Vitriol, or instead thereof, a little Alum, and the Juice of a Citron or Limon; so shall you have an excellent colour to beautifie the Face with.

XXI. *A Fucus or Paint not easie to be discovered.*

Take seeds of Cardamoms, or grains of Paradise, Cubebs, Cloves, and raspings of Brazil, which infuse in rectified Spirit of Wine for ten Days, over a gentle heat; then separate the Spirit: this is so perfect a Fucus, that it may deceive any Man, for this clear water gives a fresh, red and lovely colour, which will last long.

XXII. *A Fucus or Cosmetick of River Crabs.*

Take of the flesh which remains in the extremities of the great claws of River Crabs (being boiled) a sufficient quantity, which dry gently, and then extract a deep tincture with rectified Spirit of Wine; evaporate part of the *Menstruum*, till the tincture have a good thickness or body; with which (the skin being cleansed) anoint the cheeks first, applying over it some other albifying Cosmetick.

XXIII. *Spanish Wooll, wherewith Women Paint their Faces red.*

Boil shearings of Scarlet in water of Quick-lime half an hour, of which take two pound; to which put Brazil two ounces, (rasped) Roch Alom, Verdigrise, of each one ounce, Gum-Arabick two drams, boil all for half an hour, which keep for use.

XXIV. *To do the same another way.*

Take Spirit of Wine one pound, Cochenele half an ounce, rasped Brazil one ounce, Gum-Ammoniack three drachms, mix and digest till the Gum is dissolved; then boil it gently, and strain it for use, into which you may put old Linnen Rags, or *Spanish* Wooll at pleasure.

CHAP.

CHAP. II.

Of Cosmeticks which Beautifie without any thing of Paint.

I. *AN excellent Cosmetick or Liquor of Talck.* Take pouder of Talck (made by rubbing it with Pumice stones; or beating it in a very hot Mortar; or filing it with a Goldsmiths smoothing file) eight ounces, *Salis Tartari* sixteen ounces, calcine it twelve hours in a wind Furnace, and set it in a Cellar, separating that which melts, from that which doth not: then calcine this dry Calx added to four times its weight of Salnitre, with a strong fire, so the Talck will be melted into a clear white mass, which being set in a Cellar will turn to a clammy liquor.

This wonderfully whitens and beautifies the Skin, and takes away spots and freckles from the Face: but you must not leave the liquor long on, but wash it off with decoction of Wheat Bran, that it corrode not the Skin.

II. *To make the Skin soft and smooth.*

The Face being very clean, by the tenth Section of the first Chapter, wash it very well with a *Lixivium* of Salt of Tartar, and after that anoint it with *Pomatum*; or which is better, Oil of sweet Almonds, doing this every Night going to Bed. The *Pomatum* we have taught the way to make in our *Pharmacopœia, lib.* 5. *cap.* 4. *Sect.* 22, & 25.

III. *A Water to cleanse the Face from Scurf and Morphew.*

Take distilled Rain Water six ounces, Juice of Limons twelve ounces, mix them, and wash with it Morning and Evening, anointing after it at Night going to Bed with the Oil or *Pomatum* aforesaid.

IV. *An Unguent which brings the Skin to an exquisite beauty.*

Take of our *Pomatum* one ounce, Salt of Tartar one drachm, Musk twenty grains, mix them well, and (the Face or Skin being very clean) anoint Morning and Evening.

V. *A*

V. *A wonderful Cosmetick of great worth.*

Take white Tartar twenty ounces, Talck, Salt, of each ten ounces, calcine them in a Potters Furnace very well; then grinding the matter upon a Marble, put it into *Hippocrates* his Sleeve, and set it in a Cellar, or other moist place for twenty or thirty days, and there will drop from it a precious Oil; which being rubbed upon the Skin softly with a Linnen Cloth (the Skin being duly cleansed first) takes away all kind of spots, and makes it soft and delicate.

VI. *A cheap, yet excellent Cosmetick.*

Take Alum in fine pouder, and shake it with Whites of new laid Eggs, being a little heated, till such time as they grow thick to an Ointment, with which anoint the Face Morning and Evening three or four days; and it will take away spots and wrinkles, and make the Skin grow clear and fair.

VII. *An excellent Mercurial Cosmetick prevalent against most deformities of the Skin.*

Take Mercury purified from all blackness half a pound, Mercury *Sublimate* in pouder as much, mix them in a Stone or Marble Mortar; put them into an Alembick of a strait Orifice, put on distilled Vinegar, till all be covered three or four fingers, letting it stand four days, daily stirring the same at certain times, then it extracts a whitish Pouder; the whitish Vinegar by inclination separate, rejecting it, and put on other Vinegar: the pouder at bottom keep so for some days: which labour you must so often reiterate, till you have abundance of that white pouder, which dry, and keep for use: anoint with it, by mixing with it a little distilled Rain Water, and it will take away all blemishes of the Skin, as also Tetters. Use it not too often, and beware you touch neither Eyes nor Teeth with it.

VIII. *Another of great estimation.*

Take Mercury *Sublimate*, *Saccharum Saturni*, of each two drachms, Rose Water, Juice of Limons, of each two ounces, mix them like to an Ointment, with which anoint gently at Night, and the next Morning with the *Pomatum* aforesaid.

IX. *To make a kind of* Lac Virginis, *an excellent Cosmetick.*

Take distilled Rain Water a quart, *Saccharum Saturni*

cryſtallized one ounce, mix them, and then waſh with the water, being ſettled : the fine white Pouder at bottom, is alſo an excellent Fucus or Paint, which may be laid upon the Skin, if very clean : note, ſome uſe Vinegar inſtead of Rain Water.

X. *To make* Oleum Tartari *per deliquium.*

Take Salt of Tartar, which put into a bag, with a corner, in a moiſt Cellar, and the Oil will diſtil therefrom in drops : with this Oil you may mix a little fair water, and waſh your Face at Night going to Bed ; and the next Morning, the Face being very clean, you may waſh with the aforeſaid *Lac Virginis* ; thus continuing for ſome days, you may create an exquiſite and laſting Beauty.

XI. *A compound Coſmetick eſteemed by ſome of great force.*

Take of the aforeſaid *Lac Virginis* one ounce, Oil of Tartar, aforeſaid, half an ounce, mix them, with which waſh Morning and Night for about a Week, or more, as you ſhall ſee occaſion ; then anoint with the following Ointment.

XII. *To make the Coſmetick Ointment, aforeſaid.*

Take Musk three drachms, Ambergriſe two drachms, Civet one drachm, grind them upon a Porphyre or Marble Stone, with Oil of Ben, and Rhodium, of each three ounces, with which anoint, as aforeſaid : note, ſome inſtead of the Oil of Ben, uſe Oil of ſweet Almonds.

XIII. *A Vegetable Coſmetick.*

Beſmear your Face or Skin at Night going to Bed, with the Juice of Wake Robin ; it is excellent.

XIV. *An incomparable Coſmetick of Pearl.*

Diſſolve Pearls in Juice of Limons or Diſtilled Vinegar, which digeſt in Horſe-dung, till they ſend forth a clear Oil, which will ſwim on the top : this is one of the moſt excellent Coſmeticks or Beautifiers in the World : *This Oil, if well prepared, is richly worth ſeven pound an ounce.*

XV. *A Coſmetick Ointment of great worth.*

Take of our *Pomatum*, aforeſaid, ſix ounces, *Saccharum Saturni* two ounces, mix them, and anoint Morning and Evening.

XVI. *Another very good for the Skin.*

Mix *Saccharum Saturni* one drachm, in Vinegar half an ounce,

ounce, which mingle with the glair of Eggs, and anoint with it.

XVII. *A Cosmetick wonderful to make a pleasing ruddy Complexion.*

Take Oil of Tartar four ounces, Alum, Sal Gem, of each one ounce, Borax, Camphire, of each half an ounce, beat them well together, to which add of Briony water a Pint, distil them in *Balneo*, and you will have your desire.

XVIII. *Another for the same.*

Take Madder, Myrrh, Saffron, Frankincense, of each alike, bruise and steep all in White Wine, with which anoint the Face going to Bed, and in the Morning wash it off, and the Skin will have a gallant pleasing blush.

XIX. *To make the Cosmetick of Myrrh very excellent.*

Boil Eggs till they are hard, slit them and take out the yolks, fill them up with poudred Myrrh, close them together, and lay them in a moist Cellar, and the Myrrh will dissolve into Oil.

XX. *To make a very good Wash to whiten the Skin, and give a good Complexion.*

Take Limons, Hens Eggs boiled, of each twelve ounces, Turpentine eight ounces, distil all in *Balneo Mariæ*, with which wash: when you wash, you may drop into it a drop, two or three of Oil of Oranges or Cinnamon, for fragrancy sake.

XXI. *A Cosmetick to make a rough Skin smooth.*

Take sweet Almonds blanched four pound, moisten them with Spirit of Wine and Rose Water mixt together, of each two ounces, beat them together, and fry them; and when they begin to smoak, put them into a Bag, and press them (in a Press made for that purpose) and there will come forth a very clear Oil; which put into Rain Water, and beat it till it is exceeding white.

CHAP. III.

Of Cosmeticks, which remedy the various Vices of the Skin.

I. *To take away Sun-burnings.*

To the glair of ten Eggs put to it Sugar-candy one ounce, and anoint with it going to Bed: or anoint with the Juice of Sow-bread at Night going to Bed · and in the Morning with Oil *Omphacine*. The like effects hath our *Lac Virginis*, at the ninth Section of the second Chapter, as also *Oleum Tartari*, and other things of like nature.

II. *To take away Redness and Pimples.*

First prepare the Skin by bathing it often with the decoction of Wheat-bran, and applying Pultises of Bread, Milk and Oil thereto: when the Skin is thus suppled and rarified, you may cure them either by our Liquor of Talck, at the first Section of the second Chapter, or Mercurial Cosmetick at the seventh Section of the second Chapter, or our *Lac Virginis* and Oil of Tartar at the ninth and tenth Section of the second Chapter, or by often washing with Juice of Limons.

III. *To take away Freckles.*

Take Juice of Limons, put it into a Glass-bottle, to which put fine Sugar, and *Borax* in pouder, digest it eight days in Sand, then use it; or mix *Sal Tartari* with Whites of Eggs, and apply it; or often use our compound Cosmetick at the eleventh Section of the second Chapter, or Oil of Tartar alone, for some Weeks; but if all fail, you must have recourse to our Liquor of Talck at the first Section of the second Chapter, or Mercurial Cosmetick at the seventh Section of the said second Chapter.

IV. *To take away spots from the Face or Skin.*

This is done by anointing with Oil of Tartar for ten days; and after all that to wash it with a *Lixivium* of *Quick-lime* in which *Sal-armoniack* hath been dissolved for a long time: or you may use the Cosmetick at the third Section of the second Chapter camphorated.

V. *To*

V. *To cleanse a scurfy Skin.*

If the Creature be fat, foment first with a *Lixivium* of Salt of Tartar; but if lean, make a Fomentation of Borrage, Bugloss, and Mallow leaves, which use for some days: this being done, Bathe the place where the scurf is, with *Spiritus Nicotianæ* made by fermentation, which being dried in, anoint first with Oil of Tartar, then with Oil of Almonds; repeating the three last works so often till the scurf goes away.

If all these fail, you must have recourse to our Liquor of Talck, or Mercurial Cosmetick; or those at the fifth and eighth Section of the second Chapter, which without doubt will perform your desire.

VI. *To free the Skin from Tetters and Ring-worms.*

Dissolve *Sublimate* one ounce in a Glass of Red Wine by boiling, with which wash the place Morning and Evening, letting it dry of it self, for three or four days together, and it will certainly cure: if they be not inveterate, our Liquor of Talck at the first Section of the second Chapter, or Mercurial Cosmetick may sufficiently do; or you may anoint with this ointment. Take *Sal Tartari* two drachms, burnt Alum three drachms, pouder and incorporate with Whites of Eggs: *Or this*, Take *Sulphur vive* three drachms, Camphire one drachm, Hogs-grease two ounces, mix and make an Ointment.

VII. *To take away Wrinkles from the Skin.*

Take Oil of Almonds, lees of Oil Olive, and make them into an Ointment with Wax, pouder of Camphire and Mastich, with which anoint. Oil of Myrrh to anoint with, is eminent in this case: or wash with a decoction of Briony roots, and Figs, of each alike: or dissolve Gum Tragacant in *Lac Virginis*, and wash with that. Excellent good is a strong decoction of Pomegranate Peels in White Wine, to wash often with.

VIII. *To take away Warts.*

The Juice of the greater Spurge with Salt, anointed, takes them away, so also a continual washing with a *Lixivium* of Quick-lime and Salt of Tartar. The Juice of *Verrucaria* performs the same. A Plaister of *Cantharides*, with a defensative, is very good in this case: so also this following Wash; Take *Saccharum Saturni* three ounces, *Sal-armoniack* one ounce, Vitriol common six

drachms, Quick-lime eight ounces, boil all in water four pound, to the consumption of the half, with which often bath the Warts, and then wash with our Mercurial water. Black Soap hath often been found very good; but especially a Plaister of Turpentine.

IX. *To heal Chaps in the Skin.*

Our *Pomatum* in this case is most excellent: yet this following is commendable. Take Capons grease mixed well with Camphire, and anoint with Oil of Turpentine two drachms, mixed with *Unguentum Populeon* two ounces. So also Oil of Roses mixed with Sheep Suet and Wax to an Ointment.

X. *To heal Burnings and Scaldings.*

Excellent good is the *Unguentum Rubrum* in our *Synopsis Medicinæ*, both to draw out the fire, and to heal. To draw out the fire also, glair of Eggs mixed with Rose Water, is very prevalent: so also is Salt, raw Onions, Soap, Yest, Oil of Tartar, and the like. To hinder the rising of the Blisters, Hens dung three ounces, mixed with Hogs grease four ounces, and Salt of Tartar one ounce is very good; so also a Cataplasm of Honey and Crums of Bread; but best of all a plaister of strained *Opium*, with Oil and Wax, which performs all the intentions to admiration. If the Blister break, it may be presently skinned by anointing with Oil of Eggs, and washing often with *Lac Virginis*, strewing upon the sore, pouder of Bole, Tutty, Ceruse, or the like.

XI. *To take away Scars and Marks of the Small Pox.*

Take of Oil of Tartar one ounce and half, Ceruse dissolved in Oil of Roses one ounce, *Borax* and *Sal Gem* of each one drachm, mix and make an Ointment, with which anoint. Oil of Tartar alone performs this work well: so Salt of Tartar, mixed with pouder of Myrrh and Oil of Roses. But *Emplast. Epispasticum* is infallible and safe.

XII. *To beautifie the Hands.*

To make them soft, often anoint with the Oil of Almonds or our *Pomatum* at Night going to Bed, washing them the next Morning with decoction of Wheat-bran: after a while wash them with Salt of Tartar, dissolved in fair water, perfumed with Oil of Cloves, Oranges, Rhodium or Cinnamon. *Or this.* Take *Venice* Soap dissolved

ſolved in Juice of Limons one pound, Virgin-honey four ounces, Sublimate, Orrice root, Sugar, Salt of Tartar, Alum, Borax, of each one ounce, Balſam of *Peru*, two drachms, Oil of Cloves one drachm, Oil of Rhodium and Cinnamon of each half a drachm, make a mixture to waſh the hands withal: Or this, take pouder of *Venice* Soap one pound, Orrice Root eight ounces, *Amylum* ſix ounces, mix them and make an Ointment with *liquid Storax* and Oil of *Benjamin* a ſufficient quantity; it wonderfully whitens, ſmooths and ſoftens the hands. To anoint alſo with Bulls Gall is very good.

XIII. *To help hands which are ſwoln, and look red or blue with cold.*

What we even now ſaid (in the laſt Section) may be ſaid again here: to which we add, that a long bathing of them in a lather of Caſtle Soap, is very good: or if a repercuſſive Plaiſter be applied made of Barley meal, *Saccharum Saturni*, and Oil of Myrtles; waſhing (after the coming off of the Cataplaſm) with Juice of Limons or White-wine Vinegar: a Plaiſter of Turpentine mixed with Salt is good. Often to anoint the hands with Oil of Roſes, Almonds, or *Pomatum* at Night, and the next Morning with the *Lac Virginis* prevails much. Oil of Anniſeeds, Caraways and Fennel prepared Chymically, as alſo Cloves and Oranges, mixed with Oil of Almonds, and often uſed, are eminent above all other things.

XIV. *To make the Skin ſoft, ſmooth and white, take away Pimples, Morphew, Scurf, &c.*

Bath the places affected, well, Morning and Night, with *Powers* of *Roſemary*, *Amber* or *Limons*, and you will have your deſire in ſome ſhort time with advantage. Theſe things are beyond all hitherto named.

CHAP. IV.

Other Admirable Beautifiers.

I. *To remedy the evil colour of the Green Sickneſs.*

Take Crocus Martis aperitive, Harts horn calcined in fine pouder, of each an ounce; double refined Sugar two ounces: mix them. Doſe two drams Morning and Evening, waſhing it down with a Glaſs of White Wine.

II. *For Sore and Bleared Eyes, or a ſharp humor in them.*

Take Damak Roſe Water a Pint, *Saccharum Saturni* a dram; mix and diſſolve: drop it 3, 4, 5, or 6 times a day into the Sore, Rheumatick or Inflamed Eye.

III. *For Sore and Weeping Eyes.*

Take fair water three Quarts; and being boiling hot, put into it fine Bole one ounce, white Vitriol ſix drams, Camphire one dram; digeſt upon the fœces a Week, and decant the clear for uſe. It cures Sore Running Eyes, all ſorts of Ulcers, Tetters, Ring-worms, Scabs, *&c.* being in theſe larter caſes uſed twice a day, half an hour at a time, as hot as the Patient can endure it.

IV. *To remove the filthy colour of the Yellow Jaundice.*

Give the party Morning and Evening a large ſpoonful of the black Tincture of Iron, (made by putting old Nails into White Wine, and digeſting them together for ſome Months, ſhaking the Bottle once a day) this clear black Tincture you may give in White Wine or Ale, as the Patient likes beſt. It cures alſo the Green-ſickneſs, and provokes the terms in Women.

V. *For Pimples, and other Deformities of the Face and Skin.*

Take Damask Roſe-water a Gallon: Salt Peter in fine pouder half a pound; mix and diſſolve over a gentle heat, and keep it for uſe. Waſh often the Face and Skin therewith, it admirably clears it from almoſt all Deformities.

VI. *Another for the ſame.*

Take Damask Roſe-water a Gallon, Oil of Sulphur an Ounce; mix and let the Patient waſh therewith Morning

ing and Evening. If it is too sharp, you may put in more Rose-water: it is good against Pimples, Tetters, Ring-worms, Scurf, Morphew, Leprosie, Freckles, *&c.*

VII. *Another mixture excellent against redness of the Face and Pimples.*

Take fair water two Quarts, White Wine Vinegar a Gallon, Lime Juice a Quart, Spirit of Wine or Brandy three Pints, mix them: wash herewith two or three times a day.

VIII. *A Cosmetick against Freckles.*

Take Flower of Sulphur, Salt Peter, of each two ounces; Juice of Limons a pint and half; Brandy, fair Water, of each a Pint; mix, digest in Sand for 14 days, and keep the Water upon the Fœces: wash with it twice a day, and let Cloths wet therein dry upon the Freckles.

IX. *Another against Pimples, Scurf, Morphew, Scabs, Freckles,* &c.

Take fair Water a Gallon; Spirit of Wine two Quarts; Oil of Salt four or five ounces: mix them, and wash therewith twice a day.

X. *Another Cosmetick.*

Take *Corrosive Sublimate* made into fine pouder (between pieces of strong Paper and Leather, and beaten with a Hammer, that its Atomes may not fly into your Mouth, Nostrils, and Eyes:) one ounce; put it into boiling Water a Gallon; when it is dissolved put to it three Gallons of Damask Rose-water, and keep it for use. With this Water touch or wash Scabs, Pimples, Ring-worms, Tetters, Scurf, Morphew, Freckles, Lentils, *&c.* twice or thrice a day, and it will cure.

XI. *Another Cosmetick.*

Take Crumbs of Wheat Bread hot out of the Oven four pounds; glair of Whites of Eggs N° xviij. Goats Milk two Gallons; Shells of Eggs N° xviij. burnt white; mix, and distil off the Water in a Glass Alembick, with a gentle fire. It is good against spots and redness of the Face.

XII. *Another excellent Cosmetick.*

Take Ox Galls N° vj. Roch Alum, Nitre, of each two ounces; Flowers of Sulphur one ounce; Borax, Camphire, of each half an ounce; the gross ingredients being in fine pouder, mix them with the Galls, and shake them

them together for a quarter of an hour, every day for a fortnight; then let all settle, decant the clear, and filter through brown Paper, and keep it for use. It is an excellent Beautifier.

XIII. *A Cear-Cloth to lay over the Face all Night, to make it soft and smooth.*

Take white Bees Wax four ounces, Sheeps Suet, *Sperma Cæti*, of each two ounces; Oil of Ben, Camphire, of each one ounce; melt all together, and spread it thin upon Cloth, and so apply it over the Face every Night.

XIV. *To cleanse the Hands and Face, and make them white, soft, and smooth.*

Take Water two or three Gallons; Calves Feet a sufficient quantity; boil all together, and make a good strong Gelly; strain boiling hot through a double Flannel bag: add to it half the Quantity of the Juice of Limons, filtred through brown Paper, boil to a consistence, and keep it for use: wash Morning and Evening the Hands and Face with this Gelly, and it will make an excellent Skin.

XV. *A Wash for a Tann'd Face.*

Take Wheat Bran a quarter of a Peck: White Wine Vinegar three Quarts; infuse warm for one Night: then add twenty Eggs, beaten all together, shells and all; mix, and distil in a Glass *Balneo* to dryness: so will you have a Water, which will add an admirable Beauty to the Face.

XVI. *Another excellent Water for a Tann'd and Sunburnt Skin.*

Take Barley Water, the second water made of hull'd Barley, and filtred through brown Paper, a Gallon; Tincture of Balsam of *Peru* four ounces; mix them together, and keep it for use. It is said to clear the Skin, make the Flesh plump, and take away wrinkles, if long used, and preserves Youth and Beauty: your Face ought always to be wash'd very clean before you use it.

XVII. *To cure Pustules; Pimples, Rednes, Itching, Ringworms, Tetters, Scurf, Morphew, and other like Deformities of the Face and Skin.*

Take choice White Wine Vinegar, a Gallon: Juice of Limons filtred through brown Paper, a Quart: Brandy a Pint: mix them and keep it for use. Sprinkle this mixture upon a Chafing-dish of Coals, and receive the Fumes

Fumes of it upon your Face, Hands, Arms, or other parts affected, three or four times a day; and continuing this course for some few days, it will effectually cure those diseases aforenamed.

XVIII. *An excellent* Pomatum *for the Face, Lips, &c.*

Take Oil of Ben sixteen ounces; choice tryed Mutton Suet, or Lamb Suet, four ounces; melt them together; and colour it of a reddish blush, by putting into it *Alkanet* Roots: with this you may anoint as you see occasion. It whitens and softens the Skin, being often used.

CHAP. V.

Of Cleansing the Teeth.

I. *TO cleanse Teeth which are furred over.*

Rub them every Morning, and every time after eating with *Cremor Tartari* in fine pouder; and then wash them with this mixture. *Take fair water, a Quart; White Wine Vinegar, a Pint; Juice of Limons, half a Pint; White Port Wine, a Pint and half; Brandy, half a Pint;* mix them, to make a wash for the Teeth.

II. *Another excellent Wash for the same.*

Take rectified Spirit of Wine a Pint; Oil of Sulphur an ounce; mix them: this makes them purely clean: first wash or rub them with this, and then afterwards wash them with fair warm water.

III. *To whiten black Teeth.*

Take Syrup of Roses sixteen ounces; Damask Rose-water twenty ounces; Spirit of Sulphur, or Vitriol, four pounds; mix them. First rub your Teeth with a cloth dipt in this Liquor, then wash your Mouth in Damask Rose-water.

IV. *A Pouder to cleanse the Teeth when furr'd.*

Take Red or White Coral, which beat to Pouder and levigate upon a Porphyre, with Damask Rose-water; dry it, and keep it for use: with this rub the Teeth twice a day. Some use pouder of Bricks, which if fine, is good, being mixt with a little Honey. After rubbing the Teeth

Teeth with these Pouders, wash them with fair water, or Rose-water.

V. *Another for the same.*

Take Ashes of Rosemary-branches, a pound ; Rose Vinegar *q. s.* digest xxiv. hours, then dry it, and keep the pouder to rub your Teeth with.

VI. *Another for the same.*

Take levigated Pouder of Crabs Eyes and Claws, and of red Coral, Pouder of burnt Harts-horn, *ana* four ounces ; Salt of Wormwood one ounce : mix them, and make a Pouder.

VII. *Another Pouder for the Teeth.*

Take Pumice-stone in fine Pouder, Coral levigated, Brick-dust, of each a pound ; *Catechu* twelve ounces ; Orrice Root, eight ounces : mix and make a Pouder to rub the Teeth with, Morning and Evening ; washing them afterwards with a mixture of equal parts of Damask Rose-water, fair water, and White Wine Vinegar.

VIII. *To whiten black Teeth.*

Take Rose-water a Gallon ; Oil of Sulphur four ounces ; mix them. Tye a Rag to the end of a stick, dip it in the former water, and scowre the Teeth therewith ; this do several times, Morning, Noon and Night, till the blackness is gone ; then rub them with Oil Ben, perfumed with a few drops of Oil of Cinnamon.

IX. *To fasten loose Teeth.*

First rub the Teeth with this Pouder. *Take Catechu, Roch-Alum, of each alike quantity in fine Pouder, mix them, and rub the Teeth with the same.* Then wash with this: ℞ *Damask Rose-water a Quart, strong Tincture of Catechu six ounces, mix them :* and after that wash them with the best Red Wine, Morning, Noon and Night : and every Night going to Bed lay fresh or green Scurvy-grass between the Cheeks, Lips and Teeth all Night.

X. *To Cure Teeth which are Rotting.*

Take Harts-horn calcined and levigated, magistery of Coral, of each four ounces ; Orrice in pouder six ounces ; Oil of Rhodium a dram : mix them for a Dentifrice to rub the Teeth withal. It will keep them white and sound.

XI. *Another for the same.*

Take Harts horn calcin'd and levigated, Salt of Tartar sulphurated, of each eight ounces ; mix them for a Dentifrice, 'tis excellent.

XII. *A*

XII. *A Liquor to cleanſe them.*

If you do but touch them twice or thrice a day with my *Spiritus Aperiens*, it will in a little time make them as white as it is poſſible for them to be; after uſing of which each time, you may waſh your Mouth with fair water.

XIII. *Where the Teeth are Rotten and Hollow.*

Make little Pellets of ſtrained Opium, and Myrrh, with a few drops of Oil of Caraways, and put them into the hollow Teeth; repeating it as oft as need requires.

XIV. *To help or eaſe the Pain of the Teeth.*

If the Teeth are hollow, fill the hollowneſs with ſome of the former Pellets: Or make ſmall Pellets of our *Laudanum*, and a little Lint, and uſe them as the former; but if they be not hollow, lay long Rolls of our *Laudanum* made up with Lint, all Night between the Cheek and Teeth, or Gums, repeating the application two or three times in the Night, and if the Pain is vehement, take alſo inwardly two or three Grains of the ſame *Laudanum*.

XV. *To Help or Cure the Stinking of the Teeth.*

If they ſtink much, often waſh then with Damask Roſe-water, a little ſharpned with Oil of Sulphur; or with Brandy, a little ſharpned with Oil of Vitriol; or with Spring Water, ſharpned with choice Juice of Limons; or with Tincture of Cinnamon made in common Brandy; and you muſt be always ſure to waſh them with ſome of the former things; or with fair water mixt with White Wine, or White Wine Vinegar, after Eating: and this is daily to be continued till the Cure is abſolutely compleated.

CHAP. VI.

Of making a Sweet Breath.

I. A Stinking Breath comes from one of theſe four cauſes, *viz.* from rotten and defective Teeth; putrified Lungs; or Obſtruction of the Stomach; or a Diſtemper of the Head.

II. *To*

II. *To Cure it when it proceeds from Rotten Teeth, &c.*

This is to be cured by the directions given in the former Chapter, of which we have spoken largely enough, so that no more need be said in this place.

III. *To remedy a stinking Breath, when it proceeds from putrified Lungs.*

Outwardly anoint the Breast and Stomach with Juice of Tobacco, boiled to a thickness, mixt with an equal quantity of Oil of Amber. Inwardly give Balsam of Sulphur Morning and Evening, and in all that the Patient drinks in the day time, some Drops, *viz.* 20, 30, or 40 Drops at a time of our *Spiritus Aperiens.*

IV. *Some other Remedies for the same purpose.*

Give inwardly the Anisated Balsam of Sulphur, Morning and Evening 15, or 20, or 25 Drops, made into a Bolus with double refined Sugar; at Ten in the Morning, and Three in the Afternoon, give half a dram of *Bezoar Minerale*, or *Antimonium Diaphoreticum*, or as much of *Antihecticum Poterij*, or a Scruple of *Arcanum Jovis*, made up into a Bolus with Syrup of Green Ginger. Let him also now and then eat a Race of *Green Ginger*, and drink after it a Glass of good *Red Florence Wine.* These things being taken for several Days or Weeks, at last consummate the Cure with this: In the Morning, and at four Afternoon, let him take this Bolus: *Take Catechu in fine pouder, Nutmegs in pouder, Bezoar mineral, of each an ounce; Oil of Cinnamon* xx. *drops: choice Honey enough to make it into an Electuary*; Dose as much as a Chesnut at a time: and at Night let him take this. ℞ *Venice Turpentine two ounces; Catechu in fine pouder* q. s. *mix and make Pills:* Dose, a dram every Night at Bed time.

V. *A Stinking Breath from Distemper of the Stomach.*

This is cured by opening and cleansing the Stomach: first Vomit with *Vinum Benedictum* one ounce, or more, as strength requires, which may be repeated two or three times: or you may Vomit in like manner with *Tartar Emetick*, or some other *Antimonial* Vomit, or with *Vinegar* or *Wine*, or *Oxymel of Squils*: this done, you may purge the Bowels with our *Family Pills* four or five times, and after that, every Morning fasting the Patient may take a Scruple of *Pil. Ruffi*, or three drams of *Elixir Proprietatis* for ten or twelve times, either every day, or every

ry other day, in the Morning faſting, drinking after it ſome warm Broth or Poſſet-drink.

VI. *A Stinking Breath from Diſtemper of the Head.*

You are to conſider the Cauſe of the Diſtemper, whether it is from Apoſtems, the Pox, Leproſie, Elephantiaſis, *&c.* and then to purſue the Method uſed in the Cure of thoſe Diſeaſes; for ſo the Cauſe being taken away, the Effects will ſoon ceaſe. Yet nevertheleſs, if the Patient will be pleaſed to take ſome few Doſes of the *Pilulæ Lunares* every other Night at Bed time, or every third, or fourth Night, he will find a Satisfaction beyond all Expectation.

VII. *A Stinking Breath from Ulcers of the Noſe, Throat, or Mouth.*

This cannot be cured but by curing of thoſe Ulcers: if they be not inveterate and ſtubborn, they may be cured with this Waſh: *Take Aqua Regulata two ounces: Tincture of Catechu one ounce: Honey, enough to ſweeten withal:* with this gargle or waſh the Throat, Mouth or Noſe, three or four times a day: if this will not do, you muſt uſe *the Water of the Griffen*, which ſeldom fails, though the Ulcers be never ſo rebellious: but if all theſe things fail, you muſt make uſe of this. *Take Damask Roſe-water five ounnces: Powers of Mercury two drams; mix them:* and therewith gargle or waſh the Parts affected three or four times a day, this will not fail.

VIII. *To rectifie the Breath when it ſmells of any thing that is eaten.*

Chew *Coriander Seeds* or *Zedoary* in the Mouth, or *Jamaica Pepper*, drinking a draught of Wine after it: or you may chew the *Perfumed Grains of Catechu*, which will give the Breath an incomparable Odour, beyond moſt other things.

CHAP.

CHAP. VII.

Of Beautifying the Hair.

I. *TO dye the Hair black.*

This is done with the *Calx* of *Luna* (made by Spirit of Nitre) mixed with fair water, and the Hair waſhed therewith, with a Spunge: it is the moſt excellent thing of that kind that is yet known.

II. *To keep the Hair from falling off.*

Take Myrtle-berries, Galls, Emblick Myrobalans, of each alike, boil them in Oil Omphacine, with which anoint: it is an excellent Medicine, yet as old as *Galen.*

III. *To remedy Baldneſs.*

This is a hard thing to cure, yet the following things are very good. Rub the Head or bald places every Morning very hard with a coarſe Cloth, till it be red, anointing immediately after with Bears greaſe: when ten or fifteen days are paſt, rub every Morning and Evening with a bruiſed Onion, till the bald places be red, then anoint with Honey well mixed with Muſtard-ſeed, applying over all a Plaiſter of *Labdanum* mixed with Mice-dung, and Pouder of Bees: do this for thirty days. If all the former fail, bath with a decoction of Bur-dock roots, made with a *Lixivium* (of Salt of Tartar) two parts, and Muskadel one part; immediately applying this Unguent: take *Thapſi* or *Turbith* one dram (in pouder) Bears-greaſe one ounce, mix them, which uſe for ſixty days; if this make not the Hair come, the defect is incurable.

IV. *To take away Hair from places where it ſhould not grow.*

Take Quick-lime four ounces, *Auripigmentum* one ounce and a half, *Sulphur vive*, Nitre, of each half an ounce, *Lixivium* of Salt of Tartar a quart, mix and boil all ſo long in a glazed earthen pot, till putting a quill therein, all the feathers peel off, and it is done. Firſt foment the place with warm water a little before you uſe the aforeſaid Medicine; a quarter of an hour after waſh

wash with very hot water; then anoint with the aforesaid Unguent, and in a quarter of an hour it will do the work, when the hairs are faln away, remember to anoint with Oil of Roses; now to keep them from ever growing again, anoint for some days with an Ointment made of the Juice of Henbane and Nightshade, *Opium* and Hogs-grease.

V. *To make the Hair curl.*

Wash the hair very well with a *Lixivium* of Quicklime, then dry it very well, that done, anoint it with Oil of Myrtles, or Oil *Omphacine*, and pouder it well with Sweet Pouder, putting it up every Night under a Cap: if the party be naturally of a cold and moist Constitution, the washing, anointing and poudering must be perpetually used once or twice a Week during Life, the Hair being put up every Night.

VI. *To make Hair lank and flag that curls too much.*

Anoint the Hair throughly twice or thrice a Week with Oil of Lillies, Roses, or Marsh-mallows, combing it after it very well.

VII. *To make the Hair grow long and soft.*

Distil Hogs-grease or Oil Olive in an Alembick, with the Oil that comes there-from anoint the Hair, and it will make it grow long and soft: use it often.

VIII. *To preserve the Hair from splitting at the ends.*

Anoint the ends thereof, with Oil *Omphacine*, or Oil of Myrtles, they are eminent in this case to preserve the Hair from splitting; so also an Ointment made of Honey, Bees-wax and Oil *Omphacine*, or Bears-grease.

IX. *To make White Hair of a Brown colour.*

Take Aqua fortis three ounces: filings of Siver two penny weight, or value of Six pence, digest in a boiling *Balneo*, till the Silver is perfectly dissolved, then mix with it a little Strong Water; with which wash White Hair, and it will make it of a Brown Bay color.

X. *To make the Hair grow well and thick.*

Make a strong decoction of Tops of Hemp in Wine, and therewith wash the Head and Hair Morning and Evening for three Weeks or a Month.

XI. *To make a Yellow Head of Hair Black.*

Anoint the Teeth of a Comb with *Oil of Tartar per deliquium*, and dip a Sponge in it, and do the Comb with it, and Comb the Head in the Sun (it being first

washed clean with fair warm water) do this for a quarter of an hour together, often anointing the Comb with the Oily Sponge, and repeat it thrice a day for seven days, so will the Hair become Black, afterwards you may anoint it with *Oil of Rhodium*.

XII. *A Water to colour the Hair black.*

Take Aqua fortis three ounces; fine Silver in Leaves one ounce: put them in a Glass Matress, and over a gentle fire dissolve the Silver: then add Damask Rose-water half a Pint, boil a quarter of an hour; after add the Juice of two large Citrons; boil again another quarter of an hour, and keep it for use, in a Bottle close stopt. When you use it, take four Spoonfuls thereof, and add as much Juice of Citrons; warm them, and wash the Hair therewith, with a bit of Sponge, taking heed that you touch not your Skin, or any of your Linen, because it will rot it; the Hair being washt, let it dry on.

XIII. *To make the Hair grow long.*

Make a Lye of the Ashes of Maidenhair, Southernwood, Mullein, Hemp tops, and Cane Roots, dissolve in every quart of Lye half an ounce of Myrrh, and add to it an equal quantity of White Wine; with this wash the Head Morning and Evening for twenty days.

XIV. *To make the Hair grow in bald places.*

First wash the places affected very well, for almost a quarter of an hour, with a Decoction of Wheat Bran; then for a quarter of an hour, or longer, rub the said affected places with a large strong Onion cut in halves: do this for almost half an hour; and afterwards anoint the parts with this Ointment. Take Bears-grease a pound; Juice of Molly, or of Onions, eight ounces: pouder of Mouse-dung six ounces: Oil of Tarter *per deliquium* one ounce; mix them, and anoint therewith: Let all this work be done two or three times a day, and continued for a Month compleat; if the deformity is not uncurable, this will perform the work.

CHAP.

CHAP. VIII.

Of the Art of Perfuming in General.

I. IN this Art two things are to be considered, *viz.* 1. The way and manner of making of Perfumes. 2. The way and manner of Perfuming.

II. The Perfume it self is considered, 1. In respect of its form. 2. In respect of its Composition.

III. The Form of the Perfume is either Water, Oil, Essence, Unguent, Pouder, or Tablets.

IV. The Making and Composition is taken from the Form and Matter.

V. The Matter is either Vegetable, Animal or Mineral.

VI. The way of Perfuming is according to the Matter to be perfumed.

VII. The matter to be Perfumed is either Natural, as Hairs, Skins, Cloths, Air, *&c.* or Artificial, as Pomanders, Pouders, Wash-balls, Soaps, Candles, and other things of like nature.

CHAP. IX.

Of the Matter of which Perfumes are made.

I. THE ground of *Vegetable* Perfumes, is taken from *Flowers*, *Seeds*, *Herbs*, *Roots*, *Woods*, *Barks*, and *Gums*.

II. The chief *Flowers* for this use, are of Clove-gilliflowers, Roses, *Jasemin*, Lavender, Oranges and Saffron.

III. The chief *Seeds* or Fruits are Nutmegs, Cloves, Caraways, Grains, Seeds of *Geranium Moschatum*, Musk-seeds, and the Nut Ben, which Oil is only used as a Vehicle.

IV. The chief *Herbs* are *Geranium Moschatum*, Basil, Sweet Marjoram, Savory, Time, Angelica, Rosemary, Lavender, Hyssop, Sweet Trefoil, Mint, and Bay-tree leaves.

V. The chief Roots are of *Calamus Aromaticus*, Ginger, China, *Caryophyllata*, Indian Spicknard, and sweet Orrice, or Iris.

VI. The chief *Woods* are of yellow Sanders, *Xylo-balsamum*, *Lignum*, *Aloes*, *Rhodium*, *Sassafras* and *Cedar*.

VII. The *Barks* and *Peels* are of Cinnamon, Mace, Oranges, Limons and Citrons.

VIII. The chief *Gums* are Frankincense, *Olibanum*, Labdanum, liquid Styrax, *Balsamum Verum*, Amber-grise, *Styrax Calamita*, Benjamin, Amber, Camphire.

IX. The chief matters of Perfumes taken from *Animals*, are Musk, Civet, Cow-dung, and other Turds.

X. Of *Minerals* there are two only, which yield a Perfume, and they are *Antimony* and *Sulphur*.

CHAP. X.

Of the Oil of Ben.

I. THE little Nut which the *Arabians* call *Ben*, is the same which the *Latins* call *Nux Unguentaria*; and the *Greeks*, *Balanus Myrepsica*; out of which is taken an Oil, of great use in the Art of Perfuming.

II. *To make the Oil of Ben.* Blanch the Nuts, and beat them very carefully in a Mortar, and sprinkle them with Wine, put them into an Earthen or Iron Pan, and heat them hot, then put them into a Linnen Cloth, and press them in an Almond Press, this work repeat, till all the Oil is extracted, so have you Oil of *Ben* by expression.

III. In like manner you may express the Oil out of Citron Seeds, incomparable for this purpose, to extract the scent out of Musk, Civet, Amber, and the like, because it will not quickly grow rank, yet Oil of the *Nut Ben* is much better.

IV. This Oil of *Ben* hath two properties; the one is, that having no scent or odour of it self, it alters, changes or diminishes not the scent of any Perfume put into it: the other is, that it is of a long continuance, so that it scarce-

ſcarcely ever changeth, grows rank, corrupts, or putrifies, as other Oils do.

V. To make a Perfume thereof, put the Musk, Amber, *&c.* in fine pouder, thereinto, which keep in a Glaſs Bottle very cloſe ſtopt for a Month, or more, then uſe it.

VI. *Or thus*, Blanch your Nuts, and bruiſe them, (Haſle Nuts may do, tho' not ſo good) and lay them between two rows of Flowers, ſuppoſe Roſes, *Jaſemin*, &c. or other Perfumes; when the Flowers have loſt their ſcent and fade, remove them, adding freſh ones; which repeat ſo long as Flowers are in ſeaſon; then ſqueez out the Oil, and it will be moſt odoriferous.

VII. Laſtly, by this laſt you may draw a ſweet ſcent out of thoſe Flowers, out of which you cannot diſtil any ſweet water.

CHAP. XI.

Of Sweet Waters.

I. *THE firſt Sweet Water.*

Take Cloves in pouder an ounce, yellow Sanders, *Calamus Aromaticus* of each half an ounce, *Aqua Roſarum Damaſcenarum* fifteen pound, digeſt four days, then diſtil in an Alembick; to this new diſtilled water put in pouder Cloves, Cinnamon, Benjamin, *Storax Calamita*, of each half an ounce, diſtil again in *Balneo*; laſtly put the water into a glaſs bottle with Musk and Ambergriſe, of each ten grains, keep it cloſe ſtopt for uſe.

II. *The ſecond Sweet Water.*

Take Damask Roſes exungulated three pound, Flowers of Lavender and Spike, of each four ounces, Clove-gilliflowers, and Flowers of *Jaſemin*, of each two pound, Orange-flowers one pound, Citron peels four ounces, Cloves one ounce, Cinnamon, *Storax Calamita*, Benjamin, Nutmegs, of each half an ounce, all in pouder, *Aqua Roſarum* ſix pound, digeſt ten days, then diſtil in *Balneo*: to the diſtilled water add of Musk and Ambergriſe of each thirty grains.

III. *The third Sweet Water.*

Take Roſes, Clove-gilliflowers, of each one pound, Flowers of Roſemary, Lavender, *Jaſemin*, Marjoram, Savory, Time, of each three ounces, dry Citron peels, one ounce, Cinnamon, Benjamin, *Storax Calamita*, of each half an ounce, Nutmegs, Mace, of each one dram; bruiſe the Herbs and Spices well, digeſt in the Sun two days, then diſtil in *Balneo*: to the diſtilled water add Musk in pouder one ſcruple.

IV. *The fourth Sweet Water.*

Take Cloves, Cinnamon, of each one dram, Mace, Grains, Musk, Ambergriſe, Citron peels, of each half a dram, Benjamin, *Storax Calamita*, of each one ſcruple, *Aqua Roſarum* twelve pound, digeſt fifteen days, then diſtil in *Balneo*.

V. *The fifth Sweet Water.*

Take Roſemary-flower water, Orange-flower water of each five pound, Ambergriſe one ſcruple, digeſt ten days, then diſtil in *Balneo*, or keep it without diſtilling.

VI. *The ſixth Sweet Water.*

Take Roſes two pound, Macaleb, half a dram, Ambergriſe ten grains, bruiſe what is to be bruiſed, digeſt in Sand three days, then diſtil in *Balneo*.

VII. *The ſeventh Sweet Water.*

Take green peels of Oranges and Citrons, of each four ounces, Cloves half a dram, Flowers of Spike ſix ounces, *Aqua Roſarum Damaſcenarum* ſix pound, digeſt ten days, then diſtil in *Balneo*.

VIII. *The eighth Sweet Water.*

Take of the Water of the fifth Section ſix pound, Musk ten grains, mix and digeſt them for uſe.

IX. *The ninth Sweet Water.*

Take *Aqua Roſarum*, *Aqua Florum de Jaſemin*, of each four pound, Musk one ſcruple, digeſt ten days, then diſtil in Sand.

X. *The tenth Sweet Water.*

Take Damask-roſes, Musk-roſes, Orange-flowers, of each four pound, Cloves two ounces, Nutmegs one ounce, diſtil in an Alembick, in the noſe of which hang Musk three ſcruples, Amber two ſcruples, Civet one ſcruple, tyed up in a rag dipt in bran, and the White of an Egg mixed.

XI. *The*

XI. *The eleventh Sweet Water, called* Aqua Nanſa, *or* Naphe.

Take *Aqua Roſarum* four pound, Orange-flower water two pound, waters of ſweet Trefoil, Lavender, Sweet Marjoram, of each eight ounces, Benjamin two ounces, Storax one ounce, Labdanum half an ounce, Mace, Cloves, Cinnamon, Sanders, *Lignum* Aloes, of each one ounce, Spicknard one ounce; all being groſly beaten, digeſt a Month, then in a glaſs retort diſtil in *Balneo*.

XII. *The twelfth Sweet Water, called* Aqua Moſchata.

Take Spirit of Wine rectified to the higheſt two pound, Musk three ſcruples, Ambergriſe two ſcruples, Civet one ſcruple, digeſt in the Sun twenty days cloſe ſtopt in a glaſs veſſel; a drop of this water put into any other liquor, will very well perfume it.

So may you extract the ſcent out of ſweet Flowers, with this difference, that they lie but a little while, becauſe their earthy ſubſtance will make the ſpirit ill-ſavoured.

XIII. *The thirteenth Sweet Water.*

Take a quart of Orange-flower water, and as much Damask Roſe-water: add thereto Musk-willow ſeeds, groſly bruiſed, four ounces, Benjamin two ounces, Styrax one ounce, Labdanum ſix drams, Lavender flowers two pugils, musked Cranesbill three pugils, Sweet Marjoram as much, *Calamus Aromaticus* a dram, diſtil all in a glaſs Stillatory in *Balneo*, the Joints being well cloſed that no vapor get out.

XIV. *The fourteenth Sweet Water.*

Take Benjamin, Storax *Calamita*, of each two ounces; Cloves, Winter Cinnamon in pouder, of each one ounce; Orange peels, Limon peels, (the yellow) of each half an ounce; Musk ſeeds an ounce and half; Spirit of Wine a quart: digeſt twenty days, ſhaking it every day: then decant the clear, and add Musk, Ambergriſe in fine pouder, *ana* five grains: mix them well, and keep them together for uſe.

XV. *The Queens Perfumed Water.*

Take Damask Roſe-water a gallon, Orange-flower-water two quarts; Sweet Marjoram water, Angelica water, of each a quart; Winter Cinnamon, yellow of Orange and Limon peels, *Jamaica* Pepper, of each two ounces; Cloves, Cinnamon, Nutmegs, of each half an ounce; yellow Sanders, Saſſafras, Rhodium, of each one

ounce; Benjamin eight ounces: All the ingredients being in fine pouder, put them to the waters in a glass bottle, adding Spirit of Wine a quart; digest in a gentle Sand heat for a Month, then decant the clear water, and add to it, if you so please, Musk in fine pouder a scruple, Ambergrise ten grains, tied up in a Nodule, which let lye in the liquor so long as it lasts.

XVI. *Another excellent Perfumed Water.*

Take Damask Rose-water a Gallon, Spirit of Wine a quart; Benjamin, *Styrax Calamita*, yellow Sanders, Musk seeds, of each fourteen ounces; Sassafras, Winter Cinnamon, of each two ounces: Orrice Root three ounces; Cloves, Nutmegs, *Cassia Ligna*, Wood of Aloes, yellow of Limon and Orange peels, of each half an ounce: Musk in fine pouder a scruple, mixt with double refined Sugar half an ounce; the ingredients being each a part made into fine pouder, mix altogether, and digest in a gentle Sand heat for fourty days; and keep the Water for use.

XVII. *An excellent Perfumed and Colored Water.*

Take Damask Rose leaves fresh gathered, Clove-gilliflowers, Violets, or any other Sweet and Aromatick Flower, put them into an Alembick, and affuse thereon a sufficient quantity of fair water impregnated with Spirits of Salt, (an ounce of Spirit to a pint of Water:) fill the Alembick full of the Flowers, and this impregnated water: digest xxiv. hours till you see your water is well colored: then decant the clear liquor, so will it have the color and smell of the Roses, or other Flowers, as if they were fresh gathered.

CHAP. XII.

Of Perfuming Oils and Spirits.

I. *To make Perfuming Oils by Infusion.*

This is taught fully at the fifth Section of the tenth Chapter aforegoing.

II. *To make Oleum Imperiale.*

Take Ambergrise four drams, *Storax Calamita* eight ounces,

ounces, Roſe-water, *Oleum Roſatum*, of each two pound, Oil of Cinnamon and Cloves, of each half a dram, put all into a glaſs, and digeſt in Horſe-dung twenty days: this done, gently boil all for a quarter of an hour, which then let cool; with a ſpoon take off the Oil which ſwims a top, to which put of Musk and Civet, of each two drams, digeſt all in a gentle heat for twenty days, and keep it for uſe. Where note the Amber and Storax at bottom will ſerve to make Sweet Balls of, to lay among Cloths, or Beads to carry in ones hands; or for a Perfume to burn.

III. *To make Oil of Cinnamon.*

Digeſt Cinnamon groſly bruiſed in ſpirit of Wine, ſharpned with Oil of Salt, in a glaſs veſſel, with a blind head cloſely luted, in a gentle heat for ten days, then diſtil in an Alembick, as we have more at large taught in our *Pharmacop. Lond. lib.4. cap.3. ſect.12.* it is a wonderful Perfume, the moſt fragrant and pleaſant of all Oils, as well in taſte as ſmell: the uſe of it will certainly take away a ſtinking Breath.

IV. *To make Oil of Roſes, called* adeps Roſarum.

Take Damask Roſes, pickle them with Bay Salt, and after three Months, with a large quantity of water diſtil in aſhes with a gentle fire, ſo have you Oil, and Spirit, or water, which keep for other diſtillations. *Wickerus* hath it thus,

Roſarum folia in umbra aliquandiu aſſervata in matula vitrea magna ponuntur, cujus ſit fundus latus, & ad dimidium vas impletur: inde affunditur ipſis Roſarum foliis tantum aquæ roſaceæ ſtillatitiæ, quantum ſatis fuerit, ut optimè madeant: appoſitóque pileo vitreo cæco, ſtipatiſque optimè rimis cera gummata, quindecim diebus equino fimo macerantur: ſic tamen, ut mutato, cùm frigeſcere cœperit, fimo, calor æqualis ſervetur. Appoſito mox matulæ roſtrato pileo, igne moderato cinerum, aqua omnis elicitur: quæ rurſus in eadem matula, optimè priùs à faecibus mundata ablutaque ponitur, & calentis aquæ balneo lentiſſimo igne elicitur, dùm tota in vas recipiens abeat. Nam in fundo matulæ remanebit oleum roſarum, colore rubrum, perſpicuum, & Moſchi odore ſuaviter fragrans.

This is the greateſt of all vegetable Perfumes, and of an ineſtimable value. See the beſt way of making it in my *Pharm. Bateana, lib.* 1. *cap.* 2. *ſect.* 69. 7, 8, & 9.

V. *To*

V. *To make Oil of Calamus Aromaticus.*

It is made as Oil of Cinnamon: it is a very great Perfume, helps a Stinking Breath, Vomiting, weak Memory, &c.

VI. *To make Oil of Rhodium.*

It is made as Oil of Cinnamon: is a very excellent Perfume, good for the Head, Breath, and the Senses.

VII. *To make Oil of Indian Spicknard.*

By infusion it is made by the first Section; by distillation, as Oil of Cinnamon. It is an eminent Perfume.

VIII. *To make Oil of Benjamin.*

Take Benjamin six ounces in pouder, which dissolve in Oil of Tartar, and *Aqua Rosarum*, of each one pound, which distil with a close pipe in an Alembick. So is made Oil of *Storax* and *Labdanum*.

IX. *To make Oil of Storax compound.*

Take Oil of Ben, or sweet Almonds, one pound; Storax grosly beaten four ounces; Benjamin, Cloves, of each two ounces, digest (till the Gums are melted) over hot Coals; then press out the Oil diligently.

X. *To make Spirit of Ambergrise.*

Take of the best rectified Spirit of Wine, a pint; Oil of Salt half an ounce, Ambergrise, Musk (both in fine pouder) of each two drams, seal up the glass hermetically, and digest in a very gentle heat, till the Tincture is fully drawn out; three or four drops of this Spirit will Perfume a pint of any Liquor richly. Or you may put a drop or two round the brims of a drinking-glass; half a spoonful of it mixt with a fit Vehicle, is a rich Cordial.

CHAP. XIII.

Of Perfuming Essences.

I. THE *way to extract Essences is somewhat difficult*, viz. *by Distillation, Calcination, Digestion or Menstruum.*

II. If by a *Menstruum*, use not a watry one for a watry Essence; nor an oily one for an oily Essence; because being of like natures, they are not easily separated; but

but on the contrary, chuse an oily *Menstruum* for a watry Essence, and a watry *Menstruum* for an oily Essence.

III. If the Essence of any Metal be to be extracted by a *Corrosive Menstruum*, after the work is done, separate the Salts from the Waters, and use only those Salts which will be easily taken out again; *Vitriol* and *Alom* are very difficult to be separated by reason of their earthy substance.

IV. *To extract the Essence out of Musk, Ambergrise, Civet, and other Spices or Aromaticks.*

Mix the Perfume with Oil of Ben, which in a glass bottle set in the Sun or Sand for ten days, then strain it from the dregs, and the Essence will be imbibed in the Oil. Then take Spirit of Wine, and distilled fountain water, which mix with the said Oil, and digest for six days, then distil in Sand; so will the Essence and water ascend, (the Oil remaining at bottom without any scent) that essence and water distil in *Balneo* in a glass vessel, till the water be come off, and leave the Essence in the bottom in the form of Oil.

V. *Another way to do the same.*

Infuse the matter in Spirit of Wine a sufficient quantity, mixt with a tenth part of Oil of Salt, or Sulphur, digest for ten days, then distil in Sand, as long as any water will come over (but have a care of burning) which distilled Liquor draw off in *Balneo*, with a very gentle heat, and the quintessence will be left in the bottom, of a liquid form.

VI. *To extract the Essence out of Herbs and Flowers, as of Sweet Marjoram, Basil, Orange-flowers, Jasemin,* &c.

Bruise the matter, and put it into a glass vessel to ferment in Horse-dung for a Month, then distil in *Balneo*: set it in dung for a week again, and distil in *Balneo* again; which reiterate so long as it will yield any liquor; put the distilled matter upon the *Caput mortuum*, distilling thus for six days; draw off the water in *Balneo*; and the Essence remaining expres in a pres: which being a week fermented in dung, will yield the perfect scent, colour and vertues of the matter desired.

VII. *To extract the Essence out of Salts.*

Calcine the Salt, and grind it very small, then lay it upon a Marble in a moist Cellar, setting under it a pan to receive the dissolution; therein let it ferment for a Month,

Month, then with a gentle fire distil in *Balneo*: cast away the insipid water, which comes from it; and set that which remains in the bottom, to ferment another Month, then distil out the insipid water, as before; repeating this work so long as any insipid water may be drawn: then evaporate away all the moisture, and what remains is the quintessence of Salt.

Where Note, 1. *That these Saline quintessences as they may be used, will draw forth the perfect and compleat essence of any vegetable whatsoever.* 2. *That the essence of Salts thus drawn, will scarcely come to two ounces in a pound.*

VIII. *Essence of Cinnamon.*

Take Oil of Nutmegs, by expression, eight ounces: Oil of Cinnamon four ounces; mix perfectly, and keep it for use.

IX. *A Liquid Essence of Cinnamon.*

Take Chymical Oil of Nutmegs three ounces: Oil of Cloves one ounce; Oil of Cinnamon eight ounces: mix, digest ten days, and keep it for use.

CHAP. XIV.

Of Perfuming Unguents.

I. TO *make* Unguentum Pomatum, *or Ointment of Apples.*

Take Calves Suet three pound, Oil of Ben one pound, Sheeps Suiet nine ounces, bruised Cloves one dram, *Aqua Rosarum* two ounces, Pomwaters pared and sliced one pound, boil all to the Consumption of the Rose-water; then strain without pressing, to every pound of which add Oil of *Rhodium* and Cinnamon, of each thirty drops.

II. *To make a compound Pomatum.*

Take of the Pomatum aforesaid, (without the Oils) four pound, Spicknard, Cloves, of each two ounces; Cinnamon, Storax, Benjamin, of each one ounce, (the Spices and Gums bruised and tyed up in a thin rag) Rose-water eight ounces; boil to the Consumption of the Rose-water, then add white wax eight ounces, which mix well by melting, strain it again, being hot; and when

it is almoſt cold, mix therewith Oil of Musk (made by the firſt Section of the twelfth Chapter) then put it out, and keep it for uſe.

III. *Another excellent Ointment.*

Take Calves Suet, one pound, Oil of Ben ſix ounces, *Saccharum Saturni* two ounces, mix them well by gently melting them; to which add Oils of Musk and Ambergriſe, of each half an ounce, let them all cool, and beat the Unguent well in a Mortar, and keep it for uſe.

IV. *To make Unguentum Moſchatum.*

Take Lambs Suet one pound, Oil of Ben ſix ounces, Ambergriſe, Moſch, of each one dram and a half, (ground with Oil of Jaſemin upon a Marble) *adeps Roſarum* half an ounce, (ground with Civet one dram) mix all together into an Ointment, which keep for uſe.

V. *A good Pomatum.*

Take Sheeps Suet two pounds; Oil of Ben one pound: mix them over a gentle heat; add to them Oil of Tartar *per deliquium* one ounce: when well mixt, caſt all into warm water, ſtir them well together; then let it ſtand and cool: then gather the fat ſubſtance from the top of the water, and mix with it Chymical Oil of Oranges, and of Limons, of each half an ounce, and keep it in a pot cloſe covered for uſe.

Note, *Hogs Lard is not to be uſed in theſe Compoſitions, becauſe it quickly grows rank, and ſtinks.*

CHAP. XV.

Of Perfuming Pouders.

I. *To make Pouder of Ox dung.*

Take red Ox dung in the Month of *May* and dry it well, make it into an impalpable Pouder by grinding: it is an excellent Perfume without any other addition; yet if you add to one pound of the former, Musk, and Ambergriſe, of each one dram, it will be beyond compariſon.

II. *To make Cyprian Pouder.*

Gather Musk-moſs of the Oak in *December, January* or *February*; waſh it very clean in Roſe-water, then dry it,

it, steep it in Rose-water for two days, then dry it again, which do often times; then bring it into fine pouder and searce it; of which take one pound, Musk one ounce, Ambergrise half an ounce, Civet two drams, yellow Sanders in pouder two ounces, mix all well together in a Marble mortar.

III. *Another way to make the same.*

Take of the aforesaid Pouder of Oak-moss one pound, Benjamin, Storax, of each two ounces in fine Pouder; Musk, Ambergrise and Civet, of each three drams, mix them well in a mortar.

IV. *A Sweet Damask Pouder to lay among Cloaths.*

Take Damask-rose leaves dyed one pound, Musk half a dram, Orrice root, sweet Marjoram, yellow Sanders, Wood of Aloes, Saffafras, of each three ounces; mix them, and put them in a bag.

V. *Another for the same, or to wear about one.*

Take Rose leaves dryed one pound, Cloves in pouder half an ounce, Spicknard two dram, Storax, Cinnamon, of each three drams, Musk half a dram, mix them, and put them into bags for use.

VI. *Pouder of Sweet Orrice, the first way.*

Take Florentine Orrice-root in Pouder one pound, Benjamin, Cloves, of each four ounces in pouder, mix them.

VII. *Pouder of Florentine Orrice, the second way.*

Take of Orrice-root six ounces, Rose leaves in pouder four ounces, Marjoram, Cloves, Storax in pouder, of each one ounce, Benjamin, yellow Sanders, of each half an ounce, Xylo aloes four ounces, Musk one dram, Cyprus half a dram, mix them; being grosly poudered, put them into bags to lay amongst linnen: but being fine, they will serve for other use, as we shall shew.

VIII. *Pouder of Orrice-roots, the third way, excellent for linnen in bags.*

Take roots of Orrice, Damask Roses, of each one pound, Sweet Marjoram twelve ounces, flowers of Rosemary, and *Roman* Camomil, leaves of Time, *Geranium Moschatum*, Savory, of each four ounces, Cyprus roots, Benjamin, Xylo-aloes, yellow Sanders, *Lignum Rhodium*, Citron peel, *Storax*, *Labdanum*, Cloves, Cinnamon, of each one ounce; Musk two drams, Civet one dram and a half, Ambergrise one dram, pouder and mix them for bags. This composition will retain its strength near twenty years.

IX. *Pou-*

IX. *Pouder of Orrice, the fourth way.*

Take Orrice roots in pouder one pound, *Calamus Aromaticus*, Cloves, dryed Rose leaves, Coriander seed, *Geranium Moschatum*, of each three ounces, *Lignum Aloes*, Marjoram, Orange peels, of each one ounce, Storax one ounce and a half, *Labdanum* half an ounce, Lavender, Spicknard, of each four ounces, pouder all, and mix them, to which add Musk, Ambergrise, of each two scruples.

X. *Pulvis Calami Aromatici compositus.*

Take *Calamus Aromaticus*, yellow Sanders, of each one ounce; Marjoram, *Geranium Moschatum*, of each one ounce; Rose leaves, Violets, of each two drams, Nutmegs, Cloves, of each one dram; Musk half a dram, make all into pouder, which put in bags for Linnen.

XI. *Another of the same.*

Take *Calamus Aromaticus*, Florentine Orrice roots, of each two ounces, Violet flowers dryed one ounce, round Cyprus roots two drams; *adeps Rosarum* one dram and a half, reduce all into a very fine pouder: it is excellent to lay among Linnen, or to strew in the Hair.

XII. *An excellent perfuming Pouder for the Hair.*

Take Orrice roots in fine pouder one ounce and a half, *Benjamin*, *Storax*, Cloves, Musk, of each two drams; being all in fine Pouder, mix them for a Perfume for Hair Pouder. Take of this Perfume one dram, Rice-flower impalpable one pound, mix them for a pouder for the Hair. Note, some use white Starch, flour of *French* Beans, and the like.

XIII. *A Sweet Powder for a Silk Bag.*

Take *Benjamin*, *Storax Calamita*, Cloves, *Lignum Aloes*, of each two ounces; yellow Sanders three ounces, Florentine Orrice six ounces, Musk half a dram, mingle them.

XIV. *Another for the same.*

Take Florentine Orrice, Spicknard, Sweet Marjoram dried, *Geranium Moschatum*, of each four ounces; Damask Roses, Cypress, Lavender Flowers, of each three ounces; *Benjamin*, *Lignum Rhodium*, of each an ounce, mix them.

XV. *A Damask Pouder for the like intention.*

Take Damask Roses, yellow Sanders, *Lignum Aloes*, of

of each four ounces; *Benjamin*, Spicknard, Cypreſs, of each two ounces, mingle them together.

XVI. *Another for the ſame purpoſe.*

Take Damask Roſe leaves a handful, cut off the whites, put them in a glaſs, and put to them Musk half a ſcruple, Ambergriſe ſix grains, Civet four grains, ſtop the glaſs cloſe, and ſet it in the Sun till the leaves be throughly dry.

XVII. *A Pouder for a Sweet Bag.*

Take Orrice, Cypreſs, white Sanders, Lavender, Damask Roſes, of each four ounces; *Calamus*, *Storax Calamita*, *Benjamin*, Sweet Baſil, Sweet Marjoram, *Geranium Moſchatum*, of each two ounces; Cloves, Roſemary flowers, of each one ounce, mix them.

XVIII. *Damask Pouder for a Sweet Bag.*

Take Damask Roſes four ounces and a half; Marjoram, Orrice, of each four ounces; *Geranium Moſchatum* three ounces; *Labdanum* two ounces and a half, *Lignum Aloes*, white Sanders, Cloves, Cypreſs, *Benjamin*, *Calamus*, of each two ounces; Musk, Oil of Savin, of each one dram, mingle them.

XIX. *White Damask Pouder very fine for Hair.*

Take Orrice in pouder, white Starch, of each eight ounces; fine Musk a ſcruple, mix it firſt with a little, then with more, and laſtly with the whole by degrees, the longer it is kept the better.

XX. *Another Damask Pouder in Groſs.*

Take Damak Roſes two ounces and a half; *Calamus*, Orrice, Cypreſs, *Geranium Moſchatum*, Lavender flowers, ſweet Marjoram, *Labdanum*, of each two ounces; *Benjamin*, *Storax Calamita*, of each an ounce and half; *Nigella Romana* one ounce; Musk a dram, mingle them.

XXI. *Another Damask Pouder.*

Take Orrice four ounces; Cloves two ounces; *Labdanum*, Cypreſs, *Benjamin*, of each one ounce; *Calamus*, *Storax Calamita*, of each half an ounce; Civet, Musk, of each ten grains, mix them.

XXII. *Another Sweet Pouder.*

Take Orrice ſix ounces; Cloves four ounces; yellow Sanders, *Storax Calamita*, *ana* two ounces, *Labdanum* one ounce, Musk a ſcruple, make a Pouder.

XXIII. *An*

XXIII. *An excellent Sweet Bag.*

Take Florentine Orrice three pounds, *Calamus Aromaticus*, *Lignum Rhodium*, of each one pound; yellow Sanders ten ounces, Benjamin in groſs pouder eight ounces, Cinnamon in pouder four ounces, Cloves in pouder two ounces, mix them for a bag.

XXIV. *Another Pouder for Sweet Bags.*

Take Damask Roſes four pounds, ſhavings or raſpings of *Lignum Rhodium* three pounds, Florentine Orris in pouder two pounds; yellow Sanders, *Calamus Aromaticus*, Galingal, Cinnamon, Cloves, yellow of Citron, Limon, and Orange peels, *ana* four ounces; Benjamin, *Styrax Calamita*, *ana* two ounces; beat all in a Mortar to a fine pouder, and ſift it thro' a hair Sieve, *&c.*

XXV. *A Cypreſs Pouder.*

Take Musk-moſs four pounds, ſteep it in Damask Roſe-water two quarts, mixt with Powers of Rhodium, Sweet Marjoram, and of Savin, of each four ounces; after it has lain xlviii. hours, take it out and dry it; infuſe it again for as long a time, take it out and dry it, and repeat this to the fourth time, then reduce it to a fine pouder; to which add yellow Sanders in pouder eight ounces, Musk in pouder four drams: Ambergriſe two drams: Civet a dram: mix them all well together in a Marble Mortar.

XXVI. *A Perfuming Pouder.*

Take Musk-ſeed eight ounces, Musk four ounces, Ambergriſe two ounces, Cloves two ounces, *Virginia* Snake-root one ounce; make each apart into fine pouder, then mix them, and add thereto Civet half an ounce; mix them well in a Stone Mortar, and keep it for uſe. With this you may Perfume Hair Pouder, Sweet Bags, and other like things.

XXVII. *To make Grounds for White Pouder.*

Take Cuttle-bone in fine pouder twelve pounds, white Starch eight pounds, Orrice pouder, fine bone Aſhes, of each one pound; each being in fine pouder, mix them together, and paſs them through a fine hair Sieve.

XXVIII. *Another for the ſame.*

Take pure white Starch, Rice, each in fine pouder, of each twelve pounds; Florentine Orrice in fine pouder three pound: mix them.

XXIX. *A Ground for Grey Pouder.*

Take what remains at *Sect.* 27. above, which beat again, and add to every pound thereof, white Starch eight ounces, yellow Oaker two ounces, Charcole a ſmall quantity, all being in fine pouder, paſs it through a hair Sieve, and keep it for uſe; and to be perfumed as you ſhall ſee fit.

XXX. *Another Brown Pouder.*

Take Rotten Wood, beat it to a ſmall pouder, and paſs it through a hair Sieve, and then perfume it.

XXXI. *A Perfume for ordinary Pouder.*

Take Florentine Orrice in fine pouder two pounds; Damask Roſes in fine pouder, Musk-ſeeds in pouder, of each one pound; Benjamin four ounces, yellow Sanders in pouder three ounces, Storax two ounces, Citron peels in pouder one ounce, Cloves in pouder half an ounce; mix them: this will ſerve for forty pounds of white Starch in fine pouder, being mixt together, by paſſing them through a hair Sieve.

XXXII. *An excellent Amber Pouder.*

Take Rotten Wood, Bean-flower, of each eight ounces; yellow Sanders, *Lignum Rhodium*, of each four ounces; Cypreſs Wood, Saſſafras, of each three ounces, Benjamin two ounces; *Storax Calamita* one ounce, *Calamus Aromaticus* half an ounce; make each apart into fine pouder, and mix them. Then take Machaleb, or Musk-ſeeds in pouder two ounces, Musk ten grains, Ambergriſe ſix grains, both in pouder; mix theſe three things together, and then put them to the former mixture, and keep it in a glaſs cloſe ſtopt for uſe.

CHAP. XVI.

Of Perfuming Balſams.

I. *Natural Balſams perfumed.*

Take *Balſamum verum* one ounce, Musk, Ambergriſe, Civet, of each two ſcruples; mix them for a Perfume: it is the moſt fragrant and durable of all Perfumes.

II. *An*

II. *An odoriferous compound Balſam.*

Take of the aforeſaid Balſam perfumed one ounce, Oils of *Rhodium* and Cinnamon, of each two drams, mix them: this is an incomparable Perfume, and better than the other for ſuch as are not affected ſo much with Musk.

III. *Balſamum Moſchatum.*

Take Oil of Musk one dram, Oil of Cinnamon half a ſcruple, Virgin Wax one dram and a half, melt the Wax, and mix them according to Art.

IV. *Another very good.*

Take Cloves, Cinnamon, Lavender, Nutmegs, of each two drams, Oils of Cloves and *Rhodium*, of each half a dram, Wax three drams, Musk and Ambergriſe, of each ten grains, mix them into a Balſam.

V. *Another very excellent for thoſe that love not the ſcent of Musk, and the like.*

Take Oil of *Geranium Moſchatum*, (made as *adeps Roſarum* by the fourth Section of the twelfth Chapter) *adeps Roſarum*, Oil of Cinnamon, of each one dram, Virgin wax ſix drams, melt the Wax, and mix the Oils for a Perfume.

CHAP. XVII.

Of Perfuming Tablets.

I. *To make red Muskardines or Tablets.*

Diſſolve Gum *Tragacanth* in Roſe-water, ſo that it may be as thick as Gelly: which make into paſte with the following compoſition. Take *Amylum* one pound, fine Sugar half a pound, *Cochenele* two ounces, Musk three drams, all being in fine pouder, mix them, and make Tablets with the aforeſaid Mucilage of *Tragacanth*, ſquare, long, round, or of what form you pleaſe, which dry in an Oven, out of which Bread hath been lately drawn: but be ſure you dry them till they be as hard as horns.

II. *Another ſort of Red Tablets.*

Take of the aforeſaid compoſition one pound, Cloves,

Cinnamon, Nutmegs, Ginger, of each two ounces, *Cochenele* one ounce, all being in fine pouder, make into Tablets, with the aforesaid Mucilage, and dry as aforesaid.

III. *To make Yellow Tablets.*

Take *Amylum* one pound, fine Sugar half a pound, yellow Sanders four ounces, Saffron two ounces, (or you may dip the *Amylum* in strong tincture of Saffron, and then dry it again) Musk four drams, all being in fine pouder, make the Mass into Tablets, with the aforesaid Mucilage, adding Oil of Cinnamon in drops two drams, dry them carefully in the shade.

IV. *Another sort of Yellow Tablets.*

Take *Amylum* died with tincture of Saffron one pound, Sugar half a pound, Saffron two ounces, Nutmegs, Cinnamon, Ginger, of each one ounce; Carraways half an ounce, Musk three drams, Ambergrise one dram, all in fine pouder make into Tablets, as aforesaid, adding Oil of Cinnamon two drams; which dry in the shade, till they be as hard as horn.

V. *To make Muscardines or Tablets of any other colour.*

You must make them after the same manner, only adding the colour you do intend; and in this case we think that it is better that the *Amylum* be dipt in the tincture, and dried first before you use it. Where note, that these Tablets, when used, are to be held in the mouth, in which they will dissolve, thereby cheering the Heart, reviving the Senses, comforting the Spirits, strengthening Nature, restoring the Body, and indeed nobly perfuming the Breath. For them that do not love Musk, you may make them without, using instead thereof, so much the more Oil of Roses or Cinnamon.

CHAP. XVIII.

Of making Pomanders for Bracelets.

I. THE *first sort.* Take Orrice pouder, Cloves, Mace, Cinnamon, of each half an ounce; yellow Sanders, Styrax, sweet *Assa*, of each two drams; Ambergrise, Musk,

Musk, of each one dram; Balsam of *Peru*, Oil of *Rhodium*, of each one scruple; Civet two drams, all being in fine pouder (except the Balsam and Oil) mix together, and make into paste with Mucilage aforesaid, of which form Beads, drying them in the shade for use.

II. *The second sort.* Take *Storax*, *Labdanum*, of each one dram and a half; Benjamin one dram, Cloves, Mace, Spicknard, *Geranium Moschatum*, of each ten grains; Musk, Ambergrise, of each six grains; with Mucilage make a *Pomander* for Bracelets.

III. *The third sort.* Take Damask Rose leaves exungulated two ounces, beat them impalpable: Musk, Ambergrise, of each two scruples, Civet one scruple, *Labdanum* one dram with Mucilage of Gum *Tragacanth*, in Rose-water aforesaid, make a *Pomander* for Bracelets.

IV. *The fourth sort.* Take Storax, Benjamin, of each an ounce and half, Musk two drams, Oil of Cinnamon one dram, with Mucilage aforesaid make a paste of *Pomander*, very excellent.

V. *The fifth sort.* Take Spicknard an ounce, sweet Marjoram, *Geranium Moschatum*, of each half an ounce; Orrice, Cloves, of each two drams, *Calamus*, *Lignum Rhodium*, *Lignum Aloes*, of each a dram; Cypress, Benjamin, Cinnamon, white Sanders, of each a scruple; *Labdanum*, *Styrax Calamita*, and *Liquida*, of each half a scruple; with Mucilage of Gum *Tragacanth* in Rose-water make a paste for *Pomanders*.

VI. *The sixth sort.* Take *Storax Calamita* two ounces, *Basil* three ounces, Cloves an ounce and half, Benjamin, Marjoram, Storax liquid, of each one ounce; *Calamus*, Cypress, *Labdanum*, of each half an ounce; Musk a scruple, Ambergrise twelve grains, Civet six grains, with Mucilage of Gum *Tragacanth* in Rose-water make *Pomanders*.

VII. *The seventh sort.* Take *Labdanum* an ounce, Storax, Cloves, Mace, Cinnamon, of each three drams, Ambergrise, Musk, of each a dram and a half, Virgin Wax an ounce, mixt with Sweet or Chymical Oil of Bays half an ounce, dissolve, mix and work them well together.

VIII. *The eighth way.* Take *Labdanum* six ounces, Wax two ounces, Camphire, *Calamus*, Myrrh, yellow Sanders, Wood of Aloes, Olibanum, Mastich, of each

two drams; Cinnamon, Cloves, Zedoary, Storax, Calamint, of each a dram and a half; Musk, Ambergrise, of each a scruple; put them into a Mortar, and with a little Malmsey, make a mass for *Pomanders*.

IX. *The ninth sort.* Make Gum *Tragacanth* half a pound into a Mucilage with Damask Rose-water Muskified, to which add *Storax Calamita* nine ounces, Nutmegs four ounces, *Labdanum* three ounces, Cinnamon, Cloves, Camphire, liquid Storax, natural Balsam, of each one ounce: put the *Labdanum* into the Mortar, with a little Oil of Spike, and then the other things, which beat into a paste, with pouder of black sallow Charcole.

X. *The tenth sort.* Take strong Mucilage of Gum *Tragacanth*, in Rosewater, which make into paste with Musk and Ambergrise in fine pouder, of each a like quantity; then anointing your palm and fingers with Oil of Musk, or some other sweet Oil, as of Lavender, or the like, form them into round little Balls or Beads, which put upon a string, and dry them between two papers; being dryed, keep them close from the Air, till you have occasion to use them.

XI. *The eleventh sort.* Take Cloves four ounces, pouder of *Contrayerva*, *Virginia* Snake root, of each three ounces; Winter Cinnamon two ounces, Liquid Storax one ounce, Mucilage of Gum *Tragacanth* a sufficient quantity: make them into a paste by beating in a mortar: and your hands being anointed with Oil of Ben, mixt with equal quantities of Oil of *Rhodium*, or Oranges, or Limons; form them into round little Beads, which put upon a Silver Wire, and dry them.

XII. *Pastils of Roses.* Take Damask Roses half blown cut off from the whites, Benjamin in pouder, of each four ounces; Musk in fine pouder, Ambergrise in fine pouder, *ana* five grains: beat all together in a mortar to a paste; then add Oil of Oranges or Limons, or of Savin, one dram: mix well and make a Paste, *&c.*

XIII. *Another more rich.* Take Benjamin in fine pouder four ounces, Cloves in pouder, Storax liquid, of each two ounces; *Lignum Aloes* in fine pouder one ounce: Musk, Ambergrise, of each one dram in fine pouder: beat all in a mortar to a paste, adding more Storax as you see occasion; and so make it up into Beads.

CHAP.

CHAP. XIX.

Of Perfuming Wash-Balls.

I. *TO make Barbers Wash-Balls.*

Take purified *Venetian* Soap six ounces, Macaleb four ounces, Ireos, *Amylum*, of each seven ounces; Cloves two ounces, *Labdanum*, Annifeeds, of each one ounce; Nutmegs, Marjoram, Cypress pouder, *Geranium Moschatum*, Camphire, of each half an ounce, *Storax liquida* half a dram, Musk ten grains, all being in fine pouder, with a little fine Sugar, beat all in a mortar, and make them up into Wash-balls.

II. *To do the same another way.*

Take of the said Soap two pound, juice of Macaleb two ounces, Cloves, Orrice, of each three ounces, *Labdanum* two ounces, *Storax* one ounce, all being in fine pouder, mix with the Soap, of which make Balls, drying them in the shadow.

III. *To make Balls of white Soap.*

Take of white Soap five pound, Orrice four ounces, *Amylum*, white Sanders, of each three ounces, *Storax* one ounce, all in pouder, steep in Musk-water, of which make paste for wash-balls.

IV. *Another sort very good.*

Take of white Soap four pound, Orrice six ounces, Macaleb three ounces, Cloves two ounces, all in pouder; mix with the Soap a little Oil of Spike, *Rhodium*, or the like, of which make Balls.

V. *Another way to make them of Goats Fat.*

Make a strong *Lixivium* of Pot-ashes, as that a new laid Egg will swim thereupon, which boil with Citron peels: take of this Lye twenty pound, Goats Fat two pound, boil it for an hour, then strain it through a linnen cloth into broad Platters of fair water, exposing it to the Sun, mix it often every day till it begins to grow hard, of which you may form Balls, which you may Perfume with Musk half a dram, Civet one semple, Oil of Cinnamon ten drops.

VI. *To make common Wash-Balls, the best of that kind.*

Take Venice or Castle Soap sliced very thin, four pounds, Spirit of Wine half a pint, beat all together; then add Chymical Oil of Saffafras, or Limons, an ounce or more; and beat again very well: Lastly, add white Starch made into a Paste with water, by boiling a sufficient quantity to make all into an even and smooth Mass, which form into Balls of four ounces a piece, with pouder of white Starch, dry them and keep them for use.

VII. *To make the best* Bolonia *Wash-Balls.*

Take *Genoa* Soap, white and pure, sliced thin, eight pounds; unslacked Lime two pounds; *Aqua Vitæ* a quart: beat them well together in a Mortar, and let them lie together for 48 hours; then spread it abroad, and lay it a drying: being dry, beat it in a Mortar, and add to it *Macaleb*, or Musk-seeds in fine pouder, yellow Sanders in fine pouder, Orrice-root also in pouder, of each eight ounces: mix, and beat them up into a Paste with Whites of Eggs *q. s.* and two pounds of Gum *Tragacanth* dissolved in Damask Rose-water, and so make the Mass up into Wash Balls.

VIII. *Another sort of Wash-Balls.*

Take *Genoa* Soap sliced thin twenty pounds, *Aqua Vitæ* two quarts; mix, and dissolve over a fire: the Soap being melted, add thereto white Starch in fine pouder five pounds: Orrice pouder four pounds: whites of Eggs N°. twenty; Mucilage of Gum *Tragacanth q. s.* mix, and make a Paste: to which add Benjamin eight ounces: *Storax*, yellow Sanders, of each six ounces; Cloves, Winters Cinnamon, Saffafras, of each four ounces: Nutmegs two ounces; Musk-seeds ten ounces; each made apart into fine pouder: beat all up into a Mass, and make Wash-Balls of what bigness you please.

IX. *A very good sort of Wash-Balls.*

Take *Genoa* Soap thin sliced ten pounds; *Aqua Vitæ* a quart; mix, and melt them over a gentle fire, evaporating away part of the *Aqua Vitæ*: then add Orrice in fine pouder two pounds: and with Mucilage of Gum *Tragacanth q. s.* beat it into a Paste, of which form Wash Balls; dry them, and keep them for use.

CHAP.

CHAP. XX.

Of Perfuming Soaps.

I. *TO purifie* Venetian *Soap.*

Cut it ſmall, to which put ſome Roſe-water, or other Perfuming water, boil them a while, then ſtrain it, and it will be ſweet and good, then take off the Soap which ſwims a top with a ſpoon, and lay it upon a Tyle, and it will preſently be dry; being white, free from filth and unctuoſity.

II. *Another way to do the ſame.*

Grate the Soap, and dry it in the Sun, or an Oven, pouder and ſearce it, then moiſten it with ſome ſweet water, or Oil of Spike, which dry again (in the ſhadow) and keep it for uſe.

III. *To make white musked Soap.*

Take white Soap purified as aforeſaid three pound, Milk of *Macaleb* one ounce, Musk, Civet, of each ten grains; mix them, and make all into thick cakes or rouls.

IV. *Another kind of ſweet Soap.*

Take of the eldeſt *Venice* Soap, which ſcrape and dry three days in the Sun (purifying it as aforeſaid) two pound, Orrice, *Amylum*, of each ſix ounces; *Storax liquida* two ounces: mix them whilſt hot: which put into Pans to form Cakes.

V. *To make ſoft Soap of* Naples.

Take of *Lixivium* of Pot-aſhes (ſo ſtrong as to bear an Egg) ſixteen pound, Deers Suet two pound, ſet them upon the fire to ſimmer; put all into a glazed Veſſel with a large bottom, ſet it in the Sun for a while, ſtirring it five or ſix times a day with a ſtick, till it wax hard like Paſte. Then take this Paſte, to which put musked Roſe-water *q. s.* keep it eight days in the Sun, ſtirring it as aforeſaid, ſo long as it may neither be too hard nor too ſoft; then put it up in Boxes or Pots.

VI. *To make the ſame Soap musked.*

Put to the ſaid Soap, Roſe-water two pound, fine Musk in pouder half a dram, then mix the ſaid water as before.

VII. *Ano-*

VII. *Another exquisite Soap.*

Take of the aforesaid *Lixivium*, or Oil of Tartar *per deliquium* twelve pound, Oil Olive three pound, mix them, *Amylum* two pound, Gum Arabick one ounce in pouder, glair of Eggs two ounces, put all together, and stir continually for four hours time, then let it stand the space of a day, and it is done. You may perfume it as before; this makes the Hair fair.

VIII. *Another exceeding the former.*

Take Crown Soap, Vine-ashes, of each one pound; make it into Cakes with pouder of Roch Alum and Tartar, of each alike, which you may perfume at pleasure.

IX. *To get the Juice or Milk of Macaleb.*

Take the sweet and odoriferous grains of *Macaleb*, which beat in a mortar (with Rose-water, or some perfuming water) till it becomes like pap, then press out the Juice or Milk; which use within two or three days lest it spoil.

CHAP. XXI.

Of burning and boiling Perfumes.

I. TO *make Perfumed Lights.*

Take Olibanum two ounces; Camphire one ounce: beat them into pouder; of which make, with Wax, balls or rouls, which put into a glass Lamp with Rose-water, and lighted with a Candle, will give a fair light, and a very good scent.

II. *Another for a Lamp.*

Take sweet Oil Olive one pound, Benjamin, *Storax* in pouder one ounce, Musk, Ambergrise, of each one scruple, mix all with the Oil, which put in a Lamp to burn: and the Oil will yield a fragrant odour.

III. *To make perfumed Candles.*

Take *Labdanum*, Myrrh, Xylo-aloes, *Styrax Calamita*, of each one ounce and a half: Willow Charcole one ounce, Ambergrise, Musk, of each ten grains; make them into Paste with Mucilage of Gum *Tragacanth* in Rose-

Roſe-water, which form into rouls like Candles, and dry for uſe.

IV. *A Perfume to ſmoak and burn.*

Take *Labdanum* two ounces, *Storax* one ounce, Benjamin, Cloves, Mace, of each half an ounce; Musk, Civet, of each ten grains, all in fine pouder; make up into Cakes with Mucilage of Gum *Tragacanth* in Roſe-water; which dry, and keep among your Cloths; which when occaſion requires, you may burn in a chafing-diſh of coals.

V. *Another ſmoaking Perfume to burn.*

Take *Labdanum* two drams, *Storax* one dram, Benjamin, Frankincenſe, white Amber, Xylo-aloes, of each two ſcruples, Ambergriſe, Musk, of each five grains, make all into Cakes as aforeſaid.

VI. *Another very excellent.*

Take *Storax*, Benjamin, of each one ounce; Wood of Aloes half an ounce, Ambergriſe, Musk, Civet, Balſam of *Peru*, Oil of *Rhodium*, of each two ſcruples; Ivory burnt black a ſufficient quantity; pouder what is to be poudered, and mix all together; which make into a Paſte, with the Ivory black and the Mucilage aforeſaid; make little Cakes and dry them, which keep in glaſſes cloſe ſtopt for uſe.

VII. *Another very good, but of leſs coſt.*

Take *Olibanum* one pound, *Styrax Calamita* and *Liquida*, of each eight ounces; *Labdanum* ſix ounces, Willow Charcole a ſufficient quantity; with Mucilage of *Tragacanth* make a Paſte as aforeſaid.

VIII. *A ſweet Perfume to burn.*

Take *Storax Calamita*, Benjamin, of each an ounce: *Labdanum* ſix drams; Musk five grains: put them into a mortar heat ſo hot, that by beating with a little Peſtle, they may work together like Wax, which make into little Cakes or Balls, and keep them for uſe.

IX. *A burning Perfume for a Chamber.*

Take Benjamin, Maſtich, of each an ounce: *Storax Calamita*, *Gum Anime*, Amber, of each half an ounce: Time, Sweet Marjoram, *Lignum Aloes*, yellow Sanders, of each two drams: all being in pouder, with Gum *Tragacanth* diſſolved in Roſe-water, make a Maſs for Cakes or Balls.

X. *Ano-*

X. *Another for the same.*

Dissolve Gum *Tragacanth* in Damask Rose-water, and make it into a Paste with *Labdanum*, *Styrax Calamita*, Benjamin, Amber, of each two drams: *Lignum Aloes*, *Lignum Rhodium*, of each two ounces: all being in pouder; mix, and make Cakes.

XI. *Another for the like intention.*

Take Benjamin, *Styrax Calamita*, Amber, all in pouder, of each half an ounce; *Lignum Aloes*, yellow Sanders, of each six drams in pouder: make them into Paste with Gum *Tragacanth* dissolved in Rose-water; which form into Cakes, and dry them for use.

XII. *A Perfume called Amber Paste.*

Take *Styrax Calamita* two ounces: Florentine Orrice, Amber, *ana* an ounce and half: Nutmegs an ounce: Musk a scruple: being in pouder, make a Paste with Gum *Tragacanth* dissolved in Rose-water.

XIII. *A boiling Perfume.*

Fill a Silver or Earthen pan with Damask Rose-water, adding Cloves well bruised half an ounce: Bay-leaves two drams: put them over the fire, and as it wastes, fill up with fresh Rose-water.

XIV. *King* Henry *his Perfume.*

Take Damask Rose-water a pint; Cloves bruised, yellow of Limons, of each half an ounce; Musk ten grains: boil all in a perfuming pan, with two drams of white Sugar.

XV. *King* Edward *his Perfume.*

Take Damask Rose-water a pint: Ambergrise a scruple, Civet ten grains; mix in a perfuming pan, setting it over soft Embers.

XVI. *The* French *Queens Perfume.*

First burn chips of Cypress in the Chamber a pretty while, the Doors and Windows being shut. Then take Damask Rose-water a pint: white Sugar Candy an ounce: put them into a perfuming pan, and let them boil softly on Embers.

XVII. *Cassolets, or perfumed Cakes to burn.*

Take Benjamin in fine pouder sixteen ounces: *Storax liquida* eight ounces: *Gum Guajaci*, Mastick, each in fine pouder six ounces: *Labdanum*, *Calamus Aromaticus*, yellow Sanders, Xylo-aloes, Sassafras, all in fine pouder, of each three ounces; Cloves, Nutmegs in pouder, of each one

one ounce: mix all together, and with Mucilage of Gum *Tragacanth* beat all into a Mass, which form into little Cakes, and dry them for use.

XVIII. *Other Pastiles, or perfumed Cakes to burn.*

Take Benjamin in fine pouder, *Storax Calamita* and *Liquida*, of each a pound: Frankincense, Rosin, Mastich, Olibanum, *Gum Anime*, *Gum Lac*, of each eight ounces: yellow Sanders, Xylo-aloes, Winters Cinnamon, of each six ounces: Musk one ounce: all being in fine pouder, mix, and with Mucilage of Gum *Tragacanth* a sufficient quantity: make a Mass, which form into Cakes and dry.

XIX. *Another burning Perfume.*

Take Gum of *Peru* and *Tolu*, of each a pound: Benjamin in pouder four pounds: yellow Sanders in pouder, enough to make it into a Paste.

CHAP. XXII.

Of Animal and Mineral Perfumes.

I. THE *Animal Perfume of* Paracelsus.

Take Cow-dung in the Month of *May* or *June*, and distil it in *Balneo*; and the water thereof will be an excellent Perfume, and have the scent of Ambergrise.

II. *Lard Muskified, a great Perfume.*

Take Hogs Lard very pure one dram, Musk, Civet, of each half a dram, mix them well for Boxes.

III. *The Mineral Perfume of Antimony.*

Dissolve Antimony in Oil of Flints, Crystal or Sand: coagulate the solution into a red mass, put thereon Spirit of Urine, and digest till the Spirit is tinged; pour it off, and put on more, till the Tincture is extracted; put all the Tinctures together, and evaporate the Spirit of Urine in *Balneo*; and there will remain a blood-red liquor at bottom; upon which put Spirit of Wine, and you shall extract a very pure Tincture smelling like Garlick: digest it a Month, and it will smell like Balm; digest it a while longer, and it will smell like Musk, or Ambergrise.

Besides

Besides being a Perfume, it is an excellent sudorifick, and cures the Plague, Fevers, *Lues Venerea*, &c.

IV. *After the same manner you may make as substantial a Perfume of Sulphur or Brimstone. The making of the Oil of Flints, we have taught at the seven and fiftieth Section of the nine and twentieth Chapter of the third Book.*

CHAP. XXIII.

Of the Adulteration of Musk, Civet and Ambergrise.

BY reason that these choice Perfumes are often adulterated or counterfeited, we shall do our endeavour to discover the Cheat, lest any being deceived thereby should suffer loss.

I. *Musk is often adulterated* by mixing Nutmegs, Mace, Cinnamon, Cloves, Spicknard, of each alike in a fine or impalpable pouder, with warm blood of Pidgeons, and then dried in the Sun, then beaten again, and moistened with Musk-water, drying and repeating the same work eight or ten times; adding at last a quarter part of pure Musk by moistning and mixing with Musk-water; then dividing the Mass into several parts, and rouling them into the hair of a Goat, which grows under his tail.

II. *Others adulterate it thus*: By filling the Musk-cods with Goats blood, and a little toasted Bread, mixed with a quarter part of Musk well beaten together. The cheat is discerned by the brightness of the Goats blood.

III. *Or thus*, Take *Storax*, *Labdanum*, pouder of Xyloaloes, of each four ounces; Musk and Civet, of each half an ounce, mix all together with Damask Rose-water. The cheat is discerned by its easie dissolving in water, and its different colour and scent.

IV. *Or thus*, Take Goats blood, pouder of Angelica roots, Musk, of each alike, make a mixture.

V. *To adulterate Civet*: Mix with it the Gall of an Ox, and *Storax* liquefied and washed: or you may adulterate it by the addition of Honey of *Crete*.

VI. *To*

VI. *To reſtore the loſt ſcent to Musk, or Ambergriſe.*

This is done, by hanging it ſometime in a Jakes or Houſe of Office: for by theſe ill ſcents its innate vertue and odour is excited and revived.

VII. *Another way to adulterate Civet.*

Take pure Pulp of Raiſins of the Sun eight ounces: Musk in fine pouder one ounce: mix them well together, and add Civet eighteen ounces: mix again, and digeſt in a Bolt head in a Sand heat for twenty days; then being cold, take it forth, ſtir and mix it well together, and keep it in a Jar glaſs cloſe covered with Bladders.

VIII. *Another way to do the ſame.*

Take *liquid Storax*, Honey, Ox Gall, fine pulp of Figs, of each two ounces and half: Musk in fine pouder one ounce: choice Civet twenty ounces: mix them well in a Mortar, put them into a Bolt head, and digeſt twenty days, aforeſaid, *&c.*

IX. *To Adulterate Ambergriſe.*

℞ Ben Nuts three ounces, beat them in a perfect Pulp; to which add *Sperma Ceti* three ounces; beat them alſo well together: then add Benjamin in fine pouder, Florentine Orrice in fine pouder, white Starch, of each ſeven ounces: Bitumen in fine pouder one ounce: Musk in fine pouder half an ounce: Ambergriſe in fine pouder ſix ounces: mix them all together, and with Mucilage of Gum *Tragacanth* make a Maſs or Paſte, which work well together with your hands.

X. *Another adulteration of Ambergriſe.*

Take of the former compoſition ten ounces, Ambergriſe in fine pouder twelve ounces: Spirit of Damask Roſes a ſufficient quantity: beat them together in a Mortar till they are well mixt; and keep the Maſs to make Perfumes with.

CHAP.

CHAP. XXIV.

Of Perfuming Cloth, Skins, Gloves, &c.

I. *To Perfume Skins or Gloves.*

Put a little Civet thereon here and there, (if Gloves, along the ſeams) then waſh in Roſe or Musked water four or five times, or ſo long as that they ſavour no more of the Leather, preſſing them hard every time; then lay them in a platter, covered with the ſaid water, mixed with pouder of Cypreſs a day or two; take them out, preſs them, and dry them in the ſhadow: being half dry, beſmear them a little with Civet mixt with Oil of Jaſemin or Ben, on the inward ſide chafing them with your hands before a fire, till you think that the Civet hath pierced or gone through the Leather; leaving them ſo a day or more; then rub with a Cloth, that the Gloves or Leather may grow ſoft; leaving them ſo till they are almoſt dry, being drawn and ſtretched out; then hold them over ſome burning Perfume to dry, and wetting them again with Musk-water, do thus twenty times: laſtly, take Musk and Ambergriſe a ſufficient quantity, which mix with Oil of Jaſemin, Benjamin or Ben, diſſolve at the fire with a little perfumed water, with which (with a Pencil) ſtrike the Gloves or Leather over on the outſide; beſmearing the ſeams with Civet; laſtly lay them for ſix or eight days between two Mattreſſes, ſo will the Skins or Gloves be excellently perfumed.

II. *Another way very excellent.*

Take three pints of Wine, Sheeps Suet or Fat one pound, boil them together in a Veſſel cloſe covered, this done, waſh the Greaſe ſix or ſeven times well with fair water, then boil it again in White Wine and Roſe-water, of each one pound and a half, with a ſmall fire, till the half be conſumed: then take the ſaid greaſe, to which put pulp of ſweet Navews, roaſted, half a pound; boil all in Roſe-water half an hour; then ſtrain it, and beat it in a Mortar, with a little Oil of Jaſemin and Musk, with

with which besmear your Gloves (after due washing, as aforesaid) rubbing it well in by the fire.

III. *Another way for Gloves.*

Wash new Corduban Gloves, wash them well three or four days (once a day) in good Muskified White-Wine, pressing and smoothing them well; lastly, wash them in musked water, letting them lye therein for a day, then dry them with care. This done, steep *Musk*, *Amber*, *Basil*, of each one dram in a quart of sweet water, in which dissolve Gum *Tragacanth* three drams, boil all gently together, and in the boiling add Civet one scruple, with which besmear the Gloves, rubbing and chafing it in, then drying them according to Art.

IV. *Or thus*: First wash the Gloves or Skins in White-Wine, then dry them in the shade; then wash them in sweet water, mixed with Oil of Cloves and *Labdanum*, of each alike: lastly, take Musk, Civet, Ambergrise, of each the quantity of six grains, Oil of Musk half a dram, mucilage of Gum *Tragacanth* fifteen grains: mix them well together in a Mortar, which chafe into the wash'd Gloves before the fire.

V. *Or thus.* Take Damask Rose-water muskified, *q. s.* put it into a Pewter or Earthen dish, and lay the Gloves in it one night and day, with a little turning now and then, and that they may be throughly wet; then take them out, and dry them carefully: Take Cloves an ounce and half, in fine pouder; mix it with the same water, and lay it upon the Gloves, wetting them throughly, and dry them as before: Take Oil of Ben, or of Almonds an ounce; Musk half a dram; Ambergrise a scruple: grind all well together upon a stone, with a few drops of the former water, with which anoint the seams, and chafe it into the Leather, laying many pairs one upon another for some time, till they are throughly soaked, and then keep them carefully from the Air.

VI. *Or thus.* Take Oil of sweet Almonds, or of Ben, which is better, two ounces: Musk two drams: Ambergrise half a dram: Oil of Cloves Chymical, a dram and half: Grind all well together upon a Porphyre (the Musk and Amber being first in fine pouder;) then digest two Months, and keep it for use: Take Damask Rose-water muskified, and wet your Gloves therewith very well upon a board, then dry them; do this three or four

times, and at last anoint them with the former, with this Oyl, you may anoint your hands, it will not only perfume them, but also make them soft and smooth.

VII. *Or thus.* Take Oyl of Cloves two ounces : *Styrax Calamita*, one ounce : Benjamin half an ounce, Cinnamon three drams : Musk half a dram : Ambergrise a scruple : sweet Marjoram, Time, of each fifteen grains : mix and grind them on a Porphyre, to be used as the former Oyl, after washing of the Gloves in Damask Rose-water.

VIII. *Or thus.* Take Musk two drams : Ambergrise one dram : Civet twelve grains ; mix them together well : then add Gum *Tragacanth* dissolved in Damak Rose-water muskified : grind all upon a stone till they are very fine, and fully mixed ; then lay it upon your Gloves with a Brush, being first washt in this following water. *Take Lye of wood-ashes a pint and half : the yellow of a dozen Oranges : Brasil and yellow Sanders in pouder, of each an ounces ; Alum a small quantity : boil to the Consumption of a third part ; strain, and with a clean cloth or brush wash over your Gloves (being first washt in rain water from their Alum and Eggs) to colour them, four times ; then being dry, apply to them the former Oyl.*

IX. *Or thus.* Take Musk a dram : Ambergrise half a dram, Civet six grains, grind them on a stone with Oyl of Limons, or with equal parts of Oyl of Limons, Sassafras and Rhodium ; with which your Gloves (being washt as in the former Section) are to be perfumed by anointing them with a small brush.

X. *Cloths, Linnen, or Woollen, Coffers, Trunks,* and the like, are best perfumed (with little cost) with the smoke of burning Perfumes, after which you may sprinkle them often with Damask Rose-water muskified, and anoint the Corners and Closures of the boards with some of the former Oyls.

Explicit Liber Quintus.

POLYGRAPHICES

LIBER SEXTUS.

The Art of Dying *and* Staining.

CHAP. I.

Of Dying Ash Colours.

I. *To dye an Ash-Colour.*

Take Water a sufficient quantity: Nut Galls bruised small eight ounces: Madder two ounces: put all into the Vessel, and let them boil: then enter twenty yards of Broad Cloth, and handle it, letting it boil two hours: then cool it, and put in Copperas two ounces, and enter your Cloth again, and handle it; and let it boil a quarter of an hour longer, and cool it. If you would have it sadder, you must put in more Copperas. *Note, That* Handling of it, *signifies to Roul it on the Rouler, as it is boiling, and to let it all in again, to hinder its Spotting, and to make it take colour equally. And* Cooling it, *signifies to take it up and Air it.*

II. *Another Ash-Colour.*

Take Nut-galls bruised six ounces: red Tartar bruised four ounces: let them boil well one hour and half in the Liquor; then enter twenty yards of Broad Cloth, and handle it well, and cool it: after which put in

two ounces of Copperas, and ſadden it with Copperas as you pleaſe.

III. *To dye the beſt Aſh-Colour.*

Take fair Water a ſufficient quantity: red Tartar four ounces; Nut Galls three ounces; bruiſe them ſmall, and enter your twenty yards of Cloth, and boil an hour and half: then cool, and ſadden as you think fit.

IV. *Another way to dye an Aſh-Colour.*

Take Water a ſufficient quantity, which put into the Copper; to which put Nut Galls bruiſed ſmall ſix ounces: let the Copper boil, and enter your Cloth, and boil an hour and half, and ſo cool your Cloth: Then put in of red Tartar four ounces, which diſſolve: put in your Cloth again, and boil half an hour; and ſo take it forth, cool and air it: Laſtly, put in Copperas half an ounce, and let it melt; enter your Cloth again, and ſadden it as you pleaſe. This will Dye three pounds weight.

V. *Another Aſh-Colour.*

Take Water a ſufficient quantity; Galls bruiſed ſmall ſix ounces; put all into a Cauldron, and let them boil: then enter your Cloth the ſpace of an hour and half: then put in of red Tartar five ounces, (the Cloth being firſt taken out) which diſſolve, and put in the Cloth again, and let it boil half an hour. Take the Cloth out again, and put in Copperas, White Vitriol, of each half an ounce, diſſolve, enter your Cloth again, and it will be a good Colour, for to Dye three or four pounds weight.

VI. *Another kind of Aſh-Colour.*

Take Water a ſufficient quantity, and add to it Nut-Galls beaten ſmall four ounces: Cochenele half an ounce; boil them together, and enter your Cloth, and boil an hour and half, and ſo cool your Cloth: then put in Copperas four ounces, and enter the Cloth, and ſadden: this will dye twelve pounds of Yarn or Cloth.

CHAP.

CHAP. II.

Of Dying Blacks.

I. *To Dye a Black Colour.*

Take Water *q. s.* Alder-bark, or Alder-tops six handfuls, more or less, made small; put them into your Copper, and boil them an hour with a very good fire: then take them forth, and put in Nut-galls bruised small two pounds: Sumach one pound: Logwood four ounces; and let them boil: then enter your twenty yards of Cloth, and handle it; and boil four hours: take it out and cool it: then put in of Copperas one pound; being melted, enter your Cloth again, and handle it: boil it an hour, and cool it again: put in Chamber-lye eight quarts, enter your Cloth again, boil it half an hour, then cool, and wash it well.

II. *To Dye a Black upon a Blue.*

Take Water *q. s.* or thirty six quarts; Nut-galls beaten small nine ounces: Wooll, Woollen Yarn, or Woollen Cloth or Flannel, the weight of three pounds: boil them for four hours: after which take the Matter forth and air it: then add to the Liquor green Copperas eighteen ounces; and if there is not Liquor enough, put in more Water, so much as to cover the Cloth, *&c.* and let it boil two hours, handling it always. Then take it out and Air it; put it in again, and Air it; and put it in again, till it is black enough: After which cool and wash it. *Note*, if you put in some Sumach with the Galls, it will make a better Black.

III. *Another Black Dye.*

Take fair Water *q. s.* Nut-galls bruised small a pound, Sumach half a pound; Alder-bark, Oak-bark, of each four ounces: make them boil, and when it begins to boil, put in a little cold water, that it may break the boiling; stir all together, and put in your Cloth, letting it boil three hours; after which take it out, and put in more fresh water, and make it boil, adding to it Copperas one pound: being dissolved, put in your Cloth, and boil it two hours: then take it out again, and put

in more Copperas *q. s.* and Log-wood ground half a pound: make it boil, and put in your Cloth again, and let it boil an hour. This will Dye five yards of Broad Cloth, or ten yards of Cloth, three quarters wide.

IV. *Another Black Dye.*

Take Water *q. s.* Log-wood ground, Sumach, of each a pound: Nut-galls bruiſed ſmall two pounds: boil them together for an hour, and ſo enter your Wool, Cloth, Flannel, Yarn, *&c.* boil again an hour, and take it out, cool and air it; then put in Copperas three pounds, let it melt, and put in the Wooll, Cloth, *&c.* again, and boil near an hour, take it out and waſh it. This will Dye twenty pounds weight of any of the former things.

V. *Another to Dye twenty Yards of Broad Cloth,* &c.

Take Water *q. s.* Sumach five handfuls; Logwood ground two handfuls, Alder-bark bruiſed ſmall two handfuls, boil them all together; then put in your Cloth, and boil three hours: take it out, cool and Air it, and make it Black, with a ſufficient quantity of Copperas.

VI. *Another Black Colour for twenty Yards of Broad Cloth.*

Take Water *q. s.* Nut-galls bruiſed ſmall two pounds, Alder-bark a pound and half, Madder one pound, Sumach half a pound; mix all together in the Caldron; when it boils, put in the Cloth, and let it boil three hours, after which take it out, and let it cool: then put in Copperas half a pound, and when it boils put in your Cloth again, and boil an hour; and handle it, and boil an hour, and take it out and cool it: after which put in more Copperas, and ſome Urine, then put in your Cloth again, and boil till it is Black enough.

VII. *Another Black Colour.*

Take Water *q. s.* Nut-galls bruiſed ſmall a pound; Logwood ground, Sumach, of each half a pound: Alder-bark four ounces; boil, and enter your Cloth; then cool and Air it, and with Copperas, a pound and half, darken the colour, as you deſire it. This is enough for fourteen pounds of Wool, Yarn, Flannel or Cloth.

VIII. *To make a firm Black Dye.*

Firſt Wadd it with the Blue (in *Chap. 3. Sect.* 8. following) then take Water thirty quarts; Galls bruiſed ſmall one pound; Vitriol three pounds: firſt boil the Galls

Galls and Water with the Stuff or Cloth two hours: then put in the Copperas at a cooler heat for one hour: after which take out the Cloth or Stuff, and cool it, and put it in, boiling it for another hour: laſtly, take it out again, cool it, and put it in once more.

IX. *To recover the colour of Black Cloth, when decayed.*

Take Fig-tree leaves, boil them well in Water, waſh your Cloth in it, dry it in the Sun, and it will be a much fairer Black.

X. *To make Lamp-black better.*

Make a Fire-ſhovel red hot, and lay the Color upon it, and when it has done ſmoaking, it is enough. It may be uſed with Gum-water, and ought not to be ground when uſed with Oil.

XI. *A finer Lamp-black than what is uſually ſold.*

It is made with Lamps of Oil, laying ſomething cloſe over to receive the Smoak.

XII. *A Black from Sheeps-feet.*

Take Sheeps-feet bones *q. s.* calcine them in an Oven, or in a Crucible in a Furnace, and quench them in a wet Cloth: you muſt grind them in Water before you add any Gum. This Black will mix with Lake and Umber for Carnation in Miniature or Water Painting.

XIII. *To Dye Martins Skins, with long Hair, of a very good Black, which never fades.*

Take Water *q. s.* new Nut-galls two pounds, Beef Marrow two ounces: boil them in an Earthen Pot cloſe covered, often ſtirring it, leſt the Galls burn, and boil till it makes no noiſe when you ſtir it, then beat it, and ſtrain out: Take of this liquor two pounds: Copperas twelve ounces; Roch Alum twelve ounces: Litharge eight ounces: Verdigriſe, Sumach, Sal Armoniack, of each four ounces: each being beaten by it ſelf, mix, and boil them together, and keep the Liquor to Dye with. *Note*, Before you apply the Liquor, you muſt waſh the Skins two or three times in very pure clear Lime water; and when you apply the Dye, you muſt do it with a Pencil againſt the grain of the Hair, and afterwards the other way alſo. Theſe skins, when dry, differ little or nothing from Sables. The Verdigriſe ſome leave out, but it does no hurt to the Liquor.

CHAP. III.

Of Dying Blues.

I. *TO Dye a Blue or Sky Colour.*

Take Urine *q. s. Indico* four ounces, beat it small, and dissolve it in the Urine in a gentle heat, close covered: then try its strength with a little piece of Wool or Flannel: if it does not dye well, let it stand longer, until its colour is good. It will be greenish at first, and afterwards it will turn Blue: put in a Pint of Yest into your Liquor before you put in your Wool, Yarn, Flannel, *&c.* and it will make it Dye the better: the less *Indico* you put into the Liquor, the better Sky-colour it will be, provided it be not too little.

II. *An excellent Blue Colour.*

Take stale Urine *q. s.* Rock *Indico*, in small pouder, four ounces: let them stand and soak in a good heat till the *Indico* is dissolved, add to it a pint of slacked Lime, and a pint of new Yest: mix well together, and let all stand a quarter of an hour very hot, then stir it: And enter twenty yards of Broad Cloth, and handle it over and over, for the space of half an hour: then cover it up for twelve hours, and then take it forth and wash it. If it is not deep enough, heat the Fat, and put it in again.

III. *Another Blue Colour.*

Take boiling Water *q. s.* put into it Pot-Ashes: *Indico* a pound; Madder two ounces; Wheat Bran four pints: mix all together, and cover it the space of twelve hours: then open it, and put in one pint of Woad, stir it about very well, and cover it up for an hour; after which open and stir it about, scum it, and then put in your Wool, Yarn, Flannel or Cloth. This will Dye about fourty pound weight.

IV. *To Dye another Blue Colour.*

Take Urine *q. s.* make it very hot; put into it *Indico* in fine pouder four ounces; Madder half as much as of *Indico*: ground Malt as much as of the Madder, and a little Yest; Pot-Ashes two ounces; cover it up, and let

it

it ſtand in the warmth of the Fire, and try when it colours well; then wet your Cloth in warm Water, and keep the Fat warm, and work your Cloth in it, till it is a good Blue; obſerving to ſtir it often that it may not ſpot: keep it thus working till you think the Dye is deep enough.

V. *To Dye another Blue Colour.*

Take *Ebulus* or Dwarf Elder-berries ripe and well dried; ſteep them in Vinegar twelve hours, then with your hands rub them, and ſtrain them through a linnen Cloth, putting thereto ſome bruiſed Verdeter and Alum. Where note, That if you would have the Blue to be clear, you muſt put the more Verdeter to it.

VI. *Another excellent Blue Dye.*

Take Tincture of Braſil *q. s.* Vinegar three ounces; Copper ſcales one ounce: Salt one dram: mix all in a Copper Veſſel, in which put the Matter to be Dyed.

VII. *Another ſingular Blue Dye.*

Take calcin'd Tartar three pugils, unſlaked Lime one pugil; water *q. s.* make a *Lixivium*, and filter it: to twelve or fifteen quarts of this *Lixivium*, put *Flanders* Blue one pound, and mix them well. Set it to the Fire, till you can ſcarcely endure your hand in it, then firſt boil, (what you would Dye) in Alum Water, then take it out, and dry it; afterwards dip it in hot Lye twice or thrice, and put it into the Dye again.

VIII. *To make a ſubſtantial Blue Dye.*

Take Water a Gallon, more or leſs; Woad one pound; infuſe in a ſcalding, or almoſt a boiling heat for twenty four hours: then put into it Wool, Cotton, Stuffs, Flannels, or Cloth of a White colour.

IX. *Another good Blue.*

Take Urine *q. s.* heat it in the Caldron, and diſſolve therein *Indico* eight ounces; then put it into the Fat, and add Madder one ounce, and a little ground Mault; let it ſtand a while; then enter twenty yards of Cloth, working it till it is deep enough.

X. *Another fair Blue.*

Take *Sal Armoniack*, Quick-lime, of each a pound: Verdeter two or three ounces; put all into a Vial, and ſet it in a Horſe Dunghill for fourty Days.

XI. *Another fair Blue Colour.*

Take Turnſole, infuſe it all Night in Urine; the Day fol-

following grind and mix it with a little Quick-lime, according as you intend the colour: if you would have it a little ſhining, add to it a little Gum Arabick.

XII. *To Dye Barley Straw, &c. of a Blue Colour.*

Take a *Lixivium* of Pot-Aſhes *q. s. Litmos*, or Log-wood ground, a pound: make a Decoction; then put in your Straw, and boil, and it will be Blue.

CHAP. IV.

Of Dying Browns.

I. *TO Dye a good Brown Colour.*

Take Water *q. s.* put it into your Copper or Cauldron, and put thereto Redwood ground, Nut-galls bruiſed ſmall, of each twenty ounces: boil them together, and enter your Cloth (twenty yards of Broad Cloth) and let it boil two hours and a half, cooling it always with a Cooler, for fear of ſpotting, after which, take it up and Air it: then put in Copperas ſixteen ounces; and enter your Cloth again when it is near boiling, and handle it, letting it boil half an hour, and ſo cool it. If you would have it ſadder, put in more Copperas.

II. *To Dye a Sad Brown.*

Firſt infuſe the matter to be Dyed in a ſtrong Tincture of *Hermodactls*, then in a bag put Saffron and Aſhes, *ſtratum ſuper ſtratum*, upon which put Water two parts, mixed with Vinegar one part: ſtrain out the Water and Vinegar, being throughly hot, fifteen or ſixteen times: in this Lixiviate Tincture of Saffron put your former matter to be Dyed, letting it lye a Night, then take it out, and without wringing hang it up to dry: this work repeat the ſecond and third times.

III. *To Dye a Brown Tawney, or Iron Ruſt Colour.*

Make a ſtrong Decoction of Walnut-tree leaves in fair Water: then put in the Matter you would Dye, and boil it ſome hours with the Leaves in the ſaid Liquor: and when it comes out, it will be exactly of the colour you deſire.

IV. *To*

IV. *To make the Colour called a* London *Brown.*

First make your Cloth (twenty yards of Broad Cloth) of a bright Blue: then take stale clear Liquor made of Wheat Bran *q. s.* Logwood ground four ounces: Alum two pounds and half: mix and boil your Cloth two hours and half, and so cool: after which take fresh Liquors made of Wheat Bran and clear, to which put Madder two pounds and half, and handle it, with a quick fire, to a boiling, then cool: after which take clear water *q. s.* Logwood ground eight ounces: Brasil ground four ounces, let them boil well, adding some Urine; then enter your Cloth, and handle it, and let it boil a quarter of an hour, cool, and wash it well.

V. *Another Brown Colour.*

Take Water as much as may cover twenty eight pounds of Wool, Yarn, Flannel, or Cloth, put it into a Cauldron or Copper, to which put Nut-galls bruised small two pounds: Redwood ground eight ounces, and put in the matter to be Dyed: boil all together three hours, and take the Cloth out, and Air it: then put into the same Liquor Copperas four pounds, melt it, and enter your Cloth again, and boil it, to deepen the colour as you please.

VI. *Another* London *Brown.*

Take Water *q. s.* Nut-galls bruised small sixteen ounces, Redwood ground, Madder, Fustick, of each eight ounces; boil all together an hour; then put in your Cloth, *&c.* and let it boil an hour also; after which take it out, and let it cool: then put in Copperas two pounds, and when melted, put in your Cloth again, and sadden it: this will Dye twenty pounds weight.

VII. *Another kind of Brown.*

Take Water *q. s.* and put into it Nut-galls bruised small one pound: Redwood ground two pounds and half: boil two hours: enter twenty yards of Broad Cloth, and sadden as you please.

VIII. *Another* London *Brown.*

Take Water *q. s.* Redwood ground twenty four ounces: enter twenty yards of Broad Cloth: boil all together one hour; take it forth, and cool it; and put into the Liquor Wood-soot *q. s.* and let the Copper boil till the Soot is dissolved; then put in your Cloth, and boil an hour; take out the Cloth and cool it: put in Cop-

peras

peras *q. s.* put in your Cloth again, and ſadden as is uſual.

IX. *Another Brown Colour.*

Take water *q. s.* Madder two pounds: Nut-galls bruiſed ſmall twenty four ounces: Fuſtick twelve ounces: put all into the Cauldron together, and let them boil; then enter fifty pounds weight of Wool, Yarn, Flannel, or Cloth, and boil two hours and half: then cool it, and put in Copperas two pounds, and boil to a juſt ſadneſs.

X. *To Dye Barley-ſtraw, &c. Brown.*

Take of *Lixivium* q. s. *Indian* wood ground, green ſhells of Walnuts, *ana* eight ounces: ſteep the Straw four or five days in a gentle heat, and then take them out.

XI. *To Dye or Stain Wood of a Walnut-tree Brown.*

Take the green ſhells of Walnuts, dry them in the Sun, then boil them in Oil of Nuts; and with this Oil rub your Wood.

CHAP. V.

Of Dying a Cinnamon Colour.

I. *TO Dye a Cinnamon Colour.*

Take Water *q. s.* cruſt Madder a pound and half: Nut-galls a pound; Fuſtick a pound; Red-wood two ounces; boil all in your Cauldron: after enter your twenty yards of Cloth, and handle it, boiling it ſtrongly for two hours; cool it, and put into the Liquor, Copperas four ounces, enter your Cloth again, boil and handle it; boil a quarter of an hour and cool; and put in Copperas two ounces more: enter your Cloth again, and handle it, and let it boil a quarter of an hour, then cool, and it will be a good Cinnamon colour: the leſs Copperas the lighter it will be; the more Copperas the deeper.

II. *Another Cinnamon Colour.*

Take Water *q. s.* dry rotten Oak half a Buſhel, Madder two pounds; boil them well, and enter twenty yards

yards of Cloth ; which handle well, and boil three hours, ſtill handling it : take it out of the Cauldron and Air it ; and if need be add a little more water to the Dye, and put in Copperas twenty four ounces : enter your Cloth again, take it out and cool it ; and if it is not ſad enough put it in again with more Copperas.

III, *Another Cinnamon Colour.*

Take Water *q. s.* Nut-galls bruiſed ſmall four pounds ; Fuſtick, Red-wood ground, of each a pound ; boil them all together : then enter your Cloth, and handle it well, for fear of ſpotting, and boil it two hours, and cool it : then put in to ſadden it Copperas two pounds. This will Dye 48 or 50 pounds of Wool, Yarn, Flannel, Bays, Cloth, *&c.*

IV. *Another Cinnamon Colour.*

Take Water *q. s.* Madder two pounds : Redwood ground a pound ; boil them together for an hour : then enter 40 pounds of Wool, Yarn, Cloth, *&c.* and boil again an hour : take it up and Air it, and put in Copperas three pounds ; which when melted, put in the Cloth again, and make it boil, *&c.*

V. *Another Cinnamon Colour.*

Take Water *q. s.* cruſt Madder three pounds ; Nut-galls bruiſed ſmall, Fuſtick, Redwood ground, of each a pound : rotten Oak-wood, Tanners-bark, of each half a pound : boil all together : then enter twenty yards of Cloth, and boil an hour and half, after which cool, and ſadden with Copperas eight ounces ; and if that deepens it not enough put in more.

VI. *Another Cinnamon Colour.*

Take Water *q. s.* Nut-galls, Madder, of each a pound : Fuſtick twenty four ounces ; Redwood ground ſix ounces : boil, and enter twenty yards of Broad Cloth, cool, and ſadden with Copperas four ounces, *&c.*

CHAP.

CHAP. VI.

Of Dying Clove Colours.

I. *TO Dye an excellent Clove Colour.*

Take Water *q. s.* Fuſtick twenty four ounces: cruſt Madder, Nut-galls, of each a pound: Red-wood ground four ounces; boil and enter twenty yards of Broad Cloth: boil two hours with a ſtrong heat, handling it: then put in Copperas half a pound, Oak ſhavings four ounces: enter your Cloth again, handle it well; boil half an hour, and ſo cool it: if you would have the colour ſadder, put in more Copperas.

II. *Another Clove Colour.*

Take Water *q. s.* Joyners Oak-ſhavings four pounds: Madder two pounds: Red-wood, Walnut-tree Leaves, of each four ounces; boil them well: and enter twenty yards of Cloth, which handle well and boil three hours, ſtill handling it: take it out, and Air it; adding if need requires a little more water: then take Copperas thirty ounces; enter your Cloth again, take it out and cool it; and ſadden it (if need requires) with more Copperas.

III. *Another Clove Colour.*

Take Water *q. s.* Nut-galls, Red-wood ground, of each a pound: Fuſtick, Madder, of each eight ounces: Sumach four ounces: boil all theſe together for an hour; then enter your Cloth, *&c.* and boil an hour; take it out, and put in Copperas two pounds; being melted, put in your Cloth again, and let it boil: This will Dye twenty pounds weight of Wool, Yarn, Cloth, *&c.*

IV. *Another Clove Colour.*

Take Water *q. s.* Sumach ſix handfuls; Fuſtick three handfuls: Red-wood ground one handful, boil all theſe two hours and half with twenty yards of Broad Cloth, then cool, and ſadden with Copperas as you ſee fit.

V. *Another Clove Colour.*

Take Water *q. s.* Nut-galls two pounds: Madder two pounds: Fuſtick a pound and half: boil all together; cool with a little Water, and then enter 48 or 50 pounds

of

of Wool, Yarn, Cloth, *&c.* handle your Cloth, and boil two hours and half, then cool, and ſadden with Copperas two pounds four ounces.

VI. *A Liver Colour.*

Take Water *q. s.* Nut-galls bruiſed ſmall, Red-wood ground, of each one pound; Sumach eight ounces: Madder four ounces: Fuſtick two ounces: boil all together, and enter twenty yards of Broad Cloth: boil half an hour and cool; adding more Copperas if you would have it ſadder.

CHAP. VII.

Of Dying Fleſh Colours.

I. *TO Dye an Incarnate or Fleſh-colour in Grain.*

Take ſtale Liquor made with fair Water and Wheat Bran, or ſowre Tap-wort, being very clear *q. s.* Alum bruiſed two pounds and half: red Tartar bruiſed ſmall one pound: boil all together, and enter twenty yards of Broad Stuff: boil and handle it well for three hours, after which cool your Cloth and waſh it well; then take freſh Bran Liquor, (made of a Peck of Bran) the clear Liquor *q. s.* Grains of Cherines four ounces, dryed upon a Pewter Diſh before the fire, and made into a fine pouder: red Argol in pouder four ounces: mix theſe three things together, and make them boil; enter your Cloth, and handle it, boiling it three quarters of an hour ſtrongly, and keeping the Cloth under the Liquor; then cool and waſh it well.

II. *Another Incarnate Colour in Grain.*

Take ſmall Beer *q. s.* Alum twenty ounces: red Tartar eight ounces; melt or diſſolve, and enter twenty yards of Stuff, Cloth, *&c.* and boil it two hours and a half, then cool it, and let it lye in the Water twenty four hours: after which waſh it well. Take fair Water, ſmall Beer, of each equal parts *q. s.* Grains in fine pouder an ounce; infuſe them all night, putting in alſo a little Wheat Flower, about an ounce, then make it ready to boil, and enter the Cloth.

III. *Ano-*

III. *Another Incarnate or Fleſh Colour.*

Firſt boil your Cloth very well in a good Alum water, take it out, hang it up dropping, and let it dry. Take clear Bran liquor *q. s. Cochenele* in fine pouder one ounce, Tartar half an ounce; mix, and make almoſt a boiling heat, letting it take as little Air as may be, then enter your Cloth, and handle it as quick over as may be, for about half an hour; after which take it out, waſh it well in cold water, and hang it up to dry.

IV. *Another Incarnate or Fleſh-colour, called a Raſp-berry red.*

Take Water, or rather Bran Liquor *q. s.* Alum three pounds; boil for three hours; then add Madder four pounds, Braſil ground four ounces, Alum one ounce, freſh Bran Liquor *q. s.* boil; and then enter twenty yards of Chamlet ſtuff, but not boiling; keep it in two hours, take it out and waſh it well.

CHAP. VIII.

Of Dying Grey, Ruſſet, or Lead Colour.

I. A *Silver Grey Colour.*

Take Water *q. s.* Nut-galls bruiſed ſmall two ounces: Tartar bruiſed three ounces; boil them: enter twenty yards of Stuff, Cloth, *&c.* handle it, and boil an hour and half, and cool it: then put in Copperas an ounce; enter your Cloth again at a boiling heat, handle it, and boil a quarter of an hour, and ſo cool. If you would have it ſadder, put in more Copperas.

II. *To Dye a Light-grey Colour.*

Take Water *q. s.* Nut-galls bruiſed ſmall four ounces: white Tartar bruiſed ſmall four ounces; make them boil: then enter twenty yards of Broad Cloth, and handle it, boiling an hour and half: cool your Cloth, and put in Copperas an ounce and half; enter your Cloth again, and handle it; boil a quarter of an hour, and cool it: if you would have it ſadder, add more Copperas.

III. *To*

III. *To Dye a Lead Colour.*

Take Water *q. s.* Nut-galls bruiſed ſmall one pound, Madder half a pound : make them boil ; enter twenty yards of Broad cloth, boil an hour, take it out and cool it : then add to the Liquor Copperas four ounces ; boil, and put in your cloth again, and handle it a quarter of an hour ; after which take it forth and waſh it.

IV. *To Dye another Lead Colour.*

Take Water *q. s.* Nut-galls bruiſed ſmall a pound : Red-wood ground two ounces : boil all together ; enter twenty yards of Broad cloth, and handle it, and boil an hour and half : take up your cloth and cool it : after which put in Copperas eight ounces ; enter your Cloth again, at a boiling heat, and handle it, and let it boil half an hour, and cool it : if you would have it ſadder, uſe more Copperas. *Note*, That quantity which Dyes twenty yards of Broad cloth will dye forty yards of Stuff.

V. *To make a fair Ruſſet Colour.*

Take Water *q. s.* Braſil ground one ounce : boil it an hour : Grains in pouder half an ounce ; boil and enter your Wool, Yarn, Cloth, *&c.* boil an hour, cool, and add Copperas four ounces : enter your Matter again, boil, cool, *&c.*

VI. *Another Ruſſet Colour.*

Take Water *q. s.* Braſil in pouder, Red-wood, of each half a pound : Nut-galls two ounces ; Copperas four ounces : mix, boil an hour, enter the Matter you would Dye, and let it lye twenty four hours.

CHAP. IX.

Of Dying Greens.

I. *TO Dye an Olive Green.*

Take clear Bran liquors, but ſtale *q. s.* Alum three pounds ; Logwood ground one pound, boil and enter twenty yards of Broad cloth, boil two hours and half ; cool and waſh it well. Take clear water *q. s.* Nedder (commonly called Linge) Heath Strawel, or

Fuſtick, ſo much as may make twenty yards of Broad cloth Green. Then take clear water *q. s.* Fuſtick a pound, Cruſt Madder, Nut-galls, Sumach, of each four ounces; boil, and enter your cloth, and handle it well: boil it an hour and half, and ſo cool: add Copperas four ounces, and enter your cloth again, boil half an hour; if you would have it ſadder, put in more Copperas.

II. *To Dye a Popingjay Green.*

Take Water *q. s.* Alum two pounds: Logwood ground eight ounces: boil and enter twenty yards of Broad cloth; boil three hours, and make it a bright yellow: then draw it through a cold Fat, and then waſh it.

III. *To Dye a good Sea-green.*

Firſt make it a ſad Blue, then take Water *q. s.* Alum two pounds: Logwood four ounces: boil and enter your cloth, boil three hours; then waſh it, and make it a bright Yellow: after which draw it through a cold Fat, and then waſh it again.

IV. *To Dye a Graſs Green.*

Firſt make it a ſad Blue: then take Alum two pounds, boil, and enter your cloth, and boil three hours, and waſh it: then dip it into a good Yellow Dye.

V. *To Dye a* French *Green.*

Take clear ſtale Bran Liquor *q. s.* Alum two pounds and a half, boil; enter twenty yards of ſad Blue Broad cloth, boil it two hours and a half, and waſh it well. Take fair Water *q. s.* Heath Strawel, or Fuſtick, a ſufficient quantity; boil well, and put in your cloth, and handle it well: then take twenty ounces of Logwood ground, and put into the Dye, alſo Copperas four ounces (which binds the colour) and if you pleaſe, you may new draw the cloth through a Blue Fat, and handle it, ſo will it be finiſht.

VI. *To Dye a Verdigriſe Green.*

Take Water *q. s.* make it as hot as you can endure your hand in it; to which put Verdigriſe two ounces in fine pouder: enter twenty yards of Stuff, and handle it well with your hands: let it lye in the Liquor all Night, ſtirring it ſometimes; and then let it lye till it is deep enough.

VII. *To Dye a Popingjay Green.*

Take clear ſtale Bran Liquor, or ſowre Tap-wort *q. s.*

A lum

Alum three pounds, boil, and enter twenty yards of Broad cloth, and boil three hours; cool your cloth and wash it well. Take fair water *q. s.* Nedder (called also Linge) or Heath Strawel, a good quantity, boil it well, and take it out; then enter your cloth, and boil it well, making it a bright yellow: heat your Blue Fat, and put in *Indico* bruised small four ounces: Madder three ounces: ground Malt two quarts; new Yest a quart: mix these things well together, keep them as hot as you can, and let it stand, till it will strike Blue: then enter your cloth, and handle it well (to avoid spotting) till it is done, and so wash it.

VIII. *To Dye another* French *Green.*

First make your cloth a good Blue: and take the same clear Bran Liquor you take for your other Greens *q. s.* Alum three pounds: Logwood ground four ounces: boil well, enter twenty yards of Broad cloth; boil two hours and half; after take it out, cool it, and wash it well. Take fair water *q. s.* good Hedder, or Heath Strawell, so so much as to make your cloth a good Green. Take fair water *q. s.* Logwood ground a pound, let them boil, and add a little Urine: enter your cloth, boil a quarter of an hour, and handle it, and so cool it. If you would have it a sad colour, enter it again, cool, and wash it.

IX. *To Dye a Forrest Green.*

First make your cloth a good Blue. Take clear stale Bran Liquor *q. s.* Alum three pounds: Logwood ground five ounces: let them boil, and enter twenty yards of Broad cloth, handle it, and boil two hours and a half: take it out, cool and wash it well. Take fair water *q. s.* and good Hedder, enough to make your cloth a good Green; boil it well, then enter your cloth, and boil it a convenient time. Take fair water *q. s.* Logwood ground twenty ounces boil them a quarter of an hour, cool a little, and then enter your cloth and handle it well, letting it boil a quarter of an hour longer, after which cool your cloth, and wash it well.

X. *To Dye a Grass Green.*

First make your cloth a bright Blue. Then take clear stale Bran Liquor or sowre Tap-wort *q. s.* Alum three pounds; let them boil, and enter twenty yards of Broad cloth, handle it, and boil it with a strong fire for two hours, cool it, and wash it well. Take fair water *q. s.*

Hedder or Heath-Strawel, what you think fit: boil well for an hour; take forth the Hedder, and enter your cloth, handle it well, and let it boil a quarter of an hour; then cool, and put in a little Urine; enter your cloth again, boil a quarter of an hour, cool, and wash it well. Note, *That the different or various colours of Greens arise from the first Blue being lighter or sadder; or from the Yellow being a deep or light colour.*

XI. *A very good Green colour.*

Take Sap-green, bruise it, put water to it, then add a little Alum, mix and infuse for two or three days.

XII. *To make a very good Dye.*

First Dye the Cloth or Stuff Yellow, as we direct in *Chap.* 17. *Sect.* 6. following, then put it into the Blue Dye described in *Chap.* 3. *Sect.* 8. aforegoing.

XIII. *To make a dark Green colour.*

First Dye your Wool, Yarn, Stuff or Cloth, of a Blue colour, as we direct in *Chap.* 3. *Sect.* 8. aforegoing: then put it into the yellow Dye in *Chap.* 17. *Sect.* 6. following; and it will be of a dark Green colour.

XIV. *To Dye a Poppingjay Green colour.*

Make a weak *Lixivium* of Pot-ashes, such as the Country People wash their Clothes with: put into it *Indico*, a sufficient quantity: then put in your things to be Dyed (being first Dyed Yellow) and let it boil, the longer the better; so will the colour be good.

XV. *A very fair Green for Miniature.*

Grind Verdigrise with Vinegar, and a little Tartar; and then add a little Quick-lime, and Sap-green: grind all well together, and keep it in shell: if it grows hard, make it soft with Vinegar.

XVI. *To make a very fair Green.*

Take Verdigrise, Tartar, Vinegar, of each *q. s.* boil them all together, and it is done.

XVII. *Another Green for Limning.*

Take Buckthorn-berries gathered the latter end of *August*, when ripe: beat them, and boil them eight or ten hours very gently: then add water to make it thinner, strain through a cloth, as hard as you can, and add to the Liquor Alum in pouder *q. s.* some add Vinegar, but then it is longer a drying, and will be ruddy. You must keep it in a bladder in the shade, or Chimney corner, and it will keep well.

XVIII. *To*

XVIII. *To make Straw Green.*

Boil it in water with *Litmos* or Logwood, and then it will be Blue: and then boil them in a *Lixivium* of Pot-ashes, and Yellow Barbery-bark, and they will be Green.

XIX. *To make a Beautiful liquid Green.*

Take Verdigrise one pound: white Tartar in pouder eight ounces: Wine Vinegar a quart: mix all, infuse for one night, and then boil till half is consumed; and filter whilst hot. When you use it, mix *Gum Ammoniack* and Saffron to stiffen it: it will glaze over Buckthornberry Greens. If you mix it with the Juice of those Berries, and Azure, it will make several sorts of Greens.

XX. *To make Green Balls.*

Take Buckthorn-berries a pound: beat and boil them in ten pints of water till half is consumed: strain all through a cloth, and put into the liquor as much Ceruse in fine pouder as will make it into a Paste: which form into little Balls, and dry upon Tiles: when dry, stiffen them with dissolved Gum: they will be the better; if you mix with them some water of *Gum Ammoniack*.

CHAP. X.

Of Dying Hair Colours.

I. *To Dye a Hair Colour.*

Take Water *q. s.* Alum three pounds, with which, Alum twenty yards of Broad cloth: and after which make it of a bright Yellow with Fustick. Take Water *q. s.* Nut-galls in pouder two pounds: Madder in pouder four ounces, let it boil an hour; then take it forth and cool it, after which put in Copperas eight ounces; and making it boil, put in your cloth, and handle it well, about a quarter of an hour, then take it forth and cool it. If it is not sad enough, put it in again; for the oftner you take it out and put it in, the sadder it will be.

II. *Another Hair Colour.*

Take Water *q. s.* Alum three pounds : enter twenty yards of Broad cloth, and boil it three hours : take it out, and wash it well, and make it a bright Yellow. Take Nut-galls eight ounces : Madder four ounces made small ; put them in your Cauldron, and let them boil : enter your cloth and handle it well, and boil one hour : then take it out and cool it : add to the former things Copperas eight ounces ; let it boil, put in your cloth again, handle it ; and repeat this work till it is sad enough.

III. *A Hair or Cloth colour.*

Take Water *q. s.* Cruſt Madder, Nut-galls, Sumach, Red-wood ground, of each a pound : boil, enter twenty yards of Broad cloth, boil an hour, and sadden with Copperas six ounces.

IV. *Another Hair colour.*

Take Water *q. s.* Fustick one pound : Nut-galls eight ounces : Madder four ounces ; Red-wood two ounces : make them boil : enter twenty yards of Stuff, *&c.* and boil two hours : cool your cloth, and put in Copperas four ounces : enter your cloth again, handle it, and boil a quarter of an hour, then cool, and put in more Copperas, if you would have it sadder.

V. *Another Hair colour.*

Take Water *q. s.* Fustick eight ounces : Nut-galls bruised small six ounces, Red-wood ground four ounces ; make them boil ; then enter your cloth, *&c.* and boil two hours and half : afterwards cool and sadden with Copperas eight ounces. This will serve for twelve pounds of Wool, Yarn, Cloth, *&c.*

CHAP. XI.

Of Dying Mouſe Colours.

I. *TO make a light Mouſe, Lead, or Bever Grey colour.*

Wet your Stuff, Cloth, *&c.* well in water, then take Water *q. s.* Nut-galls beaten small two pounds ; boil a little, enter your cloth, and stir it well up : put in

in Red-wood ground *q. s.* according as you would have its lightneſs or ſadneſs ; making it ſadder with more Galls, and a gentle heat : if you would have it ſadder yet, then put in a little Wood-Soot, but then it will become a Brown : boil, and then cool, and laſtly ſadden with Copperas.

II. *To make a Mouſe, or light Moſs colour.*

Take Water *q. s.* Fuſtick a pound and half : Sumach one pound : Nut-galls eight ounces : cruſt Madder four ounces : let them boil, and then enter your cloth (twenty yards of Broad cloth) and boil two hours, and handle it well ; after which cool, and add Copperas one pound, enter your cloth again, handle it, and boil half an hour ; then cool : put in Urine *q. s.* enter your cloth again, boil a quarter of an hour, and ſadden as you pleaſe.

III. *To Dye a Mouſe colour out of a White.*

Take Water *q. s.* Fuſtick three pounds ; Nut-galls one pound : boil, enter twenty yards of Broad cloth, boil two hours ; handle it well and cool : afterwards add Copperas a pound ; enter your cloth again, boil almoſt an hour, and let it boil well in the ſaddening, and ſo take it out, and cool it : add then more Copperas, and put in your cloth again, till you think it ſad enough ; if you would have it a bright Mouſe colour, put in ſome cruſt Madder. But if you would have it a Green Mouſe, put no Madder in, but cool it often, ſo will it ſadden the better.

IV. *To Dye a Mouſe colour blued.*

Take Water *q. s.* Alum two pounds and half : enter twenty yards of Broad cloth, boil two hours, and take it forth, and cool it, waſhing it well. Take fair Water *q. s.* Heath or Fuſtick, a ſufficient quantity ; enter your cloth, and make it Yellow, as you do your Greens : then take Nut-galls in ſmall ponder half a pound, and put them into the ſaid Liquor, enter your cloth, and let it boil an hour ; take it out and cool it ; after add Copperas half a pound ; make it boil, and enter your cloth again : boil an hour, cool it ; and add more Copperas, as you would have it in ſadneſs : cool often, and it will ſadden the better, and the leſs Copperas will ſerve.

V. *Another Mouſe colour.*

Take Water *q. s.* Nut-galls beaten ſmall a pound:

Madder a pound: Fuſtick two ounces: boil an hour; enter twenty yards of Camlet, boil again an hour; take it out and cool; add Copperas three ounces, and ſadden, *&c.*

VI. *Another Mouſe, or light Tree-Moſs colour.*

Take Water *q. s.* Fuſtich a pound and half, Sumach a pound: Nut-galls half a pound: cruſt Madder four ounces: boil them, and enter twenty yards of Broad cloth: boil two hours and cool: then put in Copperas a pound: enter your Cloth again, and boil an hour, and cool: add Urine *q. s.* enter your cloth again, and boil till it is ſad enough: the ſadder you would have it, the more Copperas put in.

CHAP. XII.

Of Dying Pink Colours.

I. *TO Dye a Pink Colour in Grain.*

Take clear ſtale Wheat-bran liquor *q. s.* Alum two pounds and a half: Red Tartar one pound, melt them, and enter twenty yards of Stuff, or fine Flannel; boil three hours, and cool, and waſh. Take freſh clear Liquor of Wheat-bran, Red Tartar, Grains, both in fine pouder, and of each three ounces: mix, boil, and enter your cloth, handle it well, and boil three quarters of an hour, cool, and waſh your cloth well.

II. *Another Pink Colour.*

Take Wheat-bran liquor *q. s.* Alum eight ounces; boil and Alum your cloth two hours: after which take it out, and waſh it clean, caſting away that Liquor. Take fair water *q. s.* Cochenele in pouder one ounce: Grains of Chermes half an ounce: *Aqua fortis* ij. drams: make them luke-warm, and put in your cloth, and let it ſtay in, till it is ready to boil; then take it out: This will colour ſeven pounds weight.

III. *To Dye a Pink colour in Grain.*

Take Wheat-bran Liquor *q. s.* Alum ſix ounces, diſſolved in ſmall Beer, mix, boil, and enter your cloth, boil an hour, take it out, and cool it: add White Tartar

in

in pouder two ounces; Cochenele in fine pouder half an ounce; enter your Cloth, Stuff, *&c.* and boil an hour and half: it will dye three yards of broad Flannel; the more you wash it, the brighter it will be; but let it not hang in the shadow whilst it is wet.

IV. *An Observation worthy of Note.*

It is to be Noted, *That Pink Colours, and all Colours Dyed in Grain, are not to be Dyed in Iron or Copper Vessels, but in Pewter, or rather Tin Vessels, because these attract or draw forth the Colour, and fix it, making it unchangeable: Nor are you to use Iron Waters, or Waters springing from Iron, or Vitriolick Mines,* &c.

CHAP. XIII.

Of Dying a Rose Colour.

I. *TO Dye a Rose-Colour.*

Take Liquor *q. s.* Alum two pounds, Madder eight ounces: let them boil; then put in forty eight or fifty pounds of Wool, Yarn, Stuff, Cloth, *&c.* and boil two hours; after which take it out and wash it clean. Take fair water, *q. s.* Brasil ground two pounds, mix: when it begins to boil, put in your Wool, Yarn Stuff, Cloth, *&c.* and boil till it is well coloured.

II. *Another Rose-Colour.*

Take the same Liquor which you use for Reds, *q. s.* being very clear, Alum three pounds: enter twenty yards of Broad Cloth, boil three hours, cool and wash well. Then take fresh clear Wheat-bran Liquor, Madder two pounds and a half: enter your Cloth at a good heat; handle it to a boiling heat, and cool, and wash well: then add Brasil ground one pound and a half; let it boil half an hour, after which put in some stale Urine; enter your Cloth again, boil half an hour, cool, and wash it well,

III. *Another Rose-Colour.*

Take Liquor *q. s.* Alum two pounds, Madder twelve ounces: enter fifty pounds of Wool, Yarn, or Cloth; boil two hours, cool, and wash well. Then take fresh clear

clear Liquor *q. s.* Brasil ground three pounds; boil half an hour: enter your Wool, Yarn, Cloth, *&c.* and putting in Urine *q. s.* boil half an hour more, cool, and wash it, *&c.*

IV. *An Observation.*

It is to be noted, That fresh clear Liquor, is that which is newly made with Wheat Bran, and Fair Water; the Bran being afterwards strained forth; and this is that Liquor which all the Ingredients are intended to be boiled in.

CHAP. XIV.

Of Dying Red-Rose, or Carnation Colours.

I. *TO Dye a Red-Rose, Blood-Red, or Carnation Colour.*

Take Liquor of Wheat Bran, *q. s.* Alum three pounds, Tartar two ounces: boil, enter twenty yards of Broad Cloth, boil three hours, cool, and wash it. Take fresh clear Bran Liquor *q. s.* Madder four pounds, boil, and sadden according to Art.

II. *Another Red-Rose, or Carnation Colour.*

Take Wheat Bran Liquor, *q. s.* Alum two pounds, Tartar two ounces; boil and enter twenty yards of Camlet, and boil three hours; after which take it out and wash it very well: then add Madder a pound, enter and boil it again, cool and wash it: after which, take clear Liquor *q. s.* Cochenele in fine pouder two ounces, Tartar two ounces, enter your Camlet, boil and finish.

III. *To Dye Crimson in Grain.*

First boil the Yarn, Stuff, *&c.* in the Red (*in chap.* 15. *sect.* 8. following) then finish it in a strong Tincture of Cochenele, made in part water part wine, or in Wheat Bran Liquor: Where note, That the Vessels in which the Materials are to be boiled, must be lined with Tin, otherwise the Colour will be defective. The same observe in dying of Silks (in each colour) with this caution, that you give them a much milder heat, and a longer time.

IV. *Ano-*

IV. *Another Carnation Colour.*

Take Running water four Gallons, Pot Ashes two pounds: mix and digest 48 hours: this done, divide the Liquor, half into one pot, and half into another pot: let the first pot stand in the hot Embers, up to the top, or in a Furnace; and the other by a fire, to keep warm, and to fill up the first as it boils away. Into the first put Red *Brisca*, or *Spanish* Flocks, of Wool, two pounds, letting it boil till it is thick; adding Alum, and a little Gum Arabick, of each the quantity of a Walnut: diminish the heat, and let it be only scalding hot; then put in the matter you would Dye, letting it lye 24 hours in the Liquor.

V. *An excellent Observation.*

The *Bow Dyers* know that the solution of *Jupiter*, (which is dissolved Tin) being put into a Kettle, to the Alum and Tartar, makes the Cloth, *&c.* attract the colour into it, so that none of the Cochenele is left, but is all drawn out of the Water into the Cloth.

VI. *Another Observation.*

The *Spirit of Nitre* being used with *Alum* and *Tarter*, in the first boiling, makes a firm Ground, so that they shall not spot nor lose their colour by the Sun, Fire, Air, Vinegar, Wine, Urine, or Salt water, *&c.*

CHAP. XV.

Of Dying Red Colours.

I. *TO Dye the best Red Colour.*

Take clear stale Wheat Bran Liquor, or sowre Tap-wort *q. s.* Alum bruised three pounds, put all into your Copper, enter your twenty yards of Broad Cloth, and handle it; boil three hours, cool, and wash it well: Take fresh Wheat Bran Liquor *q. s.* Madder five pounds; enter your Cloth at a good heat, handle it to a boiling heat, cool it, and wash it well. Take fresh Wheat Bran Liquor *q. s.* let it boil, and put in Urine a Gallon; enter your Cloth, boil half an hour, cool it, and wash it, and it is done.

Note,

Note, Urine is not much uſed now, and ſome do not waſh the Cloth out of the Alum.

II. *Another Red Dye.*

Take clear fair water *q. s.* Alum three pounds : boil and enter twenty yards of Broad Cloth : boil it two hours and half, take it out and Rang it, and hang it up a little while to let the water drop from it. Take clear Bran Liquor *q. s.* Madder four pounds (ſteeped firſt an hour in Small Beer) bring it almoſt to a ſcalding heat, and enter your Cloth, and handle it ſwiftly for the ſpace of half an hour ; take your Cloth out, and put it into Urine, after which waſh it well, and it is done.

III. *Another very good Red Dye.*

Take Water *q. s.* and three ounces of Alum to every pound of Wool, Yarn, or Cloth ; boil the Wool, but put it not in till the Alum is melted : boil three hours, take it out, and waſh it well in cold water, and caſt away the Liquor. Take freſh clear Bran Liquor, or Small Beer unboiled, add to it five ounces of Madder to every pound of Wool, Yarn, Cloth, *&c.* put in the Madder when the Liquor begins to be warm, break the Madder well with your hands, when in the Liquor ; and when it is near boiling, enter your Cloth, *&c.* and handle it well, boiling it half an hour, or till it is well coloured : then put in three quarts of Urine, give two or three boils, and ſo take out your Cloth, *&c.*

IV. *Another Red Colour.*

Take Liquor *q. s.* Alum three pounds : Tartar one pound, boil and enter twenty pounds of VVool, Yarn, or Cloth ; boil two hours, take it out, waſh it clean, caſt away the Liquor, and put in clear fair water, and Madder four pounds : when it boils, enter your Cloth, *&c.* again, and handle it, till it is enough.

V. *Another Red Colour or Dye.*

Take Water thirty quarts, Alum two pounds and a half : and therein boil thirty pounds of Wool, Yarn, or Cloth, and take it out. Take fair VVater ten Gallons, Madder five ſhillings worth, let it ſtand twelve hours, boil and enter your Wool, Yarn, Cloth, *&c.* boil quickly, and then take it out, and put it into ſtrong Urine for one hour, then take it out and waſh it.

VI. *Another Red Colour, or Dye.*

Take ſowre Bran Liquor *q. s.* Alum two pounds and a half,

half, Tartar two ounces: enter twenty yards of Broa Cloth, and boil three hours, and take it out. Take fresh Bran Liquor *q. s.* Madder four pounds: boil, handle, and finish it.

VII. *Another Red Dye.*

Take stale Wheat Bran Liquor, six days old, or sowre Tap-wort *q. s.* Alum three pounds: enter twenty yards of Broad Cloth, boil three hours, cool and wash. Take fresh and clear Bran Liquor *q. s.* Madder four pounds, steeped in the same Liquor: enter your Cloth at a good heat, and handle it to a boiling; take it out, cool, and wash it well.

VIII. *A good Red Dye.*

Take Rain-water, *q. s.* Brasil in pouder, fine Vermillion, of each an ounce: Alum one dram: boil them till half is consumed.

IX. *Another excellent good Red Dye.*

Take *Lixivium* of unslak'd Lime five Gallons, Brasil ground two pounds and a half; boil to the half: then put to it Alum twenty ounces: keep it warm, but not to boil: Then what you would Dye in this Liquor, dip first into a Lye made of Ashes of Tartar, letting it dry, then dip it into the Dye.

X. *Another very good Red Colour, or Dye.*

What you would Dye, first boil in Alum VVater; then dip it into the following Liquor. Take VVater *q. s.* Rosset one pound, Gum Arabick a little, boil a quarter of an hour, and then strain it for use.

XI. *To make a pure clear Red Dye.*

Take Wheat Bran Liquor thirty quarts, or *q. s.* Brasil in pouder four pounds: Alum in pouder two pounds: Tartar one pound: mix, and dissolve, and make a Tincture: enter your Stuff, or Cloth: boil for two hours: take it out, and boil it again in fresh Bran Liquor thirty quarts (adding madder three pounds) and perfect the Color with a moderate heat without boiling.

XII. *Another good Red Dye.*

Boil the things you would Dye first in Alum Water, then take them out, and boil them in Water, with Brazil in fine pouder: let it boil till the scum arises, then put in the things to be Dyed, and let them boil till the Water looks of an Orange Tawny; casting in then also a handful of Bay Salt.

XIII. *To*

XIII. *To colour Barley Straw, &c. Red.*

Boil ground Brasil in a *Lixivium* of Pot-ashes, and in that boil your Straw.

XIV. *A Red Pigment which shall not grow Black.*

Take pure fine Vermillion, grind it with Water of *Gum Ammoniacum*, with the addition of a little Saffron.

XV. *To Dye a good Red.*

Take stale clear Wheat Bran Liquor *q. s.* Alum three pounds: enter twenty yards of Broad Cloth, handle it, and boil three hours: take it out, cool it, and wash it well. Take fresh Bran Liquor *q. s.* Madder six pounds: enter your Cloth at a boiling heat, and handle it, till it is as deep as you would have it; and if you please finish it with Brasil.

XVI. *To make Red Paper.*

Take Bastard Saffron, or Safflower, eight ounces: put it into a Linnen Bag, and wash it by a River side, till it scarcely gives any colour: then put the remainder into a Bason, sprinkling it with the pouder of Glass-wort, (or rather with *Soda*) one ounce; so put it into a little Pail of Blood-warm Water, always stirring it; after which strain it, and add a little Juice of Limons, to make it give a Red Color. The Paper ought to be fine, and dipt into the Bason.

CHAP. XVI.

Of Dying a Red Blush Color.

I. *TO Dye a Red Blush-Color.*

Take stale clear Wheat Bran Liquor six days old, *q. s.* Alum three pounds and a half: Red Tartar half a pound: melt them, and enter twenty yards of Broad Cloth; handle, and let it boil three hours; take it out, and wash it well (but some wash it not.) Take fresh Liquor *q. s.* of the best Madder three pounds, enter your Cloth, and handle to a boiling heat; cool, and wash again. Lastly, take fresh clear Bran Water, *q. s.* let it boil, enter your Cloth, and let it boil a quarter of an hour: cool, and wash it well again.

II. *A*

II. *A Red Bluſh-Colour in Grain.*

Take ſtale ſowre clear Bran Liquor *q. s.* Alum three pounds and a half : Red Tartar half a pound : enter twenty yards of Broad Cloth, boil three hours, cool, and waſh. Take freſh clear Bran Liquor *q. s.* beſt Madder three pounds : enter and boil again. Take freſh Bran Liquor *q. s.* Grains in fine pouder four ounces : Red Tartar three ounces : enter your Cloth, and boil an hour or more, keeping your Cloth well under the Liquor : then cool and waſh.

III. *Another Bluſh Color in Grain.*

Take clear ſtale or ſowre Wheat Bran Liquor, *q. s.* Alum three pounds and a half : Red Tartar eight ounces : melt them, and enter twenty yards of Broad Cloth, boil three hours, handle it well, take it out, cool and waſh. Take freſh Bran Liquor, *q. s.* enter your Cloth, and handle it, letting it boil a quarter of an hour, cool, and waſh. Take more freſh Bran Liquor, *q. s.* make it boil, and add thereto Grains in pouder two ounces : Red Tartar an ounce and half ; let them boil, enter your Cloth, handle it, and let it boil three quarters of an hour, then cool, and waſh it well.

IV. *To make a* Spaniſh *Carnation Colour.*

Take Baſtard Saffron, or Safflower, waſh it well, dry it, and beat it ; and to a pound of it, being beaten, add Calcin'd Tartar four ounces : grind all together, and put it into a double courſe Linnen Bag ; and affuſe upon it a quarter of a pint of Limon Juice blood warm ; put this into a ſufficient quantity of fair water, and then put in the things you would Dye. But the Stuff, or Cloth you would Dye, is firſt to be boiled in Alum water.

CHAP. XVII.

Of Dying Scarlet, and the Bow-Dye.

I. TO *Dye a Scarlet Color in Grain.*

Take ſtale clear Wheat Bran Liquor *q. s.* Alum three pounds : enter your twenty yards of Broad Cloth, and

and boil three hours, cool and wash it: Take fair water *q. s.* Nedder or Strawel a fit quantity, let them boil well, cool with a little water, enter your Cloth, and make a bright yellow; cool and wash it again. Take fresh Wheat Bran Liquor *q. s.* Madder four pounds: enter your Cloth at a good heat, handle it to a boiling, cool and wash it well. Take more fresh Bran Liquor *q. s.* Cochenele in fine pouder five ounces: Tartar three ounces: enter your Cloth, and boil an hour or more, keeping it under the Liquor, then cool and wash.

II. *To Dye a Bastard Scarlet color.*

Take stale Bran Liquor twelve days old, *q. s.* Alum three pounds and a half; Red Tartar one pound: dissolve, enter twenty yards of Broad Cloth, boil four hours, and handle it well, cool it, and let it lye in the Alum water twenty four hours, and wash it in fair water (but some do not.) Take fresh Bran Liquor *q. s.* best Madder one pound: enter your Cloth at a good heat, handle it well to a boiling, keeping but a slow fire: cool and wash well. Lastly, take fresh Bran Liquor *q. s.* enter your Cloth again, boil half an hour, cool it, and wash it well.

III. *Another Scarlet Colour in Grain, from a White Colour.*

Take fair water, clear Bran Liquor, of each equal parts, *q. s.* Alum nine pounds and a half: Tartar five pounds and a half; melt them: then enter thirty pounds weight of Wool, Yarn, Flannel or Cloth: boil four hours, take it out, and let it cool, and wash it well in fair cold water. Then take Grains (commonly called Cochenele) fifteen ounces, in fine pouder: Tartar fifteen ounces: fresh Bran Liquor *q. s.* mix them, enter your Cloth, *&c.* handle it to a good heat, and your Cloth being White, it will be of a good Scarlet Colour; let it boil two hours, handle it well, take it out, and wash it.

IV. *To perform the Bow Dye.*

Take double *Aqua fortis* ten ounces, (some say sixteen ounces) Filings of Pewter twenty ounces: Filings of Silver, or leaf Silver two ounces: put in the Pewter into the *Aqua fortis* to dissolve, and after that the Silver, dissolving over a gentle heat: Then take *Cochenele* in fine pouder; Cream of Tarter in fine pouder five ounces,

mix

mix them with the former things, and add to them White Starch forty Spoonfuls, dissolving and mixing. Now take the Liquor you intend to Dye with, and put in a proportional quantity of the former mixture, (but in a Brass Vessel lined with Pewter or Tin) boil a quarter of an hour, and it is done, *&c.* See *Chap.* 14. *Sect.* 5. aforegoing.

CHAP. XVIII.

Of Dying Sand Colours.

I. *TO Dye a Sand Colour.*

Take water *q. s.* Nut-galls in pouder one pound, Madder six ounces, Fustick four ounces: let them boil, and enter your Cloth (twenty yards of Broad Cloth) let it boil two hours, and handle it, and so cool it: add Copperas four ounces; enter your Cloth at a boiling heat, let it boil a quarter of an hour, and handle it, and so cool it again. If you will have it sadder, put in more Copperas, enter your Cloth again, and boil another quarter of an hour, cool and wash.

II. *Another Sand C...*

Take water *q. s.* Red-wood ground two pounds and a half. Sumach one pound: enter your Cloth, boil two hour... and cool. Add Copperas two pounds, enter your Cloth again, and sadden as you think fit, *&c.*

III. *Another Sand Colour.*

Take water *q. s.* Nut-galls a pound in pouder, boil them a little: then add Red-wood ground *q. s. viz.* according as you would have the Sand Colour, Light or Dark: enter your Cloth, boil an hour, and handle it: if you would have it Darker, add a little Wood-soot: enter your Cloth, and boil pretty well, and cool; after sadden as you please with Copperas.

IV. *Another Sand Colour.*

Take water *q. s.* Nut-galls in pouder one pound: Madder six ounces: Fustick four ounces: Red-wood ground three ounces: Brasil ground two ounces: boil, enter twenty yards of Broad Cloth, boil two hours, and

cool: add Copperas three ounces: enter your Cloth again at a boiling heat, handle it, and boil a quarter of an hour, and so cool. If you would have it sadder, you must put in more Copperas.

CHAP. XIX.

Of Dying Snuff Colours.

I. *To Dye a Snuff or Chesnut Colour.*

Take water *q. s.* Nut-galls in pouder one pound, Madder four ounces and a half, Red-wood ground one pound, Fustick four ounces: make them boil, and enter twenty yards of Broad Cloth; handle it, and boil two hours, and cool: add Copperas four ounces, enter the Cloth, and handle it, and boil it a quarter of an hour, and cool it: if you would have it sadder, use the more Copperas.

II. *Another Snuff Colour.*

Take clear stale Bran Liquor, *q. s.* Alum three pounds: enter twenty yards of Broad Cloth, boil three hours, cool and wash it. Take [illegible]er *q. s.* Nedder or Strawell a sufficient quantity, [illegible] well, cool with a little water, enter your Cloth, and make a bright yellow, cool and wash again. Take fresh Bran Liquor *q. s.* Madder four pounds, Galls eight ounces: enter your Cloth at a good heat, handle it to a boiling, cool and wash it. Take new fresh Liquor *q. s.* Copperas, Sumach, of each half a pound, enter your Cloth, and boil for an hour, cool and wash.

III. *Another Snuff Colour.*

Take water *q. s.* Fustick two pounds: Nut-galls in pouder one pound: Madder, Red-wood ground, of each half a pound: mix, and let them boil: enter your twenty yards of Broad Cloth, and boil two hours and a half, take out your Cloth and cool it: add Copperas four ounces, let it boil, enter your Cloth, and sadden as you see fit.

IV. *An Observation.*

In making a light Snuff Color, you must put in the less

less Copperas: if you would have it to look Greenish, you must use the more Fustick: but if you would have it look the more Red, use the more Red-wood.

V. *Another Snuff Colour.*

Take water *q. s.* Logwood ground one pound: Fustick, Sumach, of each two ounces: mix, and make the Lead boil strongly, enter your Cloth, and boil a quarter of an hour, and so cool: add Copperas eight ounces, and so sadden as you see occasion.

VI. *Another Snuff Colour.*

Take Water *q. s.* Red-wood ground two pounds: Brasil ground one pound: Sumach one pound, Nutgalls bruised small two ounces: boil, enter your Cloth, boil two hours: then add Copperas a pound and half, enter your Cloth again, and sadden as you see fit.

VII. *Another Snuff Colour.*

Take Water *q. s.* Fustick two pounds, Madder one pound, Red-wood ground half a pound: let them boil and then enter twenty yards of Broad Cloth, handle it, and let it boil two hours, and cool it: add Copperas four ounces, which is enough for the lighter Color; then enter your Cloth, handle it, boil half an hour, and then take it out and cool it.

CHAP. XX.

Of Dying Violet and Purple Colours.

I. *To make a Purple Colour, or Dye.*

Take Water *q. s.* Alum twenty ounces: Madder five ounces: boil, enter twenty yards of Stuff, and boil two hours and half, take it out, and wash it well. Wash the Lead, and then put in clean Water *q. s.* Logwood ground two pounds, boil it a while, and enter your Cloth, handle it well, and take it out, and cool it: enter it again, and put it in and out, till the Colour is strong enough.

II. *To make a Violet Colour in Grain, out of a sad Blue.*

Take fair Water, clear Bran Liquor, of each equal parts, *q. s.* Alum nine pounds and a half: Tartar five

pounds and a half; melt them, and enter thirty pounds weight of Wool, Yarn, Stuff, Cloth, *&c.* of a ſad Blue color; boil four hours, cool, and waſh it in cold water. Then take freſh Bran Liquor *q. s.* Cochenele, Tartar, both in fine pouder, of each fifteen ounces: mix, enter your Cloth, handle it to a good heat, boil two hours, handle it well, take it out, and waſh it, and it will be of a pure Violet or Purple color.

III. *Another Purple Color, without Bluing.*

Take clear ſtale Wheat Bran Liquor, or ſowre Tapwort *q. s.* Alum three pounds: enter twenty yards of Broad Cloth, boil three hours, cool, and waſh well. Take freſh Bran Liquor, *q. s.* Madder twenty ounces; enter your Cloth, boil with a quick fire, cool, and waſh. Take clear, or fair water, *q. s.* Logwood ground twenty four ounces, boil half an hour, and put in ſome Urine, then enter your Cloth, handle it, and boil half an hour, take it out and cool it: add Nut-galls bruiſed two ounces, and enter your Cloth again, handle it, and boil half an hour, cool and waſh it.

IV. *Another Violet or Purple Color.*

Take clear ſtale Bran Liquor *q. s.* Alum three pounds: enter twenty yards of Broad Cloth, and boil two hours and half; cool and waſh well. Take freſh Liquor *q. s.* Madder twenty ounces: enter your Cloth, and boil with a quick fire, cool, and waſh well. Take fair Water *q. s.* Logwood ground eight ounces: Braſil ground two ounces: let them boil a quarter of an hour, enter your Cloth at a boiling heat, handle it, and boil a quarter of an hour, take it out, and cool it: add Urine *q. s.* enter your Cloth again, boil a quarter of an hour, then cool and waſh it well.

V. *A good Violet or Purple Color.*

Take Water four gallons: Myrtle berries eight pounds; Alum one ounce; calcin'd Braſs one ounce: mix them in a Braſs Kettle or Veſſel, boil half an hour, and ſtrain it.

VI. *To make another pleaſant Violet or Purple Dye.*

Firſt Dye it Blue by *Chap.* 3. *Sect.* 8. of this Book: then boil it in the former Red at *Chap.* 15. *Sect.* 11. aforegoing; laſtly, finiſh it with a Decoction of Braſil.

VII. *Ano-*

VII. *Another Purple Color.*

Take Orchal, mix it with half Urine, and let it boil till it is of a Dark color: then put in the Matter you would Dye, letting it lye 24 hours or more.

VIII. *An Excellent Violet Color.*

Take calcin'd Tartar, Turnsole, of each a pound, beat them, and tye them up in a Linen Cloth, and steep them 24 hours in Water; and then put in the Matter which you would have to be of a Violet Color.

CHAP. XXI.

Of Dying Yellows, and Orange Tawny.

I. *TO Dye a Yellow Colour.*

Take Water *q. s.* Alum one pound: enter your Yarn, Cloth, *&c.* boil two hours, and take it out, and wash it clean. Take fresh fair Water *q. s.* Fustick two pounds; let it boil, and enter your Cloth, boil it an hour, and take it out: this will Dye twenty pounds weight.

II. *To Dye an Orange Tawney.*

Let your Wool, Yarn, Flannel, Stuff, or Cloth, *&c.* be first Dyed into a Red color: and then being Red, let it be dyed into a Yellow color.

III. *Another way to Dye an Orange Tawney.*

Take stale Wheat Bran Liquor *q. s.* Alum three pounds: enter twenty yards of Broad Cloth, handle and boil three hours: take it out, cool, and wash it well. Take fair Water, and good Linge or Hedder, which grows in Morasses, Moors, or Swamps; boil it a good while, and take forth the Hedder, and cool with a little cold Water; then enter your Cloth, and make it a good Yellow; take it up and Air it. Take fresh Bran Liquor *q. s.* Madder two pounds, enter your Cloth, and boil it with a quick fire: then take it out, cool it, and wash it well. Observe, you may make it a good Yellow with Fustick, and then afterwards perfect it with Madder.

IV. *To make another Yellow Color.*

Take Buckthorn-berries gathered about the beginning of *August*, bruise them, and add a little Alum in fine pouder; mix, and keep all in a Brass Vessel.

V. *Another good Yellow.*

Make a strong Tincture of Saffron in White Wine Vinegar, and add thereto a sufficient quantity of Alum in pouder.

VI. *To make another excellent Yellow Dye.*

Take pure clear Wheat Bran Liquor thirty quarts: Alum three pounds: enter your Stuff or Cloth, boil for two hours: after which take Wold, Weld, or Dyers Weed two pounds, and boil it till you see the colour good.

VII. *Another good Yellow Dye or Color.*

Take Running Water, and Malt-wort, of each a like quantity; in which dissolve a sufficient quantity of Alum, by boiling. Into this Liquor put whatsoever you would have Dyed Yellow, and let it boil a good while: then take it out, and put it into a strong decoction of Wold, Weld, or Dyers Weed, made with Chalk Water, and (laying weight upon it) let it boil an hour or two.

VIII. *To Dye an Orange-Tawney Color.*

Make a weak *Lixivium* of Pot-Ashes, or such Buck-Ashes, as Women wash their Cloths withal: put into it Wood-Soot, a sufficient quantity; and black Cork: boil a while, then put in the Matter you would Dye, (being first Dyed Yellow) and let it boil a little, casting in whilst it boils, a handful of Bay Salt.

IX. *To Dye Barley Straw, &c. of a Yellow Color.*

Take a *Lixivium* of Pot-Ashes *q. s.* Yellow Bark of the Barbery Tree a pound: make a decoction, and in this boil your Straw, *&c.*

X. *To Dye a Yellow color.*

Take Alum Water *q. s.* inner Bark of a Plum Tree, a pound; or as much Sumach; make a Decoction, and boil what you think fit in it, and it will be of a fair Yellow.

XI. *To make a Yellow.*

Take Orpiment *q. s.* grind it with Water, then put it in little parcels upon Paper to dry, and then you may use it as a pigment.

XII. *To*

XII. *To make an Orange Color.*

Take Vermillion, grind it with a little Saffron, and then mix with it a little Red Lead.

CHAP. XXII.

Of Watering Stuffs, and taking out Spots.

I. *HOW to water Stuffs*, &c.

Take Water, *q. s.* Gum Tragacanth one ounce: mix and diſſolve, and make a thin clear Water: then take ten yards of Stuff, and wet it with the ſaid Water all over, and put it into a Preſs: let it lye a pretty while, and turn it twice: after which, you muſt ſcrue the Preſs very hard, and ſo let it ſtand until it be cold.

II. *An Obſervation.*

The Gum-water ought to be pure thin and clear, otherwiſe the folds of the Stuff will ſtick together: it is alſo to be done very hot, elſe it will not penetrate; and the Stuff, *&c.* is to be throughly wet therewith, yet not too wet.

III. *To take out Spots.*

Waſh them with Oil of Tartar *per deliquium*, two or three times, and they will vaniſh; then waſh with Soap-ſuds, and laſtly with fair warm Water.

IV. *To take out Ink Spots.*

Waſh them three or four times with Juice of Limons, or with ſtrong White-Wine Vinegar, and it will do; after waſh them with *Genoa* Soap, and laſtly with fair warm Water.

V. *To take out Spots of Turpentine, or Pitch.*

Firſt rub them well with Hogs-Lard, or old thick Oil, and repeat this two or three times; then Soap them, and waſh with warm Water. Spirit of Wine is alſo good in this caſe.

VI. *To take out Spots of Greaſe.*

Rub them very well two or three times with Oil of Turpentine, and they will vaniſh away to a wonder: laſtly waſh again with Rectified Spirit of Wine.

VII. *To take out Spots of Oil or Greaſe, out of White or Red Silk.*

Take *Aqua Vitæ*, and rub the Spots well with it : then take Glair of new-laid Eggs, and rub the Spots well therewith, and let it dry in the Sun ; after which waſh it with clean water, and preſs it well.

VIII. *A Pouder to take out Spots.*

Take Bone-Aſhes of Sheeps Legs calcin'd White, make them into ſubtil pouder ; which lay warm upon the Spot or Stain, till it begins to change color ; then remove it, and lay on more, and continue it till the Spot is gone.

IX. *Another for the ſame.*

Take White or Wheaten Bread juſt drawn out of the Oven : lay one piece of it above, and another underneath the Silk, and it will draw out the Oil or Greaſe.

X. *Another for the ſame.*

Take Honey and mix with it Glair of Eggs, and *Sal Armoniack*, and lay them on the Spot for ſome time, and waſh it with fair Water.

XI. *To take Spots of Ink out of Silk.*

Take ſtrong White Wine Vinegar, hot Aſhes, rub them well upon the Spots, and waſh afterwards with Soap and Water, and the work will be done.

XII. *To take Spots of Pitch, Tar, Turpentine, &c. out of Cloths.*

Take common Oil, or Hogs Lard, rub it well upon and into the Spots, letting it lye for 24 or 48 hours, then rub it well with your hands, and wring it, after which waſh it clean with Soap and water.

XIII. *To take out Stains.*

Take Soap a pound : Fullers Earth eight ounces : unſlaked Lime two ounces : mix all in fair water, and after a while lay it upon the ſtains.

XIV. *Another way.*

Mix white Starch and Water together, making it into a Paſte ; with this cover the Stains as thick as a Shilling or Half Crown, and leave it on till next day : then rub it off as you do dry dirt ; and the Stains will be vaniſhed.

XV. *To take all Spots of Ink out of Linnen or Woollen.*

Squeez Juice of Limons upon the Stain, which rub in very well, and being dry, repeat this three or four times ; and then waſh it with fair Water, and the Ink or Iron molds will be vaniſhed.

CHAP.

CHAP. XXIII.

Dying of Paper, Parchment, and Leather, &c.

I. *To make Paper waved like Marble.*

Take divers Oiled colours, put them severally in drops upon water, and stir the water lightly: then wet the Paper (being of some thickness) with it, and it will be waved like Marble; dry it in the Sun.

II. *To write golden Letters on Paper or Parchment.*

This may be done by the ninth, thirteenth and sixteenth Sections of the twenty seventh Chapter of the third Book: or write with Vermilion ground with Gum Armoniack, ground with glair of Eggs, and it will be like Gold.

III. *To take out blots, or make black Letters vanish in Paper or Parchment.*

This may be done with Alum-water; or with *Aqua fortis* mixed with common water.

IV. *To make Silver Letters in Paper or Parchment.*

Take Tin one ounce, Quick-silver two ounces, mix and melt them, and grind them with Gum-water.

V. *To write with Green Ink.*

Take Verdigrise, Litharge, Quick-silver, of each a sufficient quantity, grind and mingle them with Urine, and it will be a glorious green, like an Emerald, to write or paint with.

Or thus, Grind Juice of Rue and Verdigrise with a little Saffron together; and when you would write with it, mix it with Gum-water. *Or thus*, Dissolve Verdigrise in Vinegar, strain it; then grind it with common water, and a little Hony, dry it; then grind it again with Gum water, and it is done.

VI. *To write on Paper or Parchment with Blue Ink.*

Grind Blue with Honey, then temper it with glair of Eggs, or Gum-water made of Ising-glass.

VII. *To dye Skins Blue.*

Take Berries of Elder, or Drawf-elder, first boil them, then smear and wash the Skins therewith, and wring them forth: then boil the Berries as before, in the dissolution

lution of Alum-water, and wet the Skins in the same water once or twice, dry them, and they will be very Blue.

VIII. *To dye Skins into a Reddish Colour.*

First wash the Skin in water, and wring it well: then wet it with the solution of Tartar and Bay-salt in fair water, and wring it again: to the former dissolution add Ashes of Crab-shells, and rub the Skin very well therewith, then wash with common water, and wring them out: then wash them with tincture of Madder, in the solution of Tartar, Alum, and the aforesaid Ashes; and after (if not red enough) with the tincture of Brasil.

IX. *Another way to dye them Red.*

Wash the Skins, and lay them in galls for two hours, wring them out, and dip them into a colour made with *Liguſtrum*, Alum and Verdigrise in water. Lastly, twice dye them with Brasil boiled with Lye.

X. *Another way to dye them Blue.*

Take the best Indico, and steep it in Urine a day, then boil it with Alum, and it will be good. *Or*, temper the Indico with Red Wine, and wash the Skins therewith.

XI. *To dye Skins purple.*

Take Roch-alum, dissolve it in warm water, wet the Skins therewith, drying them again; then take rasped Brazil, boil it in water well, then let it cool; do thus thrice: this done, rub the dye over the Skins with your hand,, which being dry polish.

XII. *To dye Skins of a sad green.*

Take the filings of Iron and Sal-Armoniack, of each alike, steep them in Urine till they be soft, with which besmear the Skin, being stretched out, drying it in the shade, the colour will penetrate and be green on both sides.

XIII. *To dye Skins of a pure Skie Colour.*

For each Skin take Indico an ounce, put it into boiling water, let it stand one night, then warm it a little, and with a brush-pencil besmear the Skin twice over.

XIV. *To dye Skins of a pure Yellow.*

Take fine Aloes one ounce, Linseed Oil two pound, dissolve or melt them, then strain it; besmearing the Skins therewith; being dry, varnish them over.

XV. *To*

XV. *To dye Skins Green.*

Take Sap-green, Alum-water, of each a ſufficient quantity; mix and boil them a little: if you would have the colour darker, add a little Indico.

XVI. *To dye Skins Yellow.*

Infuſe Woad in Vinegar, in which boil a little Alum: *Or thus*, having dyed them Green by the fifteenth Section, dip them in decoction of Privet-berries, and Saffron, and Alum-water.

XVII. *To dye them of an Orange Colour.*

Boil Fuſtick-berries in Alum-water: but for a deep Orange, uſe Turmerick-root.

XVIII. *A liquor to gild Skins, Metals, or Glaſs.*

Take Linſeed Oil three pound, boil it in a glazed Veſſel till it burns a Feather being put into it, then put to it Pitch, Roſin, dry Varniſh, or Gum-Sandrach, of each eight ounces, Aloes Hepatica four ounces; put all in pouder into the Oil, and ſtir them with a ſtick, the fire being a little encreaſed: if the liquor is too clear or bright, you may add an ounce or two more of Aloes Soccatrine, and diminiſh the Varniſh, ſo the liquor will be darker, and more like Gold. Being boiled, take it, and ſtrain it, and keep it in a Glaſs for uſe: which uſe with a Pencil.

Other ſtaining Colours.

XIX. *To make a fine Blue ſtaining water.*

Make a weak *Lixivium* of Pot-aſhes, or take Lime-water, put into it a ſufficient quantity of Florey, and diſſolve therein a little Alum, and ſtir it well over the fire; then take it off, and caſt therein Wood Aſhes, ſo will you have a fine Blue.

XX. *A weaker Blue ſtaining water.*

Take water a ſufficient quantity, diſſolve therein a ſufficient quantity of Florey blue, and a little Alum; ſo will it be of a fainter colour than the former.

XXI. *A ſtaining Blue water, weaker than the latter.*

Take pure Well-water a quart: two ſhells full of Florey blue; mix them well together, and lay them on thin: This is the fainteſt of all the three.

XXII. *A deep green ſtaining water.*

Take Juice of the greeneſt Worts half a pint, ſtrain it through a Cloth; and diſſolve therein a ſufficient quantity of purified Verdigriſe: mix them well together, and

it

it will be a good colour. *How to purifie Verdigrise see in my* Doron, lib. 3. cap. 6. Sect. 13. §. 2. *being so prepared, one ounce will be worth ten of that unprepared.*

XXIII. *Another green staining Colour.*

First stain the Leather, Parchment, or Paper with a Blue, and let it dry: then lay thereon a yellow staining colour, so will the green be much the better.

XXIV. *To make a light staining green colour.*

Take a pint of Wort made of Malt: and mix therewith a shell full of Florey, stirring them well together: first stain with this, then upon this staining, lay yellow, till it grows green: the more of your yellow staining liquor you lay on, the better will your green be.

CHAP. XXIV.

Dying of Wood, Horns and Bones, &c.

I. *TO dye Elder, Box, Mulberry-tree, Pear-tree, Nut-tree of the colour of Ebony.*

Steep the Wood in Alum-water three or four days, then boil it in common Oil, with a little Roman Vitriol and Sulphur.

Where note, the longer you boil the Wood, the blacker it will be, but too long makes it brittle.

II. *To dye Bones green.*

Boil the Bones in Alum-water, then take them out, dry them and scrape them, then boil them in Lime-water with a little Verdigrise.

III. *To dye Wood like Ebony, according to Glauber.*

Distil an *Aqua fortis* of Salt-peter and Vitriol, and therewith besmear the Wood, as oft as you see occasion.

IV. *To make Horns black.*

Vitriol dissolved in Vinegar, and Spirit of Wine will make Horns black: so the Snow-white Calx of Silver in fair water.

V. *To make Bones white.*

They are strangely made white by boiling with water and Lime; continually scumming of it.

VI. *To dye Bones green.*

Take white Wine Vinegar a quart, filings of Copper, Verdi-

Verdigrise, of each three ounces ; Rue bruised an handful ; mix them, and put the Bones therein for fifteen days.

VII. *To dye Wood, Horns, or Bones red.*

First boil them in Alum-water, then put them into tincture of Brazil in Alum-water for two or three Weeks : or into tincture of Brazil in Milk.

VIII. *To dye them Blue.*

Having first boiled them in Alum-water, then put them into the dissolution of Indico in Urine.

IX. *To dye them green like Emeralds.*

Take *Aqua fortis*, and put as much filings of Copper into it, as it will dissolve ; then put the Wood, Horns, or Bones therein for a Night.

X. *To dye Bristles and Feathers.*

Boil them in Alum-water, and after, while they are warm, put them into tincture of Saffron, if you would have them yellow : or Juice of Elder-berries, if blue : or in tincture of Verdigrise, if green.

XI. *To dye an Azure Colour.*

Take Roch-alum, filings of Brass, of each two ounces ; Fish-glew half an ounce, Vinegar, or fair water a pint, boil it to the consumption of the half.

XII. *To soften Ivory and Bones.*

Lay them twelve hours in *Aqua fortis*, then three days in the Juice of Beets, and they will be tender, and you may make of them what you will : *To harden them again*, lay them in strong White Wine Vinegar.

XIII. *To make Horns soft.*

Take Urine a Month old, Quick-lime one pound, calcined Tartar half a pound, Tartar crude, Salt, of each four ounces ; mix and boil all together, then strain it twice or thrice, in which put the horns for eight days, and they will be soft.

XIV. *Another way to make them soft.*

Take ashes, of which glass is made, Quick-lime, of each a pound ; water a sufficient quantity, boil them till one third part is consumed, then put a feather into it, if the feather peel, it is sodden enough, if not, boil it longer, then clarifie it, and put it out, into which put filings of Horn for two days ; anoint your hand with Oil, and work the Horns as it were Paste, then make it into what fashion you please.

XV. *Ano-*

XV. *Another way to soften Horns.*

Take Juice of Marubium, Alexanders, Yarrow, Celandine and Radish roots, with strong Vinegar, mix them, into which put Horns, and digest seven days in Horse-dung, then work them as before.

XVI. *To cast Horns in a mould, like as Lead.*

Make a Lixivium of calcined Tartar and Quick-lime, into which put filings or scrapings of Horn, boil them well together, and they will be as it were Pap, tinge it of the colour you would have it, and then you may cast it in a mould, and make thereof what fashioned things you please.

XVII. *To make Ivory white.*

If Ivory be yellow, spotted or coloured, lay it in Quick-lime, pour a little water over it, letting it lye twenty four hours, and it will be fair and white.

XVIII. *To dye Bones black.*

Take Lytharge, Quick-lime, *ana* two pounds: Water *q. s.* mix, and put in your Bones, and stir with a stick till they boil a pace: then take it off the fire, and stir till all is cold, and the Bones will be very black.

CHAP. XXV.

The CONCLUSION.

I. TO enumerate all the great variety of Dyes or Colours, or offer at an Essay to reduce them to a certain method, as it is a labour needless, so it is as altogether impossible, there being infinite Colours to be produced, for which (as yet) we have no certain, known, or real name.

II. And out of what we have already enumerated in this Book, the ingenious (if they please) shall find (by little Practice and Experience) such great variety to be apparent, that should we express the number though but in a very low or mean degree, we could not but be exposed in censure to an Hyperbole, even of the highest.

III. Every of the foregoing Colours, will alone, or singly, produce a great number of others, the first more

deep

deep or high; the latter, all of them paler than each other.

IV. And according to the variety of Colours the Matter is of, before it is put into the Dye, such new variety also shall you have again when it comes out; not according to what the Colour naturally gives, but another clean contrary to what you (although an Artist) may expect.

V. For if strange Colours be dipt into Dyes not natural to them, they produce a forced colour of a new texture, such as cannot possibly be preconceived by the mind of Man, although long and continued experience might much help in that case.

VI. And if such variety may be produced by any one of those single Colours; what number in reason might be the ultimate of any two or three or more of them, being complicate or compounded?

VII. Now if such great numbers or varieties may be produced, 1. By any one single Colour. 2. By being complicate; how should we (without a certain and determinate limitation, by denomination, or name) ever order such confused, unkown, various, and undeterminate Species of things, in any pleasant intelligible method?

VIII. Since therefore that the matter (as yet) appears not only hard, but also impossible; we shall commend what we have done to the ingenuity of the industrious: and desire that favour from the Experienced, with love to correct our Errors; which act of kindness will not only be a future Obligation to the Author, but also enforce Posterity to acknowledge the same.

Explicit Liber Sextus.

POLYGRAPHICES

LIBER SEPTIMUS.

Of ALCHYMIE: *Wherein is treated of the true Philosophers Tincture, and Process of the same.*

CHAP. I.

Of Alchymie *in General.*

I. ALCHYMIE is an *Arabick* word, and signifies the Transmutation of Metals, Semi-Metals and Minerals.

II. It is then chiefly concerned with the Mineral Kingdom, which consists of Metals, Semi-Metals, Salts, and Stones.

III. The Metals are in Number Seven, *viz. Saturn, Jupiter, Mars, Sol, Venus, Mercury*, and *Luna*; called by the Vulgar, *Lead, Tin, Iron, Gold, Copper, Quick-silver*, and *Silver*.

IV. The Semi-Metals are, *Antimony, Cinnabar, Tinglass*, and *Zink*.

V. The Salts are chiefly, *Vitriol, Sulphur, Arsenick, Alum, Nitre, Borax*, and *Salt*.

VI. The chief Stones are, *Lapis Calaminaris, Tutia, Lazuli*, and *Lime-stone*.

VII. Now out of these the *Alchymist* designs one of three things: to wit, 1. Either the *Counterfeiting* of the fine Metals. 2. Or the *Separation* of fine Metals out of the base: or, 3. The *Generation* of the fine Metals out of the base, by *Transmutation*.

VIII. The *Counterfeiting* of the fine Metals is done by giving the Color and Body of a fine Metal to that which is base; as the tinging of *Lead* into a *Gold* color; the whiting of *Copper*; the reduction of *Mercury* or *Quick-silver*.

IX. The *Separation* of fine Metals out of base, is done by attracting of the Particles or Atoms of the fine (contained in that baser) into one heap or mass, that they might not be carried away by the wings of the Volatile or baser Metal.

X. *Thus it appears, there is a large quantity of Gold, in Lead, Tin, Copper and Silver: and much Silver in Tin, Copper, and Iron: the proof of this is manifest by the parting Say (as they call it) to wit, the Test by Strong Waters; by which you may find that one pound of Lead will yield near three or four penny weight of Silver, and one of Gold.*

XI. *One pound of Tin will yield something above an ounce of Silver; and about two-penny weight of Gold, or more; one pound of Silver will yield about one ounce of Gold; and Copper about a quarter of the same quantity, or more,* &c.

XII. *But this is according to the goodness of the Metals, and the skill of the Undertaker; for by this way of Separation, what is gotten will never pay the Cost, it remains therefore, that we search out some way more profitable, the which in the following Lines, to the true Sons of Art, we shall faithfully present according to the best of our knowledge: But we are bound to be a little the more obscure, for the sakes of some ingrateful Men, by whom we know our just meaning will be traduced; our skill in Art abused; and our person sought to be rent and destroyed, should we but adventure to be so open, as to give them the clear knowledge thereof. Let others search as we have done, it is some satisfaction, that the matter here sought, is really in* rerum natura; *the which joined to the certainty of anothers attaining thereof, may give life to future hopes, which as the purcurser of better things, may point at the great work it self.*

XIII. The Matter of Transmutation is done by that great *Pouder*, *Tincture*, *Elixir*, or *Stone* of the Philosophers, which, according to the Opinion of *Paracelsus*, and others the most learned, we shall signifie in few words.

XIV. By

XIV. By this *Tincture* or *Elixir*, according to the judgment of the Ancients the whole Body of any Metal (being separated from its impurity) is changed into fine Gold.

CHAP. II.

Of Saturn, *or Lead.*

I. *Saturn* is a cold, gross, dull and heavy Body, replete with much Impurity, yet full of a Golden Mercury.

II. It is tinged into a pure Golden Color by calcination thereof with Antimony, and imbibing the Calx thereof with the *Spirit of Venus*, *Lapis Calaminaris*, *Tutia*, and *Zink*, severally prepared, and mixt *ana*, and then reduced, adjoyning to every ounce of Lead in *Calx*, a penny weight of the Golden Sulphur of *Venus*.

III. Its *Lunar property* is extracted, by a simple calcination with *Arsenick* and *Nitre*, *ana*, and imbibition of the said *Calx* for about seven days in the *Oil of Salt*.

IV. *Or thus*, Take of our Seed or Salt of *Luna* one ounce, of the Salt of *Venus* one ounce and a half; of the crude body of *Saturn* one ounce, mix, and melt them; then separate, and you shall have the *Saturnian Luna*, with considerable advantage.

V. Take Lead beaten into thin Plates; and let them be put into a Glass Vessel, together with common Salt and Mercury: Let it be well closed together, and digested in the Earth or Horse-dung, for ten whole Months; and it will be converted into Quick-silver.

VI. Take Lead purified a pound, *Sal Armoniack* two ounces in pouder, *Sal Nitre* in pouder one ounce, *Sal Elebrot* bruised, half an ounce: Put all into a Crucible on a violent hot fire, for two whole hours; then take it out, and it will be prepared for the Silver work.

VII. *Or thus*, Get an earthen Pot, whose bottom is full of holes, put it into another Pot, and let it be covered in a small Pit: dig up the Earth thereon on every side, and tread it down with your Foot: Fill the upper

void place with unslaked Lime, to the middle: then take Lead cut into thin little bits, and lay it upon the Lime; and over the Lead more Quicklime: put upon it boil'd Urine, cover the Pot and lute it well; make a great fire on every side, heaping it up even over the top, and continue it so for a day; so shall a purified Lead fall through the Lime and Holes into the lower Vessel, which will be prepared for Transmutation.

VIII. Or Lead may be thus purified. Melt your Lead often, and cast it into the sharpest Vinegar: Melt it again, and cast it into Juice of Cellandine: then into Salt-water: then into Vinegar, in which *Sal Armoniack* has been dissolved. And lastly, let it be poured out into the Cupel, and so it will be very well purified.

IX. Take Spring-water, Vitriol, of each a pound; mix them together: filter through brown Paper, and distil the Water off in a Glass Alembick, which keep in a Glass for use. Take Quicksilver an ounce: put it into a Crucible over the fire; and when it begins to be hot, add purified Leaf Gold an ounce; and so remove it from the fire: then take of your purified Lead one pound; amalgamate it with the aforesaid mixture of Quicksilver and Gold, over a gentle fire, stirring it with an Iron Rod: being well mixed, put thereto an ounce of the former Vitriol Water, stir, digest a Month, evaporate, and you have a Medicine in order to Transmutation.

X. *The Preparation of* Saturn. Set it in a Furnace of Calcination, stirring it while in Flux, as you do *Jupiter*, till it be converted into Ashes: sift this, and set it again in a Fire of Calcination, till its fugitive and inflamable substance is gone: then take this red Calx, imbibe and grind often with common Salt cleansed, Vitriol purified and sharp Vinegar: this matter often imbibe, dry and grind, till all its uncleanness be wholly removed: this done, add Glass ground to pouder, mix them well together, and make them flow in a Crucible. Calcine it again with pure *Sal Armoniack*, and most subtilly grind and dissolve it into a clear Water upon a Porphyry Stone in the open Air, in a cold and moist place; augmenting the Salt, if need be. This is the Preparation of the Ferment of Lead for the *Red Elixir*.

CHAP.

CHAP. III.

Of Jupiter, *or Tin.*

I. *Jupiter* is much a more noble body than *Saturn*, and (as we said before) abounds much more with a *Solar* and *Lunar* Mercury.

II. It is reduced into the *Imitation* of Silver by often melting of it, and quenching of it in the Spirit of *Arsenick*; or by Calcination of it with *Lime* (three ounces to a pound of *Jupiter* granulated) and then by often extinguishing the same in the spirit of *Arsenick* aforesaid.

III. The *Luna* is extracted out of it thus: Let *Jupiter* be married to our *Luna* of the same stature, by the Priest *Mercury*, after which let them drink their fill of the *Mineral Spirit* of the Grape; then put them to Bed in the exaltation of *Luna*, and house of *Venus*, and the next morning let them drink very well of the fruitfull Wine of the Daughter of *Luna*; this being done, you will find *Luna* like a Bride coming forth out of the Marriage Chamber; but with the Wings of an *Eagle*, which Wings you must clip by the means of *Mars*, else you will lose her: Thus, take of the Seed of *Mars*, and the eldest Son of old *Saturn*, *ana*, make them contend with *Tellus*, for three whole days and nights, till they conjoin and beget a Son, white as *Luna*, and fixt as *Sol*. This Son will by force take *Jupiter*'s Wife from him, and being fruitful cause her to bring forth a plentiful and profitable Issue.

IV. *Or thus*, Kill *Jupiter* (in conjunction with *Luna*) by the fire of *Tellus*, then revive the dead Body (after it is impregnated with the *Mineral Spirit* of the Grape) by the help of *Saturn*, and you have a numerous off-spring of *Luna*.

V. *Or thus:* Marry *Jupiter* to *Luna*; then marry him to her daughter, and join these Issues together, and they will sympathetically attract and join all the Seed of *Luna* into one family or lump.

VI. *Or thus:* Which is both the beſt and eaſieſt way. Take *Jupiter* and melt him, then quench him ten times in the *Spirit* of *Venus*, till he is reduced very ſmall and low: this done, join him with the Daughter of *Luna* calcined with *Tellus*, and the work is over. *This is very profitable, and the moſt uſeful of all, but by reaſon of the unworthineſs of this generation, it cannot admit of any explication.*

VII. The Gold is thus Extracted: marry *Jupiter* to *Venus*, and their off-ſpring to *Sol* by the means of Prieſt *Mercury*: put them to Bed (in the life of *Phœbus*) for three whole days and nights, afterwards make them drunk with the ſpirit of the Daughter of *Venus*, then make a perfect conjunction with the eldeſt Son of *Saturn*, and you ſhall have what you ſought.

VIII. *Or thus:* Calcine *Jupiter* granulated one pound, with *Quick-lime* four ounces, mix all with the *Calx* of *Venus* and *Luna ana*; calcine again for three days, imbibe in the ſpirit of *Venus* (that is, the fixed Oil) for ſeven days, then reduce to a *regulus* with *Saturn*, and afterwards ſeparate with *Antimony*.

IX. *The preparation of Jupiter.* Melt *Jupiter*, and continually ſtir it with an Iron Rake, till it is brought to Aſhes. Theſe Aſhes ſift, calcine them again, adding fire not exceeding the Fire of its fuſion, and ſtir it often, calcining it for 24 hours, till all its ſuperfluous humidity be waſted: then well waſh it with purified common Salt and Alum; and moſt ſharp Vinegar, and dry it; grind again, and waſh and dry, doing thus ſo often, till by the acuity of the Salts, Alum and Vinegar, its whole humidity, blackneſs, and filth is done away and conſumed. Add to it Glaſs in pouder, mix, and with a ſufficient fire make it flow in a Crucible, having a hole in its bottom, ſet within another, and the pure clean body will deſcend; the whole Earthly feculent ſubſtance remaining above with the Salts and Glaſs: for in that Body reduced and deſcended is an equal and perfect proportion of pure Argent Vive, and white Sulphur not burning; becauſe fire and the Corroſives, have divided the whole humidity, and fugitive inflamable, corrupt, and black ſubſtance: and through that deſcenſory the whole feculent ſubſtance is compleatly ſeparated. Afterwards calcine this pure reduced Body again, with pure

pure and clean *Sal Armoniack*, until it be in weight nearly equal: being well and perfectly calcined, grind the whole well upon a Porphyry Stone, and put it in the open Air in a cold and humid place, or in a Glass Vessel in Horse-dung until the whole be dissolved, augmenting the Salt, if need be. This water is the ferment of *Jupiter*, for the *White Elixir*.

CHAP. IV.

Of Mars, *or Iron*

I. *Mars* is yet a more noble body, but harder and more replete with *scoria* or filth, yet full of a Solar and Lunar Mercury.

II. It is converted into Copper by the *Oil or Spirit of Venus*: into Brass by the means of *Lapis Calaminaris*, and made to imitate Silver by impregnating its *Calx* in the burning Spirit of *Arsenick*.

III. It has much Silver and Gold in it, But they are extracted with great difficulty; thus, first melt the body with an equal quantity of *Tin, Lead and Copper*; this done, granulate it, and imbibe the body with *Oil of Venus* very strong, then calcine it with the butter of *Arsenick* (if you extract its Silver,) or *Antimony* (if its Gold) imbibe this *Calx* over a gentle heat in the strongest Oil of Flints, or Sand for ten days: then reduce it.

IV. *Mars* is whitened by the rules which we have delivered in *Lib. 3. cap. 26. Sect. 31.* and made of a Golden Colour by Sect. 28. of the same Chapter.

V. *The preparation of Mars.* Let it be calcined as *Venus* with common Salt cleansed, and let it be washed with pure Vinegar; being washed, dry it in the Sun, and when dryed, grind and imbibe it with new Salt and Vinegar, and then put it into the same Furnace, as we shall hereafter say of *Venus*, for three days: this calcination dissolve into a clear water, which is the water of the fixed Sulphur, wonderfully augmenting the Colour of the *Elixir*.

VI. *Another preparation of Mars.* Grind one pound of the filings thereof, with half a pound of *Arsenick* sublimed. Imbibe the mixture with the Water of *Salt-peter* and *Sal-Alcali*, reiterating this Imbibition thrice: then make it flow with a violent Fire, and you will have your Iron White; Repeat this work till it flow sufficiently, with peculiar dealbation.

VII. Take of the *Calx* of *Mars* made into a Paste with *Mercury* ij. pounds: of *Venus* iv. pounds: of *Saturn* iv. pounds: mix these without Ferment, and boil the mixture for seven days, and you will find the whole dry. Fix it and put it (together with half its weight of Litharge beaten into Pouder) into a reducing Furnace, and you will find a body of great profit.

CHAP. V.

Of Sol, *or* Gold.

I. SOL is the purest of all Metals, and the very perfection of the Mineral Kingdom, at the which, all our pains, labours and endeavours aim.

II. This *Gold* of it self is dead and without force or power, but being quickned, and enlivened, it has an inward *feminating* or *germinating* property, which being raised and brought forth by its *innate life* (till now lockt up) can dilate it self (*having a fitting Womb to receive it*) into ten thousand times its own quantity; and thereby *transmute* or *change* the Mercurial property (which is indeed immature Gold) of all Metals into its own nature and kind.

III. This *Immature Gold* in the bodies of all Metals would have come to perfection of its own accord, had it been ennobled with a sufficient sulphur, life and heat, to have caused such a natural *fermentation and excretion* of the abounding filth and dross, in which the so small particles and Atoms of the Seminal Golden property was latent, or buried.

IV. The quickning of the inward life of this Metal is solely done by the help of the Seed of Metals, to wit, *Mercury*,

Mercury, but how or after what manner we shall more plainly shew in *Chap.* 12. following

V. *Sol is thus prepared.* Take Sol beaten into thin Plates, or rather Leaf Gold, and with them and Common Salt prepared, make Lay upon Lay in a Vessel of Calcination, which set into a Furnace and calcine well for three days, untill the whole be subtilly calcined; then take it out, grind it well, wash it with Vinegar, and dry it in the Sun, afterwards grind it well with half its weight of Sal-Armoniack, cleansed from its common or Sea-Salt; set it to be dissolved, untill the whole (by the benefit of the Salt) be dissolved into a most clear water: this is the precious Ferment for the Red Elixir, and the true body made Spiritual.

VI. Take Gold dissolve it in its own water, and decoct and prepare it, by boiling it away to a third part: then expose it to the Air, and set it in Balneo or in Dung for certain days; then will it be the Oil of Gold; so will the Ferment of Sol be perfect for the Red, which keep for use.

CHAP. VI.

Of Venus, *or* Copper.

I. *Venus* is the finest of the base Metals, and contains more of a *Golden Sulphur* than them all.

II. She is *Whitened*, and made like unto *Silver*, by calcining it with Butter of the Daughter of *Luna*, and *Salt of Tartar*, and then reduced by *Saturn*, and being often melted and extinguished in the said Butter.

III. Or thus, To the afore reduced *Venus*, being melted add (for an ounce of *Venus*) two penny weight of our fixed *Mercury*.

IV. She is made of a *Golden* colour by often changing the *calx* (calcined with the Son of *Saturn*) in the Spirit of *Antimony*, *Zink*, *Lapis Calaminaris*, and *Lapis Tutia*: then reduced by being melted with a sufficient quantity of *Lapis Tutia*, and ten or twelve times melted, and quenched in the aforesaid Spirit.

VI. Her

V. Her *Silver* is extracted as that of Tin by the Third *Sect.* of *Chap.* 3. *Or thus*, calcine her with *Butter of the Daughter of Luna*, to which *calx* adjoin the *calx* of *Luna ana*, and reduce with *Saturn*.

VI. Her *Gold* is extracted thus: Calcine her with the *Son of Saturn*: then calcine *Luna* with the same also: put both these calxes together and calcine for three days with the *Son of Saturn* mixt with *Tellus*; to which add the *Calx of Sol* calcined with the same *Son of Saturn*, *Ana*; put all together and calcine them for twenty four hours, reduce them with *Antimony*, keep them all in a melting heat for three days, then take it forth, and quench it being melted ten or twelve times in the tinging and fixing Spirit of *Lapis Calaminaris*, *Antimony* and *Zink*, *Ana*.

This is very profitable, and not difficult to perform; it may be done also (as before) without calcination.

VII. *Venus* is made of a *Silver* colour thus. Take Mercury sublimate, and a proportionable quantity of philosophick *Sal-Armoniack*; add Vinegar, and let them boil together: in this quench *Auricalcum* or *Copper* (being heat red hot) and it will become white like *Silver*.

VIII. She is made of a *Gold* colour thus. Take *Copper*, *Lapis Calaminaris*, of each half an ounce; *Lapis Tutia* ij. drachms: let the *Copper* be first heat red hot and extinguished 2 or 3 times in Urine: do the like with the *Lapis Calimanaris and Tutia:* To the *Copper* thus prepared add Honey half an ounce, boil them together till the Honey becomes black and dry: which take and beat with the *Lapis Calimanaris* and the *Tutia*, then mix all together by melting, and you have your desire.

IX. *She is whitened thus.* With purified and reduced Litharge mix sublimed *Arsenick*; and cast it upon *Copper* in fusion; it whitens it very well.

X. *Or thus.* Mix *Silver* and *Copper* together; and upon that mixture cast the Whitening medicine. For the *Silver* is a greater friend to *Arsenick*, than any other Metal; it also takes away fraction from it,

XI. *Or thus.* Upon a mixture of *Venus* and *Luna* melted cast pieces of sublimed *Arsenick*, and *Mercury*: They are better in pieces than Pouder, because the Pouder consumes and vanishes sooner, or before it can do its operation.

XII. Take

XII. Take *Mercury* precipitate, and *Copper* calcined, diſſolve each a part in diſſolving Water and mix the diſſolutions together; coaguſate, and put the whitening Medicine on it, and it will be exactly like *Silver.*

XIII. *Or thus.* Take *Mercury* precipitate, and Litharge, diſſolve each a part: joyn theſe ſolutions in one: then take the Calx of the Body you intend to whiten, diſſolve it: joyn all theſe together; coagulate, and reduce with *Borax.*

XIV. *Or thus.* Take *Quick-ſilver*, ſublime it ſo often from precipitate *Mercury*, till it be fixed in it, and ſprouts forth, put this upon melted *Copper*, and it will be very white.

XV. *Or thus.* Diſſolve *Leaf Silver* and Litharge in a proper diſſolving Water: joyn theſe ſolutions together; and by theſe the ſubſtance of *Copper* will be whitened.

XVI. *Or thus.* It is alſo whitened with ſublimed *Arſenick*: Take Calx of *Copper*, mix it with ſublimed *Arſenick.* Reiterate the Sublimation, and continue it till the *Arſenick* ſtay with it: this will be the more eaſie and firm if a quarter part of the Calx of *Silver* be added to the ſaid Calx of *Copper.*

XVII. *Or thus.* Put the ſublimed *Arſenick* to the *Silver*; and then the whole upon the *Copper*, and it will be excellently whitened: Or mix Litharge, or Calx of *Lead* diſſolved with *Silver*, put this upon *Arſenick*: and laſtly caſt all this mixture on the *Copper* Body and it will be very white.

XVIII. *To Prepare Copper.* Cement very thin Plates of *Venus* with Common Salt well cleanſed in a Crucible, covered and well luted, for 24 hours: this cementation repeat (ſcraping off what is calcined) till all the Plates are conſumed. Grind this Calx to a moſt ſubtil Pouder and waſh it with Vinegar, till it comes from it colourleſs: imbibe it again with Salt and Vinegar, grind, and calcine in an open Veſſel for 3 days; take it out, grind, and waſh well with Vinegar, dry, and add half its weight in Sal-Armoniack, grind till it is impalpable, and expoſe it to the Air to be diſſolved, adding ſtill freſh Sal-Armoniack if need ſhall be, till the whole be made Water. This is the Water of the fixed Sulphur of *Venus.*

CHAP.

CHAP. VII.

Of Mercury *or* Quickſilver.

I. *Mercury* is the Root of Metals, and pure immaturate *Gold.*

II. By this the Body of *Sol* is opened thus: make an Amalgama of *Sol* and *Mercury* ſo long till the *Mercury* will ſwallow up no more: ſeparate and you ſhall find your *Gold* like Earth newly broken up: this *Gold* being put into the ſweet Oil of Salt becomes more perfectly diſſolved, which being diſtilled till it comes over the Helm will anſwer your intenton: but there is a more noble and excellent way of opening of the Body of *Gold* which here we may not declare, yet in its due and convenient place ſhall be manifeſt, and that is only by the help of a perfect ſweet, or rather *inſipid menſruum.*

III. *To make our white Mercury*; This is only done by a ſimple diſſolution in the aforeſaid *inſipid menſruum.*

By this white *Mercury*; is *Copper* made of a durable white, after a thouſand meltings.

IV. *To make our red Mercury*; This is done by a diſſolution of the Spirit of *Tellus*, and then tinged by the Mineral Spirit of the Grape: and laſtly *fixed by the green Spirit of* Venus. *This will perfectly unite with* Gold, never more to be ſeparated by all the Art of Man.

V. Take *Quick-ſilver* 2 or 3 times purified with Sal-Armoniack and Urine; put it into a Crucible over a temperate Fire; when it waxes hot, put prepared *Jupiter* thereon as much, and augment the Fire by degrees, till the Flame grows blew: make the Fire then ſtronger, and blow a little: when you ſee it begins to give over ſmoaking, take it from the Fire, and you will find your *Silver* conſiderably Augmented.

VI. Take Sulphur of *Venus*, pure, red, and fixed, but melting like Wax: caſt it upon purified *Mercury*, in a juſt proportion, and in a fit heat; and the *Mercury* will become good *Gold.*

VII. *To*

VII. *To harden Quick-ſilver.* It is done with the fumes of either *Saturn* or *Jupiter*. Melt *Jupiter*, and when it begins to be cold, make holes in it, and put your *Quick-ſilver* therein, and it will be hardned; which being repeated often, will be the more firm.

VIII. Take *Mercury* and Salt-Peter, ana: beat them into duſt, put them into a Glaſs well Luted, over a gentle Fire for 2 hours: augment the Fire, till the ſmoaking ceaſes: after the ſmoak comes a Flame, out of the neck of the Glaſs, and the Mercurial Sulphur remains in the bottom, as it were white and fixed. Take it out, and add to it an equal quantity of Sal-Armoniack; beat them to a Pouder and mix them well; ſublime, firſt in moderate Fire; then in aſtronger; ſo continuing for 4 hours: take this ſublimate, and ſublime it again with its *fæces* 6 times, ſo will the Sulphur remain in the bottom of the Veſſel: take it, beat it to Pouder, and on a Marble, let it reſolve to an Oil: This is Sulphur of *Mercury* for Tranſmutation.

IX. Take purified *Quick-ſilver* ij. ounces: *Leaf-ſilver* j. ounce: make an Amalgama, and let it ſtand 7 days, then ſublime therefrom the *Silver*, waſh it in Water clean, and dry it. Take this Calx of *Silver* and reſolve it in *Aqua fortis*, and evaporate to dryneſs: mix dry Calx with Borax, and melt it into a Maſs: of this *Silver* and mix it with the like weight of fine *Gold* and you have a prepared Body to be tinged of a *Gold* colour: Make of this an Amalgama with ten times its weight of purified *Quick-ſilver*: Abſtract the *Silver*, and you have a porous Body, fit to receive the tinging Medicine.

X. *The Ferment of Ferments.* It is made for the white after this manner. Take Ferment of *Luna* with its Oil (at *Chap.* 8. *Sect.* 6. and 7.) add to it twice as much Arſenick, ſublimed and diſſolved in its proper Water: then to both theſe add *Mercury*, diſſolved as much as the Arſenick: Mix the Waters and ſet them over a Fire for one day to be incorporated: then draw off the Water by an Alembick, and Cohobate it 15 times; ſo incerating, it will be fluid as fuſible Wax. Add as much melted Wax, commix, and project upon *Mercury* waſhed, as you deſire.

XI. *The*

XI. *The Ferment of Ferments for the Red.* Dissolve *Sol* in its own water; add to it Sulphur, dissolve it in the same water 2 parts: *Mercury* dissolved 3 parts: let all be truly dissolved into a most clear water, which being mixt boil for one day, that they may be Fermented, draw off, cohobate the water 15 times: Incerate with yellow Virgins Wax, with half its weight of Oil of Blood or Oil of Eggs: then project upon Crude *Mercury*, and you shall have your desire.

CHAP. VIII.

Of Luna, *or* Silver.

I. *Luna* is the meanest of the fine or pure Metals, and (as it were) *white Gold.*

But *Luna* differs from *Gold*, more than in the colour only; *viz.* in Weight too, and that very considerably.

II. She is tinged of a *Golden* colour by our red *Mercury* (so ord'd *per se* for 28 days in a *Pelican* or other convenient Vessel, till such time as the said *Mercury* will endure the strongest Fire) the yellow colour this *Mercury* gives is fixed.

III. Her *Gold* is exactly extracted by the method delivered in *Chap. 6. Sect. 6.*

Or thus, Take *Sol*, *Luna*, *Venus*, of each a like quanty; melt them together, and keep them in fusion for 7 days: then take them forth, and by the Refiners Art separate the *Gold*; you will find your *Gold* (if you have been careful in the Operation) to be augmented nearly an sixteenth part.

IV. *Or thus*, Calcine her with the Son of *Saturn*, to which add our red *Mercury*, *ana.* put all into Oil of Salt for ten or twelve days; heat it red hot, and extinguish in Oil of Flints or Sand ten times; to this Calx add of fine *Lapis Tutia*, *ana.* reduce all and separate with Antimony.

V. Take Sal-Armoniack ij. pound; purified from its Common or Sea Salt: pure Vermilion j. pound: Grind them again together and sublime 6 or 7 times: then

then lay the Vermilion on a Marble ſtone to diſſolve into Water, which keep for your Work. Take pieces of freſh Vermilion iij. ounces wet it in the former water, and afterwards in the Glair of Eggs: and roul it in the filings of fine *Silver* ij. ounces, ſo often till it has taken up all the ij. ounces of *Silver*. Put theſe in a firm *Iron* Pot, which may be cloſed with a ſtrong Screw: put it into a Furnace, give Fire by degrees, and increaſe it *gradatim* to the higheſt degree, continuing it ſo for a Philoſophical Month, and you will have a Medicine for Tranſmutation of *Copper* into *Silver*, which being try'd upon the Teſt with *Lead*, will prove good at all Aſſays.

VI. *The Preparation of* Luna. *Luna* or *Silver* is ſubtilized, or attenuated, and reduced in manner as is above ſaid of *Sol*. Therefore in all and every part of this Work, do the ſame in its Subtilization, as you did with the *Gold*: And this water of *Luna* is the Ferment for the white Elixir.

VII. Diſſolve *Luna* in its own Corroſive water, which water boil away to a third part; then expoſe it to the Air, or ſet it in Balneo, or in Dung for certain days; ſo have you Oil of *Luna*, and the Ferment for the white Perfected.

CHAP. IX.

Of the Accidents of Metals.

I. *TO make* Iron *of a* Gold *colour*.

Take Alum of Melancy in Pouder, Sea-Water; mix them: then heat the *Iron* red-hot, and quench it in the ſame.

II. *To make* Iron *of a* Silver *colour*.

Take Pouder of Sal-Armoniack, unſlack'd-Lime, mix and put them into cold water, then heat the *Iron* red-hot, quench it therein, and it will be as white as *Silver*.

III. *To ſoften* Steel *to grave upon*.

This is done with a Lixivium of Oak-aſhes and unſlak'd-Lime, by caſting the *Steel* into it; and letting it

remain

remain there fourteen days. *Or thus*, Take the Gall of an Ox, Man's Urine, Verjuice, and juice of Nettles, of each alike, mix them; then quench *Steel* red-hot therein four or five times together, and it will become very ſoft.

IV. *To harden* Iron *or* Steel.

Quench it ſix or ſeven times in Hogs blood mixed with Gooſe-greaſe, at each time drying it at the fire before you dip it again, and it will become very hard and not brittle.

V. *To ſolder on* Iron.

Set the Joynts of *Iron* as cloſe as you can, lay them in a glowing Fire, and take of *Venice*-Glaſs in Pouder, and the *Iron* being red-hot, caſt the Pouder thereon, and it will ſolder it ſelf.

VI. *To counterfeit* Silver.

Take Cryſtal Arſenick viij ounces, Tartar vj. ounces, Salt-Peter ij. ounces, Glaſs *j.*ounce and an half, ſublimate half an ounce: make them ſeverally into fine Pouder and mix them: then take iij. Pound of *Copper* in thin Plates, which put into a Crucible (with the former Pouder *ſtratum ſuper ſtratum*) to calcine, covering it and luting it ſtrongly, let it ſtand in the Furnace for about eight or ten hours: then take it out, and (being cold) break the pot, and take out all the Matter, and melt it with a violent Fire, caſting it into ſome Mold. Then take Purged Braſs ij. pound, of the former metal *j.* pound; melt them together, caſting in now and then, ſome of the aforeſaid Pouder, after which add half as much of fine *Silver* melting them together, and you have that which is deſired: *Laſtly*, To make it as white as *Silver*, boil it in Tartar.

VII. *Another way to counterfeit* Silver.

Take purified *Tin* viij. ounces, *Quick-Silver* half an ounce, and when it begins to riſe in the firſt heat, take Pouder of Cantharides, and caſt into it, with a lock of Hair, that it may burn in it; being melted put into it the Pouder aforeſaid, then take it ſuddenly from the fire, and let it cool,

VIII. *To purge* Braſs.

It is cleanſed or purged, by caſting into it when it is melted, broken Glaſs, Tartar, Sal-armoniack and Salt-Peter, each of them by turns, by little and little.

IX. *To*

IX. *To tinge Lead of a Gold colour.*

Take purged Lead one pound, *Sal-Armoniack*, in pouder, one ounce, Salt-peter half an ounce, *Sal Elebrot* two drams; put all into a Crucible for two days, then add to it Sulphur of Sol, and it will be throughly tinged.

X. *To purge Lead.*

Melt it at the fire, then quench it in the ſharpeſt Vinegar; melt it again and quench it in the Juice of Celandine; melt it again, and quench it in Salt-water: then in Vinegar mixed with *Sal Armoniack*: and laſtly melt it and put it into Aſhes, and it will be well cleanſed.

XI. *To make Lead of a Golden colour.*

Put Quick-ſilver one ounce into a Crucible, ſet it over the fire till it is hot, then add to it of the beſt leaf-gold one ounce, and take it from the fire, and mingle it with purified Lead melted one pound; mingle all well together with an Iron Rod, to which put of the filtrated ſolution of Vitriol of Sol in fair water one ounce; then let it cool, and it will be of a Gold colour. Diſſolve the Vitriol in its equal weight of water.

XII. *To take away the ringing and ſoftneſs of Tin.*

Melt the Tin, and caſt in ſome Quick-ſilver, remove it from the fire, and put it into a Glaſs Retort, with a large round Belly, and a very long Neck; heat it red hot in the fire, till the Mercury ſublimes, and the Tin remains at bottom; do thus three or four times. The ſame may be done by calcining of it three or four times, by which means it will ſooner be red-hot than melt.

XIII. *To take away the ſoftneſs, and creaking noiſe of Tin.*

This is done by granulating of it often, and then reducing it again, and quenching it often in Vinegar and a *Lixivium* of Salt of Tartar. The creaking noiſe is taken away by melting it ſeven or eight ſeveral times, and quenching it in Boys Urine, or elſe Oyl of Walnuts.

XIV. *To take away the deaf ſound of Tin.*

This is done by diſſolving it in *Aqua fortis* over a gentle fire, till the water fly away: doing thus ſo long till it is all turned to a *Calx*; which mixed with *Calx* of Silver, and reduced, performs the work.

XV. *To make that Tin crack not.*

Take Salt, Hony, of each alike, and mix them : melt your Tin, and put it twelve or more times into it, then ſtrain out the Tin, and it will purge and leave cracking ; put it into a Crucible, which lute, and calcine it four and twenty hours, and it will be like *Calx* of Gold.

XVI. *To take away the brittleneſs of any Metal.*

Firſt calcine it and put it under dung, then do thus ; when it is red-hot at the fire, or melted, quench it often in *Aqua vitæ* often diſtilled ; or uſe about them Roſin or Turpentine, or the Oyl of it, or Wax, Suet, Euphorbium, Myrrh, Artificial Borax : for if a Metal be not malleable, unctuous bodies will oftentimes make them ſofter ; if all theſe, or ſome of theſe be made up with ſome moiſture into little Cakes : and when the Metal yields to the fire, by blowing with the Bellows, we caſt in ſome of them, and make them thick like mud, or clear, then ſet the Metal to the fire, that it may be red-hot in burning coals, take it forth and quench it in them, and ſo let it remain half an hour to drink in. Or anoint the Metal with Dogs greaſe, and melt it with it, for that will take away much of the brittleneſs of it, and make it ſo that it may be hammered and wrought.

XVII. *To colour Metal like Gold.*

Take *Sal Armoniack*, White Vitriol, Stone-ſalt, Verdigriſe, of each alike, in fine pouder ; lay it upon the Metal, then put it into the fire for an hour, take it out and quench it in Urine, and the Metal will have the colour of Gold.

XVIII. *To make a kind of Counterfeited Silver of Tin.*

This is done by mingling Silver with Tin melted with Quick-ſilver, continuing it long in the fire, then being brittle, it is made tough, by keeping it in a gentle fire, or under hot Embers (in a Crucible) for about twenty four hours.

XIX. *To ſoder upon Silver, Braſs, or Iron.*

Take Silver five peny weight, Braſs four peny weight, melt them together for ſoft Soder, which runs ſooneſt.

Take Silver five peny weight, Copper three peny weight, melt them together for hard Soder.

Beat the Soder thin, and lay it over the place to be Sodered, which muſt be firſt fitted, and bound together with

with Wire as occasion requires: then take Borax in pouder, and temper it like pap, and lay it upon the Soder, letting it dry, then cover it with quick coals and blow, and it will run immediately; take it presently out of the fire, and it is done.

Note, 1. *If a thing is to be Sodered in two places, (which cannot be well done at one time) you must first Soder with the hard Soder, and then with the soft; for if it be first done with the soft, it will unsoder again before the other be Sodered.* 2. *That if you would not have your Soder run about the piece to be Sodered, rub those places over with Chalk.*

XX. *To make the Silver Tree of the Philosophers.*

Take *Aqua fortis* four ounces, fine Silver one ounce, which dissolve in it: then take *Aqua fortis* two ounces, in which dissolve Quick-silver: mix these two Liquors together in a clear glass, with a pint of pure water; stop the glass close, and after a day, you shall see a Tree to grow by little and little, which is wonderful and pleasant to behold.

XXI. *To make the Golden Tree of the Philosophers.*

Take Oyl of Sand or Flints, Oyl of Tartar *per deliquium*, of each alike, mix them well together; then dissolve *Sol* in *Aqua Regis*, and evaporate the *Menstruum*, dry the Calx by the fire, but make it not too hot (for then it will lose its growing quality) break it into little bits (not into pouder) which bits put into the aforesaid Liquor, a fingers breadth one from another in a very clear glass, keep the Liquor from the Air, and let the Calx stand still, and the bits of Calx will presently begin to grow: first swell; then put forth one or two stems; then divers branches and twigs, so exactly, as you cannot but wonder to see.

Where note, That this growing is not imaginary but real.

XXII. *To make the Steel Tree of the Philosophers.*

Dissolve Steel in rectified Spirit or Oyl of Salt, so shall you have a green and sweet solution, smelling like Brimstone; filter it, and abstract all the moisture with a gentle heat, and there will distil over a Liquor as sweet as rain water, (for Steel by reason of its dryness detains the Corrosiveness of the Spirit of Salt which remaineth in the bottom, like a blood-red mass, and it is as hot on the tongue as fire:) dissolve this blood-red mass in Oyl of

Flints or Sand, and you shall see it grow up in two or three hours like a Tree with stem and branches.

If you prove this Tree at the Test, it will yield good Gold, which it draweth from the Oyl of Sand or Flints; the said Oyl being full of a pure Golden Sulphur.

XXIII. *To make Oyl of Flints or Sand.*

Take of most pure Salt of Tartar in fine pouder twenty ounces, small Sand, Flints, Pebbles, or Crystals in fine pouder five ounces, mix them; put as much of this as will fill an Egg-shell into a Crucible, set it in a Furnace, and make it red-hot, and presently there will come over a thick and white Spirit; take out the Crucible whilst it is hot, and that which is in it, like transparent glass, keep from the Air; after beat it to pouder, and lay it in a moist place, and it will dissolve into a thick, fat Oyl, which is the Oyl of Flints, Sand, Pebbles or Crystals. *This Oyl precipitateth Metals, and makes the Calx there more heavy than Oyl of Tartar doth; it is of a Golden Nature, and extracts, Colours from all Minerals; it is fixed in all fires, maketh fine Crystals, and Borax, and maturateth imperfect Metals into Gold.*

XXIV. *To melt Metals quickly.*

Take a Crucible, and make in it a lay or course of the pouder of any Metal, then lay upon it a lay of Sulphur, Salt-peter, and Saw-dust, of each alike mixed together, put a coal of fire to it, and the Metal will immediately be in a mass.

XXV. He that shall observe the work and reason of the Silver, Golden and Steel Trees, may in like manner produce the like out of the Calx of other Metals.

XXVI. *To whiten Silver*, &c.

Silver Vessels or Instruments boiled with Salt, Alum, and Tartar, gives them that whiteness and clearness, which they would scarcely be brought to by Brushing, Pumice-stone, or Putty: old sullied pieces may be brought in a trice to the like fairness, by the help of warm *Aqua-fortis*.

XXVII. *To Blanch* Venus.

Take *Arsenick* eight ounces: *Sal-nitre*, white Tartar, of each two ounces, Borax one ounce: being in fine pouder, Cement *Venus* therewith, by laying thin plates, lay upon lay, after 48 hours, of a Cementing heat (the Crucible being strong, well stopt, or covered and luted strongly)

ſtrongly) encreaſe the fire, and cauſe it to melt all down together.

XXVIII. *Another way to do the ſame.*

Sublime raſped or granulated *Jupiter* with Nitre into flowers, of which take one ounce: *Mercury* ſublimate as much; diſſolve each in *Aqua fortis*: mix the ſolutions, and evaporate, or draw off to dryneſs. One ounce of this pouder will blanch four or five ounces of *Venus*, without ever Tarniſhing.

XXIX. *Another way to do the ſame.*

1. Take White Wine Vinegar, ſtrong Lye made of Wood Aſhes, ſo ſtrong as to bear an Egg, of each four pounds: Sulphur, Hogs-blood, of each one pound: pouder the Sulphur, mix altogether, and digeſt in an Earthen pot cloſe covered for eight days, then ſtrain it. 2. Take *Venus* eight pounds: melt it and quench it in the aforeſaid Lye: melt it again, and quench again; this do for four times, ſo will the *Venus* be in meaſure prepared. 3. Take white *Arſenick*, Sheeps-ſuet tried, of each a pound: white Lead four ounces: boil all together in a Kettle, continually ſtirring them, till they boil to a pouder, which keep for uſe. 4. Take the afore prepared *Venus*, melt it now a fifth time, to which put of your prepared pouder of *Arſenick*, a little and a little at a time, by degrees, (the *Venus* being firſt melted) ſtirring it with a wooden ſtick, till it is diſſolved in the Metal, then caſt it into a cloſe Ingot. The former pouder will ſerve for eight pounds of *Venus*.

XXX. *Another way to do the ſame.*

1. Take *Arſenick* ſublimed two ounces: common Salt two ounces: ſublime them together three times, then is it fixed. 2. Take fine *Luna* in Filings or Leaves, half an ounce: *Mercury* ſublimate a ſufficient quantity, grind well upon a Marble ſtone; to which add the former prepared *Arſenick*, with ſome fixed *Sal Armoniack*. 3. Grind them well together with Wine Vinegar diſtilled, in which ſome Borax has been diſſolved, then let them dry: being dryed wet them again, with the ſaid Vinegar, and dry again upon a ſoft fire: do ſo five times. 4. Take fine *Luna* one ounce: and as much of the aforeſaid Medicine, *Venus* prepared eight ounces: mix and melt them together: it will be in appearance next to perfect.

XXXI. *To fix* Sal Armoniack *for this Work.*

1. Take *Sal Armoniack* ſublimed to a perfect whiteneſs, put it into a Glaſs Alembick with Head and Receiver, caſting upon the *Sal Armoniack* ſome good diſtilled Vinegar, to overtop it a hand breadth, diſtil upon a ſoft fire. 2. Then put upon it more freſh Vinegar, and diſtil again: this repeat, till the *Sal Armoniack* remains in the bottom; after which let the fire go out of it ſelf, and keep the Oyl cloſe ſtopt for uſe. 3. If you take *Mercury* two ounces, and make it hot in the fire: then drop on it three drops of this Oyl; the *Mercury* will be congealed into a pure Metal: of this, one part will make ten parts of *Venus*, as fair as Silver: the ten parts of *Venus* being firſt melted, and the *Mercury* one part being caſt upon it.

XXXII. *To fix Arſenick.*

Take a ſtrong Lye of Aſhes and Quick-lime, filter it; in which diſſolve Arſenick: then evaporate the humidity by boiling, and the Arſenick will be prepared and fixt.

XXXIII. *To whiten Copper or Braſs ſuperficially, as white as Silver.*

Take Sal Armoniack, Alum, Nitre, of each alike quantity: put to it a little of the filings of Silver refined, or leaf Silver: mix them well together; and put it into the fire, till it be red-hot in a Crucible, and till it has done ſmoaking. Then moiſten this pouder with ſpittle, and rub your Copper or Braſs therewith, and it will be white.

XXXIV. *To Silver Copper, and Braſs.*

1. Cleanſe the Metal with *Aqua fortis*, by lightly waſhing it therewith, and immediately throwing it into fair water, or by heating it red-hot, and ſcouring it with Salt and Tartar, and fair water, with a ſmall wire bruſh. 2. Diſſolve ſome fine Silver in *Aqua fortis* in a broad bottomed Veſſel of Glaſs, or Glaſed Earth, then over a Chafing-diſh of Coals evaporate away the *Aqua fortis*. 3. On the remaining dry Calx put water five or ſix times its quantity, or as much as will be needful perfectly to diſſolve it; this water with the like heat evaporate: on which put more freſh water and evaporate again; and if need be, the third time; making the fire towards the latter end ſo ſtrong, as to leave the Calx perfectly dry, which

which if your Silver be good, will be of a good white. 4. Take of this Calx, common Salt, Cryſtals of Tartar, of each alike in quantity or bulk, not weight : mix all well ; then put the Metal into fair water, and take of the aforeſaid pouder with your wet fingers, and rub it well on, till you find every little cavity of the Metal ſufficiently ſilvered over. 5. If you would have it richly done, you muſt rub in more of the pouder ; and laſtly, waſh the ſilvered Metal in fair water, and rub it hard with a dry cloth, that it may look ſmooth and bright. 6. This, though done without Quick-ſilver, may laſt ſome years, and when the Silver begins to wear off, may as eaſily be renewed.

XXXV. *To Gild Iron and Steel.*

1. You muſt make your Iron or Steel have the colour of Braſs thus: poliſh the Iron or Steel, then rub it with *Aqua fortis*, in which filings of Braſs have been diſſolved: the ſame underſtand of Silver. 2. An *Amalgama* of Gold and Mercury with which Gilders gild Silver, Braſs and Copper, will not gild Iron or Steel : but thus it may be done ; Coat the Iron or Steel with Copper by diſſolving very good Vitriol of Copper in warm water, till the Liquor be ſatiated with the Vitriol ; then Immerſe ſeveral times in the ſolution the Iron or Steel, firſt ſcoured till it be bright, and ſuffering it to dry each time of its ſelf ; for by this immerſion, being repeated often enough, there will precipitate upon the Iron, enough of the cuperous particles to fill the ſuperficial pores of the Iron. 3. By this ſafe and eaſie way, having overlaid the Iron with Copper, you may gild it as Copper, either by the aforeſaid *Amalgama*, or by the former Section of this Chapter.

XXXVI. *To prove the goodneſs of Sublimate.*

1. Caſt it on the Coals, and if it is good, it will burn with a Blue flame ; but if it make any other colour, it is naught, and has Arſenick in it. 2. *Or thus.* Take the Sublimate, and drop thereon a few drops of *Oleum Tartari per deliquium* : if it turns the Sublimate of a deep, Yellow, Reddiſh, or Orange-tawney, it is good ; but if not, or it be Black, there is Arſenick in it.

XXXVII. *Another way to fix Sal Armoniack.*

Grind it very well, put it in a Coffin of Paper, which put in a pot full of Quick-lime in fine pouder, that the

paper may be in the midſt of the Lime: then cover the pot well, and lute it cloſe, and put it in a Potters furnace, and it will be fixed.

XXXVIII. *To make an Oyl which gives the Colour of Gold.*

Make a ſtrong Lye with Lime and Tartar calcined with Alcali: in it diſſolve Sulphur in pouder, and Saffron of *Mars*; then put it into the fire, and make it boil till it waxes red: after put all into a Glaſs Bottle or Alembick, with a Receiver: diſtil and take the water; this water cohobate twelve times, or until you ſee a whiteneſs go forth of the Alembick. The ſign being come, all that which remains in the bottom, is a fixt Oil, that which does give the true Colour of Gold, to whatſoever is put into it, and is an excellent Secret in other Chymical Works.

XXXIX. *An Oil of Gold.*

1. Take Sulphur Vive, Nitre, of each a like quantity; diſtil, and it will be white and fixed. 2. After the flame ſublime this fixed Sulphur three times with equal weight of Sal Armoniack, which reſolve again *per deliquium*. 3. Take a ſufficient quantity of this diſſolved Liquor, and caſt it upon a Golden Duckate in flux, and it will become an Oil. 4. This Oil becoming cold will congeal, and one part thereof Tranſmutes fifty Parts of Mercury.

XL. *To make living Silver or Gold.*

1. Take of the Red Lyon (*i. e.* Red native Cinnabar) twelve parts, pulveriſe it well: then grind it with one part of Calx of fine Silver, or purified Gold. 2. Put all into a ſmall bolt-head, ſet it in warm Sand to the neck; luting the neck of the Glaſs very well. 3. Give the firſt degree of fire for a Week: the next Week, the ſecond degree: then the third degree: and the fourth degree, the fourth and laſt Week, to a hiſſing degree; that is, if you let a drop of water fall upon the Sand, it will hiſs. 4. Then let the fire go out, and cut the Glaſs with a Ring: take the Cryſtalline matter, (like a Ring near the neck of the Glaſs) pulveriſe and grind it with its weight of the Calx of Sol or Luna aforeſaid. 5. Paſs the aforementioned four degrees in eight hours to a hiſſing; open the Glaſs as before, and take the ſtarry Crown, which is the living Silver, which augment by digeſtion, with

with a twelfth part of Luna or Sol at a time, as often as you please, or till you have a sufficient quantity of living Luna or Sol. 6. Take a small quantity of this living Sol or Luna, and digest it in Ashes, until it changes towards a white or red Earth. 7. Then take this white or red Earth, which Amalgama, with living Silver and Calx: digest again in a Glass Hermetically sealed, till it come to perfect whiteness or redness.

XLI. *To whiten Copper or Iron.*

Take Calx of Silver, grind it with two parts of Calcined precipitate Arsenick, and one part of white precipitate Mercury, imbibe them with water made of Sal-Nitre, Sal-Armoniack and Litharge, of each equal parts; do this, till they have drunk up their weight of the water: put one part hereof on four parts of prepared Copper, or Iron.

XLII. *Another way to do the same.*

Take calcined Silver, Tin calcined and dissolved, of each a like quantity: mix, dry, and cover it with twice as much sublimed Arsenick.

XLIII. *Another way to do the same.*

Take calcined Silver, Arsenick, Sulphur sublimed and ground, Sal-Armoniack, of each a like quantity: mix, and sublime all thrice; cast one part upon six parts of prepared Iron or Copper.

XLIV. *A good Dealbation of Venus.*

Take Realgar one ounce: Argent Vive sublimed three ounces and a half: Tartar calcined an ounce: grind and incorporate, and put them into a Vial with a Neck twelve Inches long, and its Orifice so wide as two fingers may enter: lute it, and set it over a fire covered with a cloth. First make a gentle fire for a quarter of an hour; afterwards augment the fire underneath, and round about, till the Furnace be very hot and red: When all is cold, break the Vessel, and take out the Metalline matter. This may easily be brought to perfection.

XLV. *Another for the same purpose.*

Upon Tutia sublime one part of Mercury sublimate and two parts of Arsenick sublimed, until it shall have ingress. This clearly and very speciously whitens Venus.

XLVI. *Ano-*

XLVI. *Another for the same.*

Imbibe three parts of Mercury sublimed, and two parts of Arsenick sublimed with three parts Litharge dissolved: to these eight add other eight parts of Arsenick sublimed: grind them together, and flux them with Oil of Tartar, so may you (with it) whiten prepared Venus at pleasure.

XLVII. *Another for the same.*

Grind Metalline Arsenick with as much Calx of Luna, and imbibe the mixture with water of Sal-Armoniack; dry and grind: afterwards dissolve Salt of Tartar in water of Salt-petre; with which Oil imbibe the Medicine, and dry it. Repeat this thrice, incerating and drying. This is an admirable thing.

XLVIII. *Another for the same.*

Imbibe Jupiter calcined, washed and dryed, so often with Metalline Arsenick, with half as much sublimed Mercury, till it flows and enters Venus; for it whitens the same (if first prepared) gloriously.

XLIX. *Another for the same.*

Upon Tutia, one part sublimed, dissolved, and coagulated, sublime white Arsenick three parts; reiterate the sublimation upon it four times, that it may have ingress. With them adjoin half as much (as the whole is) of sublimate Mercury, grinding and incerating four times with water of Sal-Armoniack, Nitre and Tartar, of each alike. With this when Coagulated, Cement prepared plates of Venus, and melt, and you will have a very beautiful Metal.

L. *Another for the same purpose.*

Grind Venus calcined and incerated, to which add Arsenick sublimed, and half a part of Mercury sublimed; with which being well ground and mixed, add a little water of Sal-Armoniack, and incerating upon a Marble: dry and sublime; revert the sublimate upon the fœces, again imbibing; do so three times: the fourth time imbibe with the water of Nitre, and sublime what can be sublimed: reiterate this work, till it remains fluid in the bottom. This upon Copper will make a glorious whiteness.

CHAP.

CHAP. X.

Of the secret Hermetick Mystery, or great Philosophick Work.

WE cannot be so vain as to pretend to the World that we have attained the knowledge of this great Secret, much less so to be the Master thereof, as to be the instructor of other Men: but this we can say, we have converst with most Authors that have wrote thereof; we have with a great deal of diligence and study compared their Sayings one with another; and we have by a long and continued Exercise and Practice in the Mineral work, found out not only the natures of Metals, and in what degree of purity they stand in one to another; but we have also found out many excellent Secrets, of real worth and Value, by which, although we cannot profess a knowledge of the great work it self, yet we thereby see not only a possibility, but also a probability thereof in nature (to that man whom it shall so far please God to enlighten) and therefore judge we may in some measure the better undertake to discourse the sayings of those Worthies, who having attained this Mystery, thought good in Cloudy and Mysterious terms to publish the same to the World, that none but the truly worthy Sons of Art might be partakers of the same.

In the following lines then, we shall tell you what has been told us, and what we do conceive thereof, by the comparing of the Sayings of the most excellent Men together, such as were Basil, Paracelsus, Lullius, Ripley, Bacon, *and others; and this in so concise a manner, that the Opinions and Judgments of all those Men (though far asunder in words) may center not only in truth it self, but also in the narrow compass of the following Sections; the which that we might so perform, we express our conceptions of their sense in a language consonant thereto.*

I. *The Seed of Gold is lodged in all Metals.*

This is apparent from their generation, whose origination is *Mercury*, which is indeed immaturate Gold; and so remains immaturate in the baser Metals till a ripening Sulphur, and a meliorating Spirit quickens that Seminal

minal property lodged in the Womb of impurity. But where that *Sulphur* and *Spirit* is to be found, has hitherto been kept as a secret among the true Philosophers: If I may beg the pardon of those Sons of Art, I would speak once for all: but since the *Seal* of the *Philosophick Silence* puts a bar to my plainness, I must tell you they are to be found only in the Philosophers *Sol* and *Luna*; which are extracted out of their Earthly Stars, by the sole power of the *Philosophick Mercury*, and the *Spirit* of *Mercury*, as *Basil Valentine* has truly said.

II. *This Seed of Gold may be quickned or made to live.*

This is done through the death of the first matter, and disposition of the second to a resuscitation or resurrection of that innate, energetical, and seminal life, and that only by the power of the *Solar* and *Lunar Sulphur* united, through the dissolving *Philosophick Mercury:* the Infant then seems to be born; and so requires nourishment; and therefore you must feed it with the *Spirit of Mercury*, that it may grow and encrease; but you must give it in just weight and measure, lest you suffocate it, and so destroy the hopeful production.

III. *This Semen being quickned, dilates it self into other Bodies, and transmutes them into its own property.*

That is, just as the Seminal life of Vegetables transmutes or changes that succus or humidity of the Earth, proper to themselves into their own forms and natures; and so of a little Seed there becomes a great Tree: so that as the Earth is the Womb out of which so small a Seed becomes a great Tree, by the transmuting property of the innate Seminal life in the Seed: so all the base Metals are the Womb unto that seminal purity: in which Womb, if the Seed be disposed rightly, there will be as certain a generation and encrease; and the purity of the base Metals will be transmuted into that seminal property to a vast augmentation. But this growth and encrease must be made by the nutriment which is given to it, *viz.* the *Spirit of Mercury*: and this *seminal purity* is the proper Off-spring of *Sol* and *Luna*, produced thro the Power of our *Philosophick Mercury*, without which nothing can be done: for that is it, which makes alive and quickens the Dead Bodies of *Sol* and *Luna*, and revives their latent Spirit, making them to encrease an Hundred thousand fold.

IV. *That*

IV. *That this may be rightly done, the bodies of the base Metals must be opened and prepared.*

That is, they must be brought into a mortification, that that strong band which has hitherto chained the *seminal life*, may be broken, and so the *energetick virtue* may be set at liberty: this is preformed by the *flying Dragon* who devours all that he comes near: this being done, the *semen* must be cast into this mortified Body (impregnated with the spirit of *Mercury*) that it may there generate, transmute and fix. It is manifest then that the transmuting substance is not taken out of the Bodies of the baser Metals, but extracted out of the most pure and perfect; nor can imperfect Bodies be made better by things worse than themselves, but only by things better. And therefore the more imperfect, being opened and prepared according to Art, they are made fit to receive the Vital or Living Seed of the more perfect.

V. *This may be done in any of the base Metals: but they (like the Earth) yield an encrease according to their degrees in purity; so that more of the Body of a pure Metal is transmuted, than of an impure.*

As barren Earth cannot yield so great an increase as a fertil soil; so neither can a base Metal yield so great an augmentation as a more fine. The baser Metals yield an increase according to the quantity of the *Mercury* which they contain, and that is the substance which is transmuted; all the other substances are Heterogenous and prove Dross, which by the fermentative power of our *Solar* and *Lunar Sulphur*, are separated and cast off, (almost resembling that of Yest in Wort:) and as the *Succus* of the Earth yield an encrease, and makes the Seed cast into the Earth to grow; so the *immature Mercury* in the baser Metals feeds our *Solar* and *Lunar Seeds*, and makes them to grow and encrease; which by the *Plastick power* of this *Seed* or *Sulphur*, is transmuted into its own principle, and made to be the finest Gold: but this increase is according to the goodness of the Metal; those which are purest, and contain most *Mercury*, yield the greatest quantity in *Transmutation*.

VI. *The Bodies of the baser Metals being fitted, the Semen must be cast into the same to generate.*

That is, there is to be a Conjunction of the *Semen* or

true

true *Golden Essence*, with the prepared body to be transmuted: now you must be careful you use not the simple body of *Sol* for this *Semen*, for then you will be deceived; the matter in which the Generative Spirit is lodged is another thing: if you bury a whole Tree or Plant in the Earth, that will not generate, and bring forth another Tree, but perish and rot, the seminal or generative vertue and life is clog'd and loaded, and is so ineffective; but if you bury the Seed of the same Tree, you may have another, or more, according to the quantity of Seed sown; the same you must understand in the generation of Metals, and of the Golden work; it is not Gold which will generate Gold, but the Seed of Gold. But how this *Semen* is to be obtained, is also a singular work; for the Body of *Sol* it self must be opened by the help of our *Philosophick Mercury*, which the Philosophers say is a dry water, which will not wet the hands; after which, it must be purified and calcined, and brought to perfection by digestion; and nourished as the Child in the Womb, by the Spirit of the same *Mercury*: And how this *Mercury* is obtained is another thing: It is composed of the highest and most volatile Spirit, extracted from the Juice of the *Mineral Grape*, conjoyned to the most fix'd and permanent principle of the *Vegetable Grape*, whose Essence is the Root, and Original of the Production of all Mineral, Vegetable and Animal Substances.

VII. *This* Semen *must be Volatile.*

Otherwise it cannot *transute*, for nothing but a *Volatile* Spirit or Essence can dilate and spread it self: a *fixed* matter cannot operate at all, for all *fixed* things are dead, and their life remains in a central state, not fit for *coaction*. This is evident in the *Volatile* Salts of *Vinegar* and *Quick-lime*, which surpass the Art of Man to attain simple; but if you mix a *Lixivium* of *Quick-lime* with *Vinegar*, you may have a large quantity of Salt, and that *fixed*, which was before unattainable. Thus you see out of two *Volatile* things, a third absolutely fixed is produced; and this is the condition of this great work.

VIII. *It must be of an unchangeable blood red colour.*

Otherwise it could not tinge; for were it only yellow, it would create only a faintish kind of green: but this our

our Philosophick Tincture generates Gold of the highest and purest nature, and having the deepest yellow. The whole Body of *Sol* it self is *all pure Tincture:* only it is bound up, and fixed with Bolts and Bars, as it were; and this fixt property is that which makes it appear only of a faint yellow: its perfect, intire, and most *sublime Redness* is shut up, so as you cannot see or behold it. But when these Bolts and Bars are broken, and the Doors set open (where this vast Treasure lies) by the invincible power of our *Philosophick Mercury*, and its *sublime Spirit*: Then you may come to see the King in his Triumphs, and behold that never-fading Glory, or *Magisterial Tincture*; which is able to magnifie it self an *hundred thousand fold.*

IX. *This* Semen *is made Volatile by the destruction of its external form.*

That is, nature must be brought to action, that the inactive body may let fall its *Semen*, out of which the Golden Tree of the Philosophers is produced. The body of *Sol* must be broken into Atoms Philosophically, and opened; that is, the fixity of its external body must be removed, which can only be done by the help of our *Philosophick Mercury*, and the *mighty Spirit of the same*, which penetrate into the most inward recesses of its substance, where the highest and richest Treasure is lodged. That therefore being removed which makes it fixed, it then naturally (as it were) becomes *Volatile*; and grows into a Tree of almost an immense magnitude, in which the wonders of Nature are contained.

X. *This* Semen *is made blood-red by impregnating of it with the spirit of* Mercury.

It is necessary that there be a common band to conjoin the bodies, which are to be united: as the bodies of the base Metals, which are the Womb for this Seed, are to be mortified; so must that body be, out of which you extract the *Semen:* and as that mortified and prepared body is to be impregnated with the *Spirit of Mercury*, so must this *Semen*, that there may be as well a sympathy and likeness in Nature, as an unity in Body. But it is to be noted that the *Spirit of Mercury* does not give the great Redness to this *Solar Sulphur*: No, that is a Radical Quality innate in *Sol* himself: all that this mighty Spirit does, is the turning the inside outwards,

that

that the internal Quality and Principle may be made obvious to the Eye, and so upon occasion, be brought in to Act, which otherwise would lye Dead and Dormant for ever.

XI. *The matter out of which this* Semen *is to be extracted is purely* Sol.

We mean simply, and without Metaphor, Gold; for if there be an innate life, power and virtue, in the base Metals, why not in this? If Mercury, Lead, Iron, Copper and Silver, contain the Seminal life of Gold, why should Gold be excluded, which is the thing it self? These Metals do each of them contain a small quantity of *Mercury*, but it is immature; but they are all wanting in the *Solar Sulphur*, having a *Sulphur* of their own, which is corrupting, and can by no Art whatsoever be transmuted into a *Solar* Nature, each being in their Root of a differing *Species*. And of them all *Luna* contains the greatest quantity of *Mercury*, which is very pure, and brought by Nature nearly to perfection, *viz.* to *Fixity*: it only wants its pores to be repleat or filled up with a *Solar Sulphur*, for by that alone, the compleat *Weight*, absolute *Fixity*, and perfect *Tincture* would be given to it, whereby it would be brought into the *Solar Stock*, unalterable in Nature and Quality for ever.

XII. *The* Semen *being cast into the body prepared for it, is there to be digested, till both be perfectly united, whose simple conjunction is the product of the Golden Kingdom.*

This digestion is perfected only by the force of an external fire, conjoined with the inward Seminal life. This is *Projection*, which is indeed by the force of a Culinary fire; but it is to be regulated according to the proper degrees of Nature: when this *Royal Tincture* is put upon any base or inferiour Metal, *It melts like Butter, spreads over the Surface thereof, sinks into it, fills its pores, contracts its* Mercury *into one globular body, as it were, and tinges it throughly*; whereby all its *scoria*, filth, impurities, and defilements are separated, the pure *Solar Regulus* falling intirely to the bottom.

XIII. *The last thing to be considered is the multiplication of your Tincture; for if that is wanting, your quantity would be wasted, and so your work would come to an end: this is performed by addition of more of the pure* Solar *Body, to the already perfected Tincture.*

For

For the true transmuting Property is in the *Tincture*, and *Sol* it self stands in need of this *Transmutation*; because the Matter which transmutes, must be an hundred thousand times finer, more pure, and more exalted than the most fine Gold; for if it was not much higher and finer than Gold, it could never transmute other Metals into Gold, but only be as Gold, and be able to do no more than Gold can; and so, by mixtion with other inferiour Metals, would it self become much worse than it was before, according to the quantity of the Alloy which is mixed with it, and would only make a base Mixture, not a Transmutation. Therefore, that you may *multiply* your *Tincture*, you must add to it ten parts of pure fine *Sol*, and nourish it with the *Spiritus Mercurij*, in proportion to what it can receive, digesting in a gentle Fire, till such time as you see the signs of perfection appear; and by this means you may continue and augment your Tincture, *ad infinitum*, even for ever.

CHAP. XI.

A Process of the said Grand Elixir, *from an Old* Hermit.

I. TAke *Mineral Quick-silver* iij. pound, *viz.* made neither of *Lead* nor *Tin*, and cause an Earthen Pot to be made, well burn'd the first time, glaze it all over, except the bottom, the which anoint with *Hogs Lard*, and it will not glaze.

II. This is done, that the Earth of the *Quick-silver* may sink into the bottom of the Pot, which it would not do being glaz'd, nor become Earth again: This Pot must be made a good foot long, of the fashion of an Urinal, with a Pipe in the midst of it.

III. The Furnace must be made on purpose, that the Pot may go in close to the sides of the Mouth of the Furnace. Set on the Pot a good great Cap or Head, with its Receiver, without luting of it.

IV. Give it a good Fire of Coals, till the Pot is all on fire and very red; then take the Fire out quickly,

and put in the *Quick-silver* at the Pipe, and, with as much haste as you can, stop it close with Lute.

V. Then will the *Quick-silver*, by the heat and force it finds, both break and work; a part thereof you shall see in the Water, as it were a few drops; and a part will stick to the bottom of the Pot in black Earth, and so let the Pot cool within the Furnace, as it is; then open it, and you shall find the *Quick-silver* in it all black, which you must take out and wash very clean, and the Pot also.

VI. As for the Water which does distil out of it, put it aside, or cast it away; for it is nothing worth, because it is all Flegm. Set the Pot into the Furnace again, and make it red-hot; put in the *Quick-silver*, lute well the Pipe, and do as you did the first time; and do this so often, until the *Mercury* becomes no more black, which will be in ten or eleven times.

VII. Then take it out, and you shall find the *Mercury* to be without Flegm, but joined with Earth, of which two Qualities it must be freed, being Enemies to Nature: Thus the *Quick-silver* will remain pure, in colour Celestial, like to Azure, which you may know by this sign, *viz.* Take a piece of *Iron*, heat it hot, and quench it in this *Mercury*, and it will become soft and white like *Luna*.

VIII. Then put the *Mercury* into a Retort of Glass, between two Cups, so that it touches neither bottom nor sides of the Cups, and make a good Fire under it, and lay Embers on the top, the better to keep the heat of the Fire; and in 40 hours the *Mercury* will distil into a slimy Water, hanging together, that it will neither wet your Hands, nor any kind of thing but Metal only.

IX. This is the true *Aqua Vitæ* of the Philosophers; the true Spirit so many have sought for; and which has been desired of all Wise Men, which is called the *Essence*, *Quinteſſence*, *Powers*, *Spirit*, *Substance*, *Water* and *Mixture* of *Mercury*, and by many other the like Names, without strange things, and without offence to any Man.

X. Save well this precious Liquor or Water, obscured by all Philosophers, for without it you can do no good or perfect Work; let all other things go, and keep this only; for any one that sees this Water, if he has any

Practice

Practice and Knowledge, will hold to it, for it is precious and worth a Treasure.

XI. Now resteth to make the *Soul*, which is the perfection of the *Red*, without which you can make neither *Sol* nor *Luna*, which shall be pure and perfect: With this *Spirit* you may make things apparent and fair; yea, most true and perfect: All Philosophers affirm, that the *Soul* is the Substance, which sustaineth and preserves the *Body*, making it perfect as long as it is in it.

XII. Our *Body* then must have a *Soul*, otherwise it would neither move nor work; for which reason you must consider and understand, that all *Metals* are compounded of *Mercury* and *Sulphur*, Matter and Form: *Mercury* is the Matter, and *Sulphur* is the Form. According to the pureness of *Mercury* and *Sulphur*, such is the Influence they assume.

XIII. Thus *Sol* is ingendred of most pure fine *Mercury*, and a pure red *Sulphur*, by the Influence of the Sun; and *Luna* is made of a pure fine *Mercury*, and a pure white *Sulphur*, by the Influence of the Moon.

XIV. Hence it is that *Luna* is more pure than the other Metals, which have need of cleansing; being cleansed, they need but only the pure *Sulphur*, with the help of *Sol* and *Luna*. *Sulphur* is the Form of *Sol* and *Luna*, and the other Metals; their other parts are gross Matters of *Sulphur* and *Mercury*.

XV. Husband-men know many times more than we do: They, when they Reap their Corn growing on the Earth, they gather it with the Straw and Ears. The Straw and Ears are the Matter, but the Corn or Grain is the Form or Soul.

XVI. But when they Sow their Corn, then they Sow not the Matter, which is the Straw and Chaff, but the Soul or Form, which is the Corn. So, if we will Reap *Sol* or *Luna*, we must use their Form or Soul, and not the Matter.

XVII. The Form or Soul is made by God's help, after this manner. You must make a good Sublimate, that is seven times sublimed; the last time of the seven you must sublime it with *Cinnabar* without *Vitriol*, and it will be a certain *Quintessence* of the *Sulphur* of that *Antimony*.

XVIII. When this is done, take of the finest *Sol* j. ounce, or of the finest *Luna* as much; file it very fine; or else take leaf Gold or Silver; then take of the aforesaid Sublimate iiij. ounces; sublime them together for the space of sixteen hours; then let it cool again, and mix them all together, and sublime again; do this four times.

XIX. And the fourth time it will have a certain Rundle, like unto the Matter of the white Rose, transparent and most clear as any orient Pearl, weighing about v. ounces. The Sublimate will stick to the brims and sides of the Vessel; and in the bottom it will be like good black Pitch, which is the Corruption of *Sol* and *Luna*.

XX. Take the Rundle aforesaid, and dissolve it in most strong distilled Vinegar (*i. e.* Spirit) two or three times, by putting it into an Urinal, and setting it in *B. M.* for the space of three days, every time pouring it into new Vinegar, (*i. e.* Spirit) as at the first, till it be quite dissolved; then distil it by a Filter, and save that which remains in the Pot, for it is good to whiten Brass.

XXI. That which passed the Filter with the Vinegar, set upon hot Ashes, and evaporate the Moisture and Spirit of Vinegar with a soft Fire, and set it in the Sun, and it will become most white, like unto white Starch; or red, if you work with *Sol*, which is the *Form*, *Soul* or *Sulphur* of *Luna* and *Sol*, and will weigh a quarter of an ounce, rather more than less; save that well.

XXII. Take in the name of God, an Urinal half a foot high; and take of the firm Body v. ounces; of the *Soul* or *Sulphur* of *Sol* or *Luna*, a quarter of an ounce; and of the Spirit iv. ounces; put all of them into the Urinal, and put on its Head or Cover, with a Receiver well closed or luted.

XXIII. Distil the Water from it with a most soft Fire, and there will come off the first time almost iij. ounces: Put the Water on again, without moving the Urinal, and distil it again, until no more Liquor will distil; which do six or seven times, and then every thing will be firm. Then set the same Urinal in Horse-dung seven days, and by the virtue and subtlety of the heat, it will be converted into Water.

XXIV. Distil

XXIV. Distil or filter this Water with stripes or shreds of Woollen Cloth; a gross part will remain in the bottom, which is nothing worth; all that which is passed through the Filter congeal, which will be about iv. or v. ounces; and save it. When you have congealed it three times, melt x. ounces of most fine *Sol* or *Luna*, and when it is red hot, put upon it iv. ounces (some say xiij. ounces) of this Medicine, and it will be all true and good Medicine.

XXV. Likewise melt *Borax* and *Wax*, *ana j.* ounce, to which put of the former Medicine *j.* ounce; put all these upon *Mercury*, or any other Metal, iij. pound, and it will be most fine *Sol* or *Luna*, to all Judgments and Assays. Thus have I ended this Process, in which, if you have any Practice or Judgment, and know how to follow the Work, you may finish or compleat it in forty days.

This Process is under a Vail, yet there is indeed much to be learnt out of it.

CHAP. XII.

Of the Qualities of the Philosophers Stone.

I. OF what Qualities the Philosophers Stone consists, I hold it necessary to make a short and true Information, though one or more may know it already; however, the Consequence is this: If this thing be rightly and plainly understood, then one finds himself near the Scope, and can easily judge, whether the Matter handled, and the imagined Subject contain all the necessary Requisites, you will not then go to work after an unskilful manner, and commit it to Success.

II. He that hath not the following Properties together in one Mass or Centre, or only guesseth that they are there, is truly far from the mark, and Shooteth at the white, which he doth not see, and will have the less hope of it.

III. Therefore let none dream, that he hath accomplished the Art, or that he can compass the Stone in a

short time, or any particular, whilst yet he doth not know, what Qualities or Properties the Stone or the particular Tincture must have; if he knoweth neither the beginning nor middle, how can the end then be known to him?

IV. Those could best testify of it, who have seen a Tincture with their Eyes, and have felt it with their Hands; and do know that this noble Pearl is not a vain and foolish work, as many ignorant Persons suppose.

V. It is such a work, which transmuteth really all inferior Metals into pure or fine Gold, or Silver, it suddenly penetrates all the parts of Mans Body, and restoreth the defects of Nature, and brings Health again, in such manner, that Man may rather be amazed at, than only admire it.

VI. And hereby it is manifestly seen in the transmutation of Metals, how *the Tincture is a transcendent fixed substance*, which can far less be destroyed by any Element, than Gold, but the Tincture in it self is the transcendently perfect Essence of Gold; nor is there any thing comparable to this precious Jewel, in respect of the ingress into other Metals.

VII. And though many fluid things are in Vegetables, as Wax and Oyl; in the Minerals, *Sal Tartari*, *Sal Elebror*, *Mercurius Sublimatus*; in the Metalline Bodies, Tinn, Lead, Wismuth, Antimonia, Zinick, and the like; yet all these are not comparable to this not in the least degree.

VIII. A likeness, simile, or example, may be given thus: if you melt one pound of Lead, and put into it one dram of Gold or Silver, the Lead receiveth that Body so, that afterward in the least quantity of that Lead, this dram of Gold or Silver can be found estimated in the proof.

IX. Now if this can be done so suddenly and easily in a mean or base Metal, what wonder is it, if the eternally fixt and fluid Medicine should do the like? On the other side, let Men open their Eyes, and see, whither the Salts, Tartar and Mercury, or the mentioned Minerals, penetrate so, and mingle with the Bodys radically.

X. Though all the requisites be in this Tincture, yet if it wanted only the ingress, then surely all hopes would be lost: Therefore those deal foolishly, which intend to

coagulate

coagulate the Spirit of Vitriol, Terræ, *&c.* with all sorts of Salts to a fixt Mass.

XI. And though a fixation should appear to them, yet it would not be equal to one atome, in comparison of our Salamander, and they will still want the most necessary thing, namely the ingress.

XII. Though other things, as Wax and Butter, be fluid, yet their fluidness is not comparable with the fluidness of Metals, the one mingleth not with the other, but swims on the top, burns away, evaporateth, and turneth to nothing.

XIII. If none could meet with such Directions or Instructions in the Writings and Books of the truly Learned in this Art, out of what Kingdom the true and only Medicine should be made, or taken, yet he may perceive it out of this Discourse: but the Books of all Philosophers are full and clear to the single Eye, which inform, that like must be associated or joyned unto its like.

XIV. Again, this noble Pearl must have a saltish penetrating nature, and be endued with all the strengths of the four Elements.

XV. If it shall dissolve in any Liquor, and in a moment divide it self in the Human Body into all the Arteries and Blood, then it must not be likened unto any thing in the World, but only unto Salt or Sugar.

XVI. Our *Subjectum* must be colder than Ice, and yet hotter than Fire, because it must temper the extream hot Bodys of *Mars* and *Venus*, and transmute them into the most like proportioned substance of Gold: and again, it must heat the most cold Bodys of Lead and of Silver, so as that they may never return to their former state again.

XVII. Now, though this may seem incredible to most, that in one only substance all the qualities of the Elements should meet together, and be joyned together in one tye or covenant: yet it is not strange to those, who see how their matter or substance containeth all things: and how it is a Water and yet no Water, *how the Earth swimmeth on the Water*, how the Earth is Water and no Water.

XVIII. And also, how the Air is our Massa, and how our Earth is a meer Fire, according to *Hermes* his saying,

when he ſaith, the Wind or the Air doth carry it in its Belly.

XIX. Laſtly, in this our moſt noble Bird or *Phœnix*, there are all the Heavenly and Earthly Vertues or Strengths, becauſe it is generated out of the moſt Volatile and the moſt fixed ſubſtance.

XX. Heaven is the Father, and the Earth is the Mother, which are revealed, when Heaven joyneth with the Earth, and our Solar and Lunar Child is Born.

XXI. But many will ſay to this, as unlikely as Heaven can be brought to the Earth, ſo unlikely is this Philoſophers Stone to be had: As the one is impoſſible, ſo is the other a Deceit and Lye.

XXII. But to anſwer this in ſhort: we have no need of the viſible Heaven and Earth, but of their Powers. For as the Moon worketh on Man, Beaſts and Vegetables, by her Power, and is not preſent or near them: ſo is it here alſo.

XXIII. The Moſt High hath repleniſhed our Heaven with all Heavenly Powers, and our Earth with all Earthly Powers, ſo that no more need be ſaid hereof. Yet we ſhall ſpeak further of this matter in the proſecution of our Diſcourſe: though now we let it reſt, ſhewing by this little in few words, the Properties of the true Philoſophick Stone of the Ancients.

XXIV. Others ſee whither their Operations be uniform or no, and whither their Principles be ſo too; that they be not impure or unſerviceable to the work they deſign them for, which requires the higheſt homogenity and fixity.

XXV. He that taketh exact heed to himſelf here, and pondereth all well which we ſhall Diſcourſe, he may judge firmly and truly of any Proceſs which he hears, whether it be true or not, and whether the deſired and hoped for end may be obtained or no.

CHAP. XIII.

CHAP. XIII.

Of the matter of the Philosophers Stone.

I. SEcondly, what is the matter of the Stone? Here you may remember, what innumerable opinions there are concerning this one point. Some think becauſe this Medicine is Univerſal, therefore it is and it muſt be found every where, and can be made out of every thing, elſe the name cannot be proper for it.

II. Another defends the contrary: This they do becauſe they have not the knowledge of the matter, and this is one of the greateſt Errors: For if Men fail or err in this point, then ſurely they err in all the reſt.

III. It is remarkable, and I teſtify it upon my Conſcience, as often as I have diſcourſed with ſeveral Men, tho' profoundly Learned, yet I heard them talk of this point variouſly and the clean contrary way, and I could never perceive of any, that they were within the pale of Truth.

IV. Every one imagined to himſelf a matter, which he defended afterward in the beſt manner; at laſt I heard ſo much, eſpecially of the moſt skilful in this noble work, that nothing can be reported from their Opinions: much leſs, becauſe it is Univerſal, they thought no one thing could be preferred before the other.

V. Here lyeth the cauſe of the great difficulty in attaining unto this high Secret, as alſo by reaſon of Mans unthankfulneſs and evil concupiſcence, the one confounding the other, as it was at the Building of the Tower of *Babel*, where the one hindreth the purpoſe and intention of the other; ſo that the Myſteries of this Science cannot be revealed unto them.

VI. Greatly was this point darkned, but may eaſily be reſolved, yet hardly believed: the moſt are of opinion, he that nameth the matter by name, in this work, is the greateſt Seducer; yet *Theophraſtes* and others did not ſtick to nominate the Matter or Subject to be the Minera Solis, Lunæ et Saturni.

VII. Though

VII. Though they used herein no ambiguitie, yet so many judgments were given upon their Writings, that all believed, that *Theophrastus* and *Basilius* had never the true Universal Tincture.

VIII. But such Calumniators were never in the Philosophical School, nor understand any thing of their Mysterious Writings, which is the reason why they cannot imagine how the one is three, three five, and five one; or how two are four, and four are two.

IX. Nor will they grant that this *Secretum* is the work of Women, and Childrens Play; nor that the Poor may attain unto it as well as the Rich.

X. It would be prejudicial to their deep Intellect, if a poor simple Creature should indeed shew the work done with the Hand, before them; whereas they think not that God distributeth his Gifts wonderfully, even as it pleases him.

XI. In brief, he that will undertake to open the Gate of Mysteries, with the naked Intellect, without the illumination of Gods Holy Spirit, and without an industrious, careful working, will absolutely miss of his end.

XII. And here all Understanding and Reason is defective, and there is none but must stand amazed, that God should have shut up, lockt in, and hid so deep, this most noble Jewel next to the Soul, and that in so mean a Subject, disesteemed by all Men.

XIII. Therefore avoid or meddle not with any Vegetables, nor yet with Minerals, so may you find that to be true, which *Theophrastus* said, that there is found in many places in *Europe*, one Mineral in the Bowels of the Earth, which in the outside is marked with the figure of the *Macrocosme*, and is in the beginning *Astrum Sphera Solis*, or *the Tree of Gold*, or *its Root*; which breaketh or groweth nigh unto the Gold Oar.

XIV. This carrieth its Seed in abundance about it, and is *Saturnine*, because it cometh from the Heart of *Saturn*, and may well be called *Senex*, which the most Ancient and most Judicious Philosophers, call the Father of *Saturn*; and have marked it with the greatest and most wonderful Sign, *viz.*

XV. They gave it a round circle, which containeth all things, and a direct upright line, and a Diameter coming out of the Center, and then with a Cross, which sheweth

sheweth very Great and Mysterious things, as it is seen in this annexed Figure. ☿

XVI. The Greatest Potentates and Monarchs have used this Sign, as a means of their Felicity and Dominion. For this cause, *Theophrastus* calls it *Signum Majoris Mundi*, and *Basilius* calls it *the round Ball of the Goddess Fortune*, in which Gold, Life, and the Resurrection dwelleth, bringing the Salvation of Truth to the Man of God, and is indeed all in all; the which every Philosopher may take into further consideration.

XVII. But I testify, that this Sign is at once, the Magistery, beginning, middle and end of the whole Work: and through it, is it discovered and published; and it is that in which all, what Men seek for, and desire to know, is typified and contained.

XVIII. Now lest any be yet scrupulous, that I keep Men still in darkness, and my declaration is not sufficient; and that seeing the work is Universal, there are of necessity more parts belonging to it: for this cause, I direct both the one and the other to Philosophers and their Sayings.

XIX. And chiefly to *Flamellus*, who holds the Subject to be not only one matter, but sheweth also, what may be drawn from it, when he saith: *Unum habetur in hoc Mundo Metallum, in quo Mercurius noster seu æqua hæc nostra abunde reperitur.* Tabul. paradisi. Know ye, that there is but one thing in all the World, out of which our Art is made.

XX. *Sendivogius, in Tract. de tribus Principiis:* There is but one matter in the whole World, through which, and out of which, the Philosophers Stone can be made.

XXI. Though he nominateth two things, as *Sulphur* and *Mercury*, yet know, that two things may be but one, as when I say, Spirit and Body is but one, it is rightly said; for the Body was a Spirit at first, and by the *Archeus* was coagulated into a Body.

XXII. Therefore Philosophers desire but one matter of one Substance, when they say, our Body and our Spirit, our Father and our Mother.

XXIII. And as Husband and Wife are one Body, one Flesh and Blood, and from one Seed, yet unlike to the Eye and Generation, and yet are but one; so is the Spirit

rit and the Body one, though they be not like one to another in the outside.

XXIV. Hence it follows, that the first beginning of this magistery, is of one being, out of two Substances, of a fix and unfix; that the one is the Seed, and the other is the Womb, the one is the red fixed Man, and the other the white Woman; the one is the Mercury, the other is the Sulphur.

XXV. And to make it clearer, under the Name of the Flying Eagle; all that must be understood, which Philosophers have called their *Aqua Sicca*, *Mercurie*, *Fume*, *Acetum Acerrimum*, *Aqua Mercurialis*, *Spiritus Mercurii*, *Mare siccum*, *Avis Hermetis*, &c. thereby to deceive the Ignorants.

XXVI. But to inform the Understanding, this Volatile Spirit is of a noble quality, all in all, and deserves to be called *Spiritus Universalis Mundi*; but among the Fix, there remained only the name of *Corpus Solis*, because it is adorned with the most equal proportion of all the Elemental Powers and the strongest Strength, and containeth perfectly as in a Center, the property of all things.

CHAP. XIV.

A continuation of the former Discourse.

I. OF this one Body many things may be said, because it presenteth it self also, so that one, (unless he be senseless and stupid) must admire it as a noble and principal Agent, and a great work of God.

II. Besides the *Corpus Solis*, it is endued with such fixity, that it is only for it self firm, and keeps so; and it is known by experience, it cannot communicate the least of its fixedness to its Brethren.

III. Besides it is known, what those have effected, which divulged so many Descriptions how the *Aurum Potabile* should be made; and to say nothing, how that Philosophers have quite rejected common Gold. My intention is this, to make known, first, what kind of Gold

is

is meant, and afterward to distinguish, what the Gold is in it self and its Matrix, then the said Questions will easily be answered, and a new regeneration be granted.

IV. I have spoken afore of two Substances in one being in one only matter, and imparted the same faithfully, the one I called *Saturnine*, or after our Language, *Lead Oar*, *Lead Glass*, *Minera Philosophica Saturni*, or *magnesia Plumbea*.

V. The one is as the other, yet the one is more nigh, more excellent, then the other, very subtil, penetrating, fluid, volatile, poysonous, metallin, animal, mineral and vegetable, the principle of all things; out of which are generated Gold and every Metal.

VI. It is a Fume, and a Medicament of all Medicaments, like Sealing Wax, whatever you print it upon, you may have that print again.

VII. This is the true Principle of the one *Mercurius Catholicus Mineralis*, and *Genitor* of *Sol*, and the Mother or Womb of the Gold in the strength unremoved, on which Nature wrought little, because the little Grain of the Fix'd is yet very small in it.

VIII. This is the *Minera*, which is esteemed for the highest and greatest Secret, because it hath the qualities of all things, and can be turned into Water, Fire, Air and Earth; yea, the Essences of all Elements are together in it.

IX. But as the Seed of Gold is so high and great, so is the Matrix much higher; for without that the Gold could not be regenerated, renewed, opened and shut again; and made perfect after a transcendent way, as *Basilius* attesteth, *viz.*

X. That it is impossible to make Gold without this Potable Spirit, much less can be prepared the Sulphur of *Sol* with any Corrosive: for this Water excels in its strength, as well the great Ocean, because the Essence of the Water is in it, as also the Fire, in which is the greatest and strongest Fire, and is fitly enough compared with *Cerberus*.

XI. He saith further, that this Spirit is a supernatural, volatile Fire, Spirit; for which cause, it was called the Sulphureous living Water, which must exalt the Body of *Sol* into a Medicine, so as to get a transcendent power for to tinge his Fellows.

XII. And

XII. And that never any, either universal or particular Tincture, nor other Universal Medicines can be obtained, without this Sulphureous, Spiritual Being, or *Spiritus Mercurii*.

XIII. For no Natural, Heavenly or Earthly Fire can burn the Body of *Sol*, without this Sulphureous, Living Fire of ours, there is no Air so subtil and pure, which can carry our Body in its Belly, as this Air can.

XIV. Not any Earth so qualified, out of which this Lyon may be generated, as ours, because it is with the Gold, in respect of its principle, uniform, and of one being; of which more shall be spoken hereafter in the Preparation.

XV. The matter of the Solar Body, which is as the Fixt is of a very equal affinity with the Volatile: For the fix'd Blood with the Red Lyon is drawn from the unfix'd Blood of the Green Lyon. Besides or without this, saith *Basilius*, it is impossible to obtain a new Generation.

XVI. These two Substances must be, and can be reduced again into one, by the help of *Vulcan*, so that they never can be separated again; and herein lyeth the greatest and highest Mastership and Science.

XVII. Many have tormented the Gold very ill, making use of a Menstruum which was not right, and was incongruous, neither did they use the legitimate Matrix; hence it was impossible for them to loosen or break its fast, firm Bands, and to bring it to its first Being.

XVIII. Many have brought the *Spirit* of *Salt*, *Urine*, *Wine*, *Sal Armoniack*, *Vitriol*, *ros majalis*, and the like, to make it a calcined Body, or thought to open them with common Mercury, but they missed it; though they knew, that *Aurum* is the *Leader*, *Princeps* and *Moderator omnium luminum*, *et corporum reliquorum*; and that its preparation must be hit with a true dissolution, else no Tincture can be obtained.

XIX. Yet they were still kept ignorant of the noble *Menstruum*; so that they begot instead of Legitimate Children, meerly Bastards.

XX. But if they had known the Prima Materia, *viz.* the one matter of Gold, they would not have missed of the only dissolving water, as the first matter of the Gold. He that doth not know this, can never attain to any true preparation of Gold, or of the Philosophick Tincture;

but

but it is like to a hidden Treasure kept under Lock and Key, he that hath not the Key, must let the Treasure alone.

XXI. I must needs confess, that I my self have quite despaired of such a dry *Menstruum*, but by the Grace of God I got an illumination, to discern the meaning of the Philosophers dark Sayings, having considered that which *Basilius* taught, Saying.

XXII. If thou canst not find thy *Menstruum*, do not despair therefore, but call in to thy help the Power and Virtue of *Saturn*, he will not leave thee unresolved, but he will put an Offering into thy Hand, of a high glittering *Minera*, which is grown out of the first matter of all Metals.

XXIII. If I had not committed so many Errors in Chymick Processes, and wrought in vain, I had not yet attained thereunto: for it is not a small matter to get the *true Bird* of *Hermes* truly and serviceably out of the *One Being*.

XXIV. Therefore that objection is to no purpose, that many wrought in vain upon Gold, which must be imputed to their ignorance, and not to the possibility.

XXV. But that there should be no more strength and vertue in Gold, than it sheweth in its substance, and that it could impart nothing to its Brethren in its substance of his precious Blood, is not to be believed; for otherwise the Regeneration, Multiplication, yea, and the Transmutation also it self would have been unknown.

XXVI. But as this cannot be denied, so is it possible to prove, that Gold is the true Seed of our Tincture.

XXVII. If any shall deny this, I could wish to see him, that could defend and demonstrate a more congruous and fitter matter.

XXVIII. Is it not palpably seen, how grosly those did err, which sought for this most fixed Being out of an other Kingdom, and preferred the same before this noble Body? Such could reap nothing but Shame and Disgrace, who took in hand such mean and corruptible poysonous things, far differing and far distant from the pure, incorruptible and permanent Nature of Gold.

XXIX. They should have considered the Philosophers Sayings, as *Sendivogius in 7. Tract. Though thou hadst the first*

first matter of Metals, according to the judgment or saying of Philosophers, yet were it impossible for thee to multiply the same central Salt without Gold.

XXX. Item these Verses.

Take pure Gold refin'd,
Extract its Soul or Mind.
Corrode not, but dissolve,
Its Tincture you involve.
Its bands of strength untye,
And make the Dead to Dye.
Its Body thus destroy'd,
Life comes to be enjoy'd.
But through our hidden Fire,
Obtained is your desire.

XXXI. And if *Basilius* had known another Ferment, he would not have bid thee in his first Key to make the Purple Cloathing out of Gold, but perhaps out of Mars or Venus. For if you will meliorate the Fruits of the Tree of Gold or Silver to this inoculating, there must not be taken any other twigg, but a Solar or a Lunar one.

XXXII. Gold alone 'tis true, as also all the Metals, are in themselves dead, so that it seems as if the Philosophers had rejected it, and recommended the Philosophical one; but a faithful Follower must see here, with open Eyes, and learn to understand, that indeed common Gold is dead, and so long it is to be rejected, and and is unserviceable.

XXXIII. But when it shall be radically dissolved with the Philosophical Spirit, or Spiritual Gold, and reduced to its *Prima Materia*, and then raised with its *Anima glorified* and *transcendently perfected*; then it may be seen whither it will shew it self dead or living.

XXXIV. In the mean time let none seek for any other Ferment besides this, to the end, that the truth of that Saying may stand firm, what is sowed will be reaped again; and that there is not found in all the World a more fixed Sulphur, (Namely, unto Fermentation) than there is in the Bodies of *Sol* and *Luna*

CHAP. XV.

CHAP. XV.

Of the preparation of the Philosophers Stone.

I. CONcerning the Preparation, I will take away from the Reader really all his doubts, and not talk by hear-say, as others have done: but I will make known boldly, not Opinions, but an experimental Knowledge, having put my Hands to the Work.

II. I did hope, that I should be joyfully recompensed for my pains, to the end, that my Fellow Searchers in Nature should effectually reap comfort thereby; and herein I was not deceived: but yet at first this noble Work was cut off and brought to nought; so that there was no more left to me, but only a dark or clouded Direction, and a Draught or Ocular demonstration.

III. But pursuing Nature in her own way, I say and mean by this way, I had cause to expect a far greater and abounding reward, then I could have from my Sophisticated Labours; and accordingly it fell out so to me.

IV. For although the true desired Fixity was not yet at hand, yet some select pieces in the Projection shewed an eminent possibility, besides what I had taken notice of at the dissolution of Bodies in the changing of Colors.

V. Therefore will I communicate now the practick part faithfully, and more largely or plainly, than ever any hath done before me; and will omit nothing of the Manuals which Philosophers, as is apparent, pass by in silence.

VI. As you find in *Bernhardus*, where he saith; that he knew many which knew the matter of the Secret, but they knew not the manner of the Preparation.

VII. Therefore let every one take heed and have a care, that he be not seduced by Sophisters, much less let him fix any thought on forcible Fires, Aqua Fortis, or other strange things, as to make his beginning thereby to this Mistery; for all such things will be in vain.

VIII. Let him first be acquainted with the right matter, and consider the beginning, then he will know how

to proceed, and learn experimentally how he must finish the Work.

IX. The same known and nominated matter is found in many places: and it is well said of it; that it, or the Stone, which is flung at the Cow, is more worth than the Cow.

X. In the same is the true only Philosophers Mercury, in form of a most fair, most pure and white Pouder, which is called the white Dove, and the Doves of Diana, *Anima Saturni*, and the *Prima Materia Metallorum*, which is drawn from the *Secunda*, of an excellent volatile, penetrating Substance.

XI. So that according to its quality, it soaks in as Oil into every Metalline Body, and tinges them in a moment into a white Body, as *Theophrastus* saith in *Libro Vexat*: *My Spirit is that Water which softneth and openeth all the congealed Bodies of my* Brethren.

XII. In Medicine it is the greatest centrated Purge, and the Poyson of the Dragon: if but the 100 part of a Grain be taken, it giveth many Stooles to admiration.

XIII. This white Lilly is not unfitly called the dry Corporeal Water, because it mingleth with Metals, as Water mingleth with Water; it is also the great Salt Sea, from whence Metals have their beginning.

XIV. It can be turned also into a right natural wet clear Water, like Crystal: it is the most bitter matter, and can be made to be the sweetest: and it is the Spirit, which is found dispersed every where, and in every thing.

XV. About this Preparation many went to work, but could not hit the true way: they had the knowledge of this Mineral, but they were amazed at the wonderful Operation, and at the appearance of the great variety of Colours therein; so that they ceased to consider further of the other Miracles.

XVI. Many a judicious Man which followed the Letter, hath given over there, where he should have begun; many a one came so nigh to it, that he had the Lilly in his Hand, knew in some measure its Virtue, and yet they despaired, as not conceiving and believing the great things which it could perform.

XVII. This noble white Flower is that which they put many Names to, and is obtained by Art, *viz.* the sepa-

ration

ration of the pure from the impure; but it befools them all, because they knowing that the Kings Bath should be pure, were mightily offended at the mean form of the Subject, and could not comprehend that the Pearl was vailed or hidden, which lyes in it, under such a poor gray Coat, and with the rankest Poyson.

XVIII. And because they would be more wise than the Creator himself, therefore they invented a multitude of *Menstruums*, thereby to perform the said Separation, and to get the true *Philosophical Mercury*, which *Zacharius* calls *Flos Solis*; and *Ripley* and others call it, the *Sperme* or the *Quintessence* of our stinking Earth.

XIX. But their intention being a meer invented work, so there came nothing of it: for to our matter no strange thing must come: which if any such Heterogenity is put to it, then is it impure and unserviceable.

XX. In it self it hath no superfluity, but it is altogether like unto a *common Mercury*, to be driven up in a Fume, which is the life of Metals: and when this looseth the least in the Fire, it is impossible to open and to bring the Gold therewith into its *Prima Materia*, as the *Turba* witnesseth

XXI. Therefore there is required this *Minera* at the beginning, without the addition of any strange thing at all, for the dissolution or separation, but only by and of its self; out of which, afterward with the help of *Vulcan* is brought forth its hot Balsam, that it is in form palpable and impalpable, and yet is it presented visibly; so that nothing more can be required of it.

XXII. For which cause, Philosophers cry, *Our Stone doth sublime and dissolve its self, and doth all it self.* They say, that after the Conjunction it is a most easie Work, a Womans Work, and Childrens Play.

XXIII. And so they reject altogether those, that use great Subtilties and divers Elements, and would get new Principles: whereas Nature aforehand hath put the matter into the Hand of the Son of Wisdom, in which is to be found the pure Substance, or as I may say, the *Potestates* or *Quintessence* of the Elements, and the three pure Principles.

XXIV. And on the other side, among the Sophisters there ariseth a great doubt, what Nature intended to make of her supposed Principles? It is an Error, if Na-

tures be not distinguished and kept in order; whereas God for orders sake puts every thing into its own place, where it should stand.

XXV. Therefore how miserable a thing is it, when an old wise Fool with his opinion banisheth as it were, by his subtilties, the Truth and real Science out of or from Natures possibility; and on the other side leadeth them on impossible, difficult Businesses which he doth not understand, neither hath he any ground for it.

XXVI. Many boast, that they have the Philosophical *Luna* and *Sol*, and cannot defend or prove in fact, what they in words maintain, neither indeed with the Philosophers Sayings, because according to the meaning of *Rosarius*, there is no *Sulphur* to be found under the Sun, which is like to the Sulphur of *Sol* and *Luna*,

XXVII. Understand here the Fixity of it; therefore none can call his *Sulphur* or *Mercury* in defect of *Fixity*, a *Sulphur* or *Mercury* of *Sol* or *Luna Embryonated*, much less elementated, but he must be doubtful still, whither it be not an *Arsenical* Fumeor a *Realgarish* Sulphur, which is far off from our red and white Ferment.

XXVIII. And it is sufficiently seen now adays, that many cry up for an *Aurum potabile*, the Essences of Litharge, of Copper, Iron, Tartar, *&c.* and often a naturally fallen Rain water *Menstruum*, which stood on a Gold Calx, which was not extracted, and become red of its self, by vertue of putrefaction; these they sell for a great price to People, tho' a notorious and grand Deceit, and containing no kind of fixed Solar or Lunar Sulphur whatsoever.

XXIX. But it is far otherwise with our Practica: and though our Subject of the Mineral Stone containeth the true Philosophical *Mercury* and *Sulphur*, so that by its self, *sine ulla additione vel diminutione*, such a perfect Universal Medicine can be made of it; yet the *Universale Generalissimum* is far higher, which is proved thus.

XXX. Because this *Lapis Mineralis* doth not touch any Metals yet, unless it be first Fermented: therefore Philosophers bid us, to carry this Medicine upon Gold and Silver, that the Spirituality may be confirmed thereby, and the ingress may be compassed or obtained.

XXXI. Now if the Fixity and Ingress shall be taken from two fixed sorts of Metals, what think you can hinder,

der, if I should presently mingle therewith the Calxes of both Bodies?

XXXII. I tell thee of a truth, that this was the very short way of the Ancients, of which *Theophrastus* wrote so much, in which many before me have gone, and I my self have walked in.

CHAP. XVI.

Of the Practick part of the Preparation.

I. I shall now faithfully reveal and shew the Practica how first may be had our *Matrix*, *Mercurius duplicatus*, and our *Regina*, or *Aqua sicca*. Let every one observe carefully the Doctrine of Philosophers, and see how we bring wholly and alone the *Electrum* unto perfection, which containeth the *Philosophical Mercury* and *Sulphur*, to the end that the right *Lapis Mineralis* be made out of it.

II. But because we intend to operate upon, or for the general work or *Universal Tincture*, you must know, that you are not to take the Body, but the clearest, purest Essence of our Subject, to make therewith our Ferment soft, and transcendently or *plusquam* perfect, for to get the *Arcanum Arcanorum*; in which lyes hid the greatest Mysteries, which the Philosophers kept most secret.

III. However its Preparation is intimated by them thus, when they say: *fac Mercurium per Mercurium, per Aquam Mercurialem*, which are Golden Words, and impossible for Ignorants to believe.

IV. *Viz.* That it should be *Mercurius duplicatus* or *Sublimatus*: however this Preparation cannot be had without addition, neither must that which came to it in the Preparation, stay with it, as *Theophrastus* saith, in *Tinctura Physicorum*.

V. He that will follow the footsteps of Truth, let him seek after the nearer matter, which in the Druggists Shops may be had for a small price, and in many places it may be had for nothing.

VI. This must be mingled with two parts of the most bitter Water, which is the expanded Eagle, or the glowing Coal, which the Court-Mistress, or Controler, of an Hundred Years old, in the white Zindle, giveth forth; and it must stand for a time in the Cellar.

VII. Then our Green Lyon is seen with admiration, and that is made manifest, which in many places is found in Mines; and out of which Metals grow, which is the right Salt or Vitriol, of which *Rupecissa* saith: *Victriolum seu Sal est medium & proprium Semen generandi omnia Metalla, tanquam principium remotissimum omnium Metallorum.*

VIII. When this dissolution is done, then is it brought by Distillation on the top of the Olympick Mount, where our white Dove desireth to rest, being eagerly pursued by the Eagle, to make a Prey of her.

IX. But it is so beaten off by the Rainy Weather, that our Dove by the help of the Red Lyon, becomes so pure as pulverised Pearl, or Diamond Pouder; a Poyson of Poyson, and the true Spirit of Saturn, and of Arsenick.

X. This is afterward our *White Lilly*, or *Spiritus Mercurii*, *Aqua Benedicta*, which Philosophers called a Crystalline Air, coagulated by Nature. *Basilius* very plainly calls it *Alumen plumosum*; but *Salomon* calls it the bright glittering Lace.

XI. If this work be rightly performed, you have then found the first Key which opens into the Virgins Castle: and there to wait for a further success, and to be kept from erring in the Fermentation, that all may be brought to the wished end.

XII. But this one thing must be well considered, how the *Fermentum* or *Semen* must be prepared, that the *Pinguedo Terræ nostræ* may the better work into, and be quickly dissolved.

XIII. And because mention is made of *Gold* belonging thereto, it is requisite, that the same be well broken and subtilized by *Basilius* his Femer Bath.

XIV. Otherwise, if it be dissolved by the common *Aqua Fortis*, and the præcipitated Gold by Salt of Tartar be taken, then the Spirits of Victriol are præcipitated also with the same; so that of one dram of Gold two are gotten often; neither can these Spirits be edulcorated, and are very obstructive.

XV. With

XV. With the Silver it is done thus; it is dissolved in an *Aqua Fortis*, præcipitated in a Copper Pan, then the Calx is to be very well edulcorated, and reserved for use.

XVI. But for more security, lest you should be hindered, by reason of the corrosive Spirits, it is more safe, that *folia Solis & Lunæ* be taken instead of the dissolved *Gold* and *Silver* to proceed in the Work, then will you be free from any fear or danger.

XVII. And the truth of these old Verses stands firm.

If thou the Gem within wouldst get,
The Key must to the Lock be fit.
When Head and Tail are joyn'd in one,
The mighty Work's perform'd and done.

XVIII. Where for a further instruction I say, that by means of *Sendivogius* and others, I went mightily astray, when they said: the one is the Matrix, the other is the Seed of the Man, and the third the Seed of the Woman.

XIX. Others take the Red Servant and the White Woman: Others put the Volatile to the Fixt, coagulate after the ancient way, then say they you have the Tincture of Philosophers.

XX. *Theophrastus* saith, take the red Blood of the Lyon, and the *Gluten Aquilæ*, &c. After a long consideration, and for experience sake, I took in hand two Works together.

XXI. I mingled in a due proportion, *the Fermentum Solis & Lunæ*, as the perfect Seed of the Man, and of the Woman, with the Matrix.

XXII. After that I joyned the *Fermentum Solis*, as the Seed of the Man, with the Philosophical Earth, as its Matrix or the White Woman.

XXIII. Thirdly I joyned the *Mercury* with the white Ferment or *Calx Lunæ*, and put all under the Hand of *Vulcan*, expecting the possibility on both sides; but at the alteration of the Fire, I found but one effect.

XXIV. Hence every one may be assured, that he cannot be damnified, which way soever he taketh, except in Harvest time; wherein the Fruits will appear correspondent to the Seed of each.

XXV. This Conjunction, though it looks but mean, yet you must not transgress in the quantity or weight,

for if therein an Error ſhould be committed, it would be an Univerſal Error thro' the whole Work; for which cauſe, it is neceſſary to take the Advice of truly Philoſophick Authors.

XXVI. For my part I followed *Sendivogius*, and he may ſafely be followed. For he ſaith *Tract. 9* if the Gold be mingled with it eleven times: Scil. 11 parts, then is it weak, almoſt unto Death, the Chalybs conceives, and Bears a Son, who is more glorious than his Father.

XXVII. If afterward the Seed of the new born Son is put again into its *Matrix*, then he cleanſeth the ſame, and maketh it a thouſand times fitter to bring forth the moſt glorious Fruit.

XXVIII. He that ſtrikes this in the Wind, and ſlighteth it, cannot make a mixture, nor attain to any diſſolution or perfection.

XXIX. But when the Conjunction is done in the aforeſaid manner, the Compound, (which however comes from one) is ſet into a convenient Digeſtion, and is continued for a Month.

XXX. And then is it ſeen afterwards, how the Philoſophers *Mercury* worketh on the Body, and the putrefaction enſueth; the whole matter turning into a black colour, like Ink.

XXXI. And the Philoſophers darkneſs cometh to light, ſo that the Calcination and Solution of the wiſe Maſters is performed at once therein.

XXXII. And the Pores of our Body are thus opened, that through the help of the Volatile Body or Servant, the Fixt may be made Volatile alſo, and the Parents may feed on the Child, and keep united inſeparably.

CHAP. XVII.

The former Diſcourſe continued.

I. THe Philoſophers Sublimation muſt not be taken for a thing that is driven on high, as the Sophiſters ſay: but the cloſe and compact Body muſt rightly be opened and ſubtilized, and the impure ſeparated from the pure.

II. Nor

II. Nor that Sal Armoniack must be added to it, as Chymists usually do, and so mingled together; and though *Sendivogius* maketh mention of stale Urine, yet he meaneth Sal Armoniack, when he set forth our penetrating Mercury by such a Sal Armoniack.

III. For as Sal Armoniack penetrateth, and brings the least Metal into Corruption, so doth our Sal Armoniack with the most fixed Body: for it corrodeth, dissolveth and corrupteth the same, causing another form, and a new Generation to come forth.

IV. *Corruptio enim unius est Generatio alterius*; and this is performed by the help of a due gentle Fire, and by the Mercurial Fume or Mineral Water, which is the true *Fontina Bernhardi*; that after the finishing of the same degree the *Ferment* is not to be found again, though the *Fontina* were drawn dry.

V. Now if this degree be successfully finished, as it may commodiously be done in a Month or four Weeks, thereupon followeth the Coagulation, which hath coagulated and dryed up many Mens Brains, insomuch, that they lost thereby all their Understanding.

VI. Because they imagined, that a wet Spirit belonged to this Solution, and that they saw and concluded, that the Solution or *Menstruum* is of greatest concernment; whereupon they strove to use a multitude of means for the Solution, as their Writings and Books of Processes sufficiently shew.

VII. Falling into such Errors, at last they knew not how to bring the dissolved Bodies to any coagulation; and before they could compass it, their Glasses broke in pieces.

VIII. Yet some of them brought it to a consistence by pellicanizing, frequent Cohobations and Circulations; but the Mass they obtained, was to no purpose, and worth nothing to their Intention; because the requisites mentioned above, were not found therein.

IX. Our true Coagulation is performed in this manner, the Spirit must fix and coagulate it self with the Calxes of its kind. For Coagulation and Fixation is one.

X. And our Spirit is not a common Water, but a most Volatile Spirit and Hermaphrodite, because it transcends all other dissolving Waters, opening radically the Silver

Silver as well as the Gold, which could not be done by any other Spirit or Water.

XI. Hence it is requisite that it be brought to a superfixt Substance, and if it were not a Metalline, dry Spirit, such a Coagulation could never ensue; for no common Water or Spirit can be mixed with Metals, as to make it inseparable.

XII. In this degree the Fire must be so encreased and continued, till the black loose its self, and turn white, where the Fume allayeth, and so uniteth, that it can no more be separated; and this is performed meerly by *Vulcan*.

XIII. For as the Volatile was at the first the Agent, and by its subtilest Spirits dissolves the Body, and changes it into a Spirit; so is it now in the other side.

XIV. The Body becomes now the Agent, and lets forth his hot fiery Nature, binds the Spirit, and makes it generate *in massam plus quam perfectam*, but this requireth time; and this Labour can hardly be finished in a Year.

XV. But there are required some Months to the true Calcination of our *Æs*, where the degrees of Fire must rise. For Philosophers say, *Comburite as nostrum cum igne fortissimo*.

XVI. Therefore this burning must continue for a time, if you intend to get the Phœnix; so that the *Massa* look not green as a *Smaragd*, but be changed into the colour of a Red Ruby.

XVII. Yet, before this there preceeds the colour of a Peach Blossom, for a sign that the Work goeth right.

XVIII. The Work being brought thus far, thou shalt see, how easily the *Terra Mortua* may be separated from it, for to get *the Essence of all Essences*; and thou mayst have the Stone *in forma sicca & liquida*, which is one Work, and yet fooleth many.

XIX. For when our Body hath been first in the saltish Waters, they must be the same at last, for the true Universal Tincture must infallibly have such qualities, if so, be it shall be serviceable to its Brethren, as has been said, *viz.* to the inferior Metals; and Cure Mans Infirmities.

XX. For as in Harvest time, the Husbandman gathers his Sowed Corn with great encrease, so here there is seen

also

also a great augmentation; so that it rejoyces and refreshes the Possessor, and requites all his pains *in quantitate & qualitate.*

XXI. Now, that all things may be compleat in this Work, and that I may not be blamed for any concealment, I will sufficiently instruct you, how the said Separation must be made, and how the Central Salt after Calcination and Fixation, must be extracted.

XXII. Though the Philosophers, by reason of some Ignorants, and unexperienced Persons in the Work, were silent and mysterious. yet they made the end clear and manifest; and they confest plainly, that the final Solution was in the Wine Vessel, *viz.* that by the Spirit, which lyeth hid therein, this saltish Extraction can be had.

XXIII. For say they, as a Glass, filled with common Wine, doth not run over if any Gold be laid in it, but keepeth together, and as the Magnet draweth Iron, so doth the Spirit of Wine and the Essence of Gold, far more abundantly; so that thereby a full restitution of Mans weak Body may ensue.

XXIV. So that Philosophers by the help of their Work, may take something out of it, for to hold out the better, that the *Operator* may in the *interim* have somewhat *to live upon.*

XXV. And they bid Men to reduce it to a *particular Work*, (which is understood thus, that *Silver* can be transmuted into *Gold*) of which more shall be spoken in the Chapter of particulars, to which place I reserve it.

XXVI. Every one may easily guess by that, which hath been said, of what the *Lapis* must be composed, if at the half time, a Booty may be taken out from thence.

XXVII. I should speak also of the augmentation, but not having perfected the Work so far, to the great and Universal satisfaction, I leave it now here with this Preparation, and so far as my experience has truly taught me.

XXVIII. Not doubting, but when you have come thus far in the true way, and that it is fully known to you, that the *augmentation* may prosperously succeed or ensue, which, as I conceive, cannot be performed by any other means but through its Principles; and thus I leave this Discourse of Preparation.

CHAP. XVIII.

CHAP. XVIII.

Of the Inſtruments fit for this Work.

I. OF the neceſſary Inſtruments I have this to ſay; our Stone, ſay Philoſophers, is one matter, and requires one Veſſel, and one Furnace: hence it may be gathered, that indeed it muſt be no otherwiſe.

II. I my ſelf had no need of Subliming, Calcining or Reverberating Furnaces, Athanors or dull Henrys, or other ſeveral Furnaces; there is no need of Artificial Veſſels, eſpecially to thoſe that have the truth.

III. One Glaſs, a Veſſel of Glaſs or Clay, in the form of a round Chamber or Egg, is enough at the beginning.

IV. It is true indeed, that thoſe which walk in this way in an other form, invent other Veſſels and Furnaces, becauſe their intention is ſtrange; therefore they muſt have ſtrange Inſtruments alſo.

V. But they may be asked, if *Spiritus Mercurii, Vitrioli, Solis, Roris Majalis, Sulphuris, Salis Armoniaci, &c.* have been the *Menſtrua Philoſophorum*; pray what Inſtruments had the *Ancients*? in whoſe time there were no Glaſſes in uſe? And what uſed they for their Coagulation of corroſive Spirits?

VI. I am of opinion, that their Earthen Pots, would have attracted far ſooner, as they truly thought, and ſuddenly coagulated ſuch Spirits.

VII. But by this conſideration every one may gueſs, that *their Aqua Solvens muſt needs have been a dry Water or Spirit; for otherwiſe it had been impoſſible, that the ſaid Ancients, by reaſon of the want of Glaſſes or firm Inſtruments, could have coagulated the ſaid Spirits.*

VIII. And all the Philoſophers had groſly err'd, that ever made mention of a *dry Menſtruum*, if there had been at hand another Diſſolution.

IX. Now, though ſomething may be objected againſt this, yet I do hold, that I may build further upon my Experience and the faithful Writings of Philoſophers, than upon any Mans imagination.

X. Beſides,

X. Besides, the said Ancient true Philosophers had not so great Expences to build such fair Artificial Furnaces and stately Laboratories, as they do now a days, but made use of a small Furnace in a quiet place, and attended the same.

XI. The variety of several Furnaces intimates the variety of Labours, and diversity of Matters, when otherwise all the Writings concord with one Saying; that the Being of our Art doth not consist in varieties of Matters, as *Hermes* plainly speaks of it.

XII. Therefore let Novices not trouble themselves with many Furnaces and Laboratories, one small Furnace is enough to exert and demonstrate all the degrees therein.

XIII. Let it be set in a place, where you fear not any danger of Fire, lest mischief should ensue, and spoil or destroy all your Work.

XIV. And into this Furnace let him fit a Capell or Pann, and fill the same with Sand or Ashes, and set his Glass therein, and not take it out, unless he see the whole Mass look of a Blood red Colour.

XV. When that Colour appears, it is the sign of Harvest, which is nigh at hand. *Let this suffice concerning the Instruments and Furnaces.*

CHAP. XIX.

Of the requisite Fire: and first of the Ignis Externus.

I. IN the next place there followeth the Fire, how that must be governed, so that this most noble Mistery may be elaborated, and brought forth; which is a most necessary point for Novices to know, lest they fall into hurtful Errors.

II. For it is known, that Authors have concealed their Fire, which is the chiefest and greatest matter of the Operation herein, and intended to terrifie and keep off the simple ones by their dark Sayings.

III. I grant, what *Artesius* saith in the Book of *Truth*, that our Fire is for to expand the natural Elemental Fire, which

which ſtirs up and maketh the other Heavenly and Terreſtial Fire to work, which is hid in the matter.

IV. And this, when he ſaith: *put our Gold and Silver in our Fire, then it turns to a dry Liquor.*

V. And becauſe here are named two Fires, let every one obſerve, that the common Fire is too weak, to burn our *Phœnix*, if the other Fire, which is hid in the matter, (mightily kept ſecret, with ſtrange Names) did not the beſt.

VI. Hence the Ancients ſaid: not *Balneum Mariæ, Aſhes, Sands,* &c. *ſed ignis calcis vivæ, ſive calor Sulphuris vel Mercurii noſtri, &c.* is the true Fire.

VII. And it is true, that of theſe two Fires the one without the other can do nothing; and if the Operation of both ſhall enſue, then the natural Fire muſt kindle the other, and make it work.

VIII. And the cold muſt not be taken for the warm, nor the warm for the cold, much leſs the external muſt not exceed with a great force the internal; for then all your doing will prove a labour in vain, and drive the Volatile from the Fixed.

IX. Or, cauſe our *Maſſa*, being very fluid, to be brought into a Flux or Running; as it happened to me ſeveral times, that my whole Work was ſpoiled thereby.

X. But the Fire, as *Bernhardus* ſaith, muſt be an equal digeſting, conſtant Fire, not too forcible nor too hot.

XI. In the firſt degree, you muſt not make haſt with the Solution, for if the Body be not rightly diſſolved, there cannot follow any firm Fixation of the Volatile.

XII. After the Solution, it is requiſite, that the ſecond degree be exerted or obſerved, where the whole *Maſſa* is turned to a white Diamond-like Pouder; but before that, there appear ſeveral fair Colours in the Glaſs, as well as in the matter.

XIII. When this is done, and the *Albedo* changeth, ſo that it turns to the appearance of a *Peach colour bloſſom*, then make the Fire not too ſtrong, leſt you ſpoil the Work.

XIV. For Philoſophers atteſted ſo, and have declared it ſo, when they ſaid: *Comburite as noſtrum cum igne fortiſſimo.*

XV. Then the whole Operation obtaineth the end, when the whole Subſtance is turned into a deep red colour, like unto a Ruby, or like to Blood; and in

or on a glowing plate, sheweth its self like an Oil without a Fume, of a sweet Taste, and dissolveth like Salt in any Liquor.

XVI. Then is the Body Calcined, and the Spirit rightly united and fixed.

XVII. It might be asked, because I said above, that the Mass is very Volatile, and melteth into one Lump in a strong Fire, and causeth damage; how one might be so cautious, as specially to observe it, seeing that in the fourth degree the strongest Fire must be used?

XVIII. Here observe, that the Matter or the Spirit, at the beginning, hath not endured yet a true uniting with the Body, but through the force of Fire may easily be separated from it in the Flux, Melting, or Sublimation.

XIX. But after the Dissolution our Spirit is coagulated, and hath no more any such fluidness, and is no more separable, two are become one; so that no Element can separate them.

XX. It may be objected, dost not thou contradict thy self? must not thy *perfecta Massa*, or *Lapis Philosophicus*, be fluid, like Wax or Oil? Why dost thou say, that after the Solution and Coagulation, there is no more any such fluidness or damage to be feared? Perhaps thy Medicine will be an unworthy matter, as others, a sturdy unpenetrating Pouder?

XXI. Note here again, that after the finishing of our Work, there is then required the greatest and most secret Science.

XXII. For when our Body is duly Calcined with the *Philosophers Mercury*, or is dissolved with the often mentioned *Aqua Sicca*, and coagulated; then at last there happeneth a Separation.

XXIII. So that the *Terra Mortua* separateth from the Essence of *Sol*, and must be separated, as *Sendivogius* saith *in Tract. de Mercurio: when it is burnt, then is it put in the Water, and is digested; after it is digested, is it given to Sick Bodies; for the which, I have already nominated the Spirit of Wine.*

XXIV. For this *Terra Mortua*, as an unworthy thing, containeth a great sturdiness or hardness, which hinders the flux or fluidness of *our Essence*.

XXV. But

XXV. But after the Separation, we have the true incombuſtible Oil, the Aſtral Salt of Philoſophers, the end, which is like to the beginning, the moſt worthy from the moſt unworthy.

XXVI. And in brief, after this final Separation, thou haſt thy Medicine *in forma Sicca & Liquida*; the true Treaſure of all Riches, the greateſt Miſtery, which lay ſecret and hid in Nature, the true *Aſylum deſertorum Pauperum*, and the right true infallible *augmentum*; yea, ſuch a Treaſure, of which I ſpeak, that thou mayſt cry, VICTORIA.

XXVII. For this Salt hath the victory of all things, over all the *Volatile Spirits of Metals, and to coagulate Mercury.*

CHAP. XX.

Of the Ignis Internus.

I. TO ſay ſomething of the Myſterious Fire of our matter, I muſt confeſs the truth, that I muſt agree and conſent with the true and faithful Philoſophers, and ſay, that our dry Water is nothing elſe, but a Sulphureous Living Fire.

II. But it is not the common Sulphur, which Calcineth Metals, burneth and deſtroyeth them; but it is a *Sulphureous Water*, which bringeth Metals into a *Melioration.*

III. And of this *Geber* ſaith, *qui Sulphur commiſcere, & Corporibus Amicari noverit, inveniet Arcanum de ſecretis Naturæ maximum.*

IV. This Sulphureous Living Water, is one of the greateſt Fires, which hath power to mingle with our Body.

V. And it is the true Eſſence of the Elemental, Heavenly and Earthly Fire, which typifieth the Fire of the Laſt Judgment, whereby the Elements themſelves are diſſolved; and ſhall bring forth new Elements, as it were the Eſſences of the former.

VI. But

VI. But because this far exceeds, or goeth beyond the common reason, it is counted an Impossibility, and Absurdity; and none takes pains to understand these plain Sayings of the Philosophers.

VII. Much less do they understand the profound Allegorical Doctrines of the true Sons of Wisdom, who wholly concealed their Fire.

VIII. And it is just, it should be concealed, and kept secret, that it may be esteemed as a folly or fondness to the Self-designing and wicked World.

IX. Many undertook to elucidate this point, but they have not meliorated the Spagyrical Republick; but only deteriorated it.

X. They invented a stupendious multitude of Fires, of Candles, Lamps, and the like: they advised the use of Steel Glasses, of Horse Dung and Hogs Dung, imbibed with Urine, of *Aquâ Vitæ*: at last they invented the continual shaking and stirring, that they might stir up our Fire, and to be the cause of the Solution.

XI. But *Bernhardus* counted all this meer Foppery, and rejected them; though many did imagine, that a diversity of Fires was requisite.

XII. For, as perchance a Philosopher may have obtained the end successfully, for which reason he has rejected all other ways, and walks only after his own way: so, because out of any thing in the World this our Medicine may be prepared, therefore of necessity in those cases there are required also several Furnaces, Instruments and degrees of Fire.

XIII. Every Master, who knows best the qualities of his Work, knows how to order the Regiment of Fire as he pleaseth.

XIV. But it needs no exact Art or Government, because Children and Women sportingly can perform it.

XV. The Fire, (*viz.* the natural) is all the Art, whereby Nature or the Work is accomplished, the other Ingrediences are mean, as *Bernhardus* saith: *in rerum multitudine Ars nostra non consistit: est enim Res una, Medicina una, Lapis unus, in quo totum Magisterium consistit, cui non addimus rem extraneam nisi quod in ejus præparatione superflua removemus. Nam per eum, et in ea sunt omnia Arti necessaria.* He that teacheth otherwise, is a Sophister, and only uses the Ballances of Deceit.

XVI. Besides, if every Philosopher, in time of *Bernhardus*, made his Stone out of a singular matter, no knowledge could be had concerning it so soon, and so easily; but only by this means, their words and deeds agreeing, it produced a Knowledge and Friendship one among another; and without this it would have been as a concealed Treasure to this day.

XVII. But their agreeing and Harmonious Discourse, in the Fundamentals of Truth, drew them together, that they could judge, whether this or that, or the other Man, ran the race of Truth, or saw into the depth of the Mistery they sought after.

CHAP. XXI.

Of the time for performing this Work.

I. LAstly, and in the sixth place, of the time, which is required for the preparation of this great Work, we come now to Treat. Authors are in several opinions, some speaking of eight, three, two and one Year; these unequal judgments concerning the time, may make a Man doubtful, and ready to err; yea, and after a due pondering, to fall into Error.

II. But I hold it with *Bernhardus* and *Sendivogius*, that our Stone, as my own great experience assures me, I say that it may very well be finished in a Years time.

III. For in one Month the putrefaction is performed; in the second Month the Dissolution, Calcination and Sublimation, all which is but one; in the third Month appeareth in the Massa, *cauda pavonis*, and the *Rainbow*; in the fourth Month the *Agent* and *Patient*; and the white Colour also appears.

IV. This white Colour lasteth two Months; and if you do not keep the true and due degree of Fire, it holdeth yet longer.

V. After the ending of the whiteness, nothing can be amiss in the Fire, yet so long it must be continued, till the Medicine getteth the true *plusquam perfection*, and is of

of a transparent, Ruby like Colour; which at last followeth infallibly.

VI. But why they differ so much in the time, I think the reason thereof to be this, because at the first in the Solution, their degree of Fire was too gentle, and their Work went slow unto blackness; or else that some had invented to themselves such a long time, and their proposed matter could no sooner be coagulated.

VII. I also believe, that sometimes, many Years are required unto *Coagulation*, and *plusquam perfection*, of the Spirit of *Vitriol*, *Terræ*, *Roris*, *Salis*, &c. and no wished effect followeth.

VIII. These differing times doth not take away the possibility of this great Work; and the shorter time is not to be slighted or rejected, as untrue or false.

IX. Lastly, none ought to imagine, as if this my Tincture at its first beginning should tinge presently One Hundred Thousand parts, and bring in great Riches; no, this cannot be done, because it is yet in its Infancy, or the first degree.

X. But it must be brought to such redundancy, superfluity, or mighty fruitfulness, through the long continued and manifold Imbibings.

XI. But if one hath gotten to a deep *Rubedo* in this Work, he may be fully assured, that his Labour will not go unrewarded; and that it will not be in vain, or without effect.

XII. This Tincture is sufficient in the Medicinal Use, and has no need of augmentation; but it is easie to extract the white fixed Salt out of the calcin'd Work; and may be used to all Diseases, to cure them, and restore the Body unto perfect Health.

XIII. And thus have we finished this Discourse in few and true Words, and Dedicated it to the Use of the sincere and indefatigable Searchers out of Truth.

CHAP. XXII.

Of a profitable particular Work.

I. DAily Experience teſtifies, that among many thouſand Proceſſes, yea, among Cart Loads of them, there is not one which is true: by reaſon whereof this noble Art is ſlighted, deſpiſed, and ſet at nought.

II. And becauſe by theſe many falſe Proceſſes, Mankind has been deluded, therefore it was alſo thought, that there was no ſuch thing as the Philoſophers Stone, or Tincture; and that the Univerſal Tincture could never be brought to perfection, or to perform the Tranſmutation of Metals.

III. To which we Anſwer, That there is infallibly ſuch a thing as the true Univerſal Tincture; and beſides that, that there are certain profitable infallible particulars, which are practicable without great difficulty.

IV. In the Operation of the whole Work, the matter muſt be found on the one part, as well as on the other; elſe the Writings of the Philoſophers, will be found nothing but fallhoods.

V. But as the Philoſophick Stone or Tincture has its peculiar and manifold requiſites; ſo alſo have the particulars the ſame requiſites.

VI. Now, that you may avoid the falſe Proceſſes, and have a ſure foundation to build upon, as to particulars, ſo as to make them profitable, and not fail neither in beginning, continuation, nor end, I ſhall lay down the following *Philoſophick Verity* for a Rule, *viz.*

VII. *You muſt unite Sol and Luna ſo firmly and abſolutely, that they may be for ever inſeparable:* If you know not how to do this, you know nothing truly in our Art.

VIII. Here lies the Root and Foundation, yea, the profound Miſtery of all particulars, the which my experience has demonſtrated to me in manifold and various ways.

IX. Underſtand this thing rightly, and lay hold of Diligence, ſo will the Vail of Ignorance be taken from your

your Eyes; for all Processes which center not in this *Verity* are vain and false.

X. Now, that you may have no cause to complain of the brevity of the afore declared *Philosophick Verity*, hear farther what the Ancients and Great Men in this Art say.

XI. You must so join or mix Gold and Silver, that they may, (notwithstanding any means whatsoever) be inseparable. This is spoken of a particular Work.

XII. What think you, if I should so perfectly unite these two Bodies, what would this Union come to? I give the Searcher after Truth leave to judge.

XIII. But truly I tell thee, that this united *Sol* and *Luna*, thus perfectly done, can never be separated, no: neither by *Aqua Fortis*, the *Quart*, *Cement*, nor *Antimony*.

XIV. And when they are thus united, it is a very great and profitable particular: for here *Luna*, by the virtue and power of *Sol*, is totally fixed, graduated, and made ponderous.

XV. This is the particular which the Ancients (learned in this Art) bid you to understand; that you may be able to proceed on, and to pursue, to the finishing of the great Work.

XVI. Here *Luna* rides on a Chariot of four Wheels, like *Sol*, viz. *Color*, *Fixity*, *Malleability* and *Ponderosity*: Here she borrows Six Measures of the Sun, and as a Queen, wears the Kings Crown: here the Frigidity is conquered by the Calidity; and the White Woman becomes the Red Man.

XVII. And here the true *Filius Hermetis* may see, that the Doctrine of the true Philosophers differs much, from the jugling Processes of Deceivers, *for that our particulars have their Off-spring from the Root of the true Universal Subject.*

XVIII. And it is the greatest of Truths, *that the Conjunction and Union of the Bodies of Sol and Luna is the real beginning of our true Medicine, Elixir or Tincture.*

XIX. Among the vulgar Processes, there is nothing but fallhood and deceit, wherein the *Luna* is never fixed, but is wanting of ponderosity, and black; having been only washed, and fixed (as they call it) with Salt, and

graduated, with the Sulphurs of *Mars* and *Venus*, and made ponderous with *Saturn*.

XX. O foolishness! O blindness of Mind! can common Salt be the Soap of the Philosophers? can the Volatile Sulphurs of *Mars* and *Venus* be ever made the *Red fixed Eagle*, or the *Red fixed Sulphur* of *Sol*?

XXI. Can common *Saturn*, or its *Vitrum*, ever become our ponderous Ruby Star, or our fixed *Salamander* ever living in the Fire?

XXII. Have not the Philosophers said, that whatsoever is to be meliorated, or made better, it must be thro' a better thing than it self, and not thro' a worse, as is daily the practice of Sophisters.

XXIII. How do they stand with their fixing Pouders, and their ingress Pouders, melting like Butter in the Sun? whilst they want the true knowledge, how to distinguish between that which is fixed and that which is not fixed.

XXIV. If they understood in what degree of fixation *Sol* and *Luna* are graduated, and of what Quality their *Species* are, in Melting, Calcining, Dissolving, Cementing, Graduating, and the like; they would be ashamed to go about the making of Gold with Dross or Turds.

XXV. But as to the clearing up of these particular Works, I refer you to my former Discourse *de preparatione Lapidis*, from Chap. 12. to this present Chapter; from whence you must get the Key, which must open, and let you into the secret Mistery even of these particulars.

XXVI. By which you will know how to take something out of the United Bodies of *Sol* and *Luna*, and how to reduce the same: if you proceed otherwise, you will foolishly fall into Error, which may lead you ('tis probable) into the Paths of too late Repentance.

XXVII. He that has once truly obtained this *Augmentum*, is assured that he has met with the infallible Verity, with an incorruptible Tincture, yea, with an infinite Treasure; and needs the help of no other Instructor.

XXVIII. This Augmentation in the particular and universal way is to be kept in the profundity of the Philosophick Silence; and when Discoursed of, to be done only in Parables, Riddles, and Similitudes, and as it were at a distance, that Profane and Vile Persons may be kept from the knowledge thereof.

XXIX. The

XXIX. The Possessor of this Treasure has no occasion to run to Kings, Princes, Lords, Nobles, or Great Men: they that do so, have none of the Secret, but desire to try Conclusions at other Mens Charges.

XXX. The true Possessor seeks not after such Friendships, or Earthly Glories; he is content with his *Modicum*, or Little, and has enough, even the whole World in his Philosophers Egg, which he can carry about him whersoever he goes.

XXXI. Besides, he may consider, that between a Prince and himself, no endeared, no faithful or constant Friendship is to be found: and so says *Sandivogius*: as often (says he) as I went about to communicate any thing to Princes and Lords, I always met with deceit and vexation.

XXXII. But to the matter in hand: *Endeavour wisely to prepare the Philosophick Subject; keep the same in a due heat, in the Philosophick Marriage Bed; and in patience possess your Soul, till the Consummation of the Work is accomplished.*

XXXIII. *Avoid all great Compounds; and think not that you have obtained any* Particular *tho' from* Luna; *unless she is meliorated thro' the Influence, Power, Goodness and Sweetness of* Sol.

XXXIV. 'Tis a meer deceit to say, that there is no Gold, but what was first Silver; nor any Silver, but what was first *Saturn*, *Jupiter* or *Venus*: if this was not true, then *Aq. Regis* would dissolve *Silver* as well as *Gold*: and *Aqua Fortis* would dissolve *Gold* as well as *Silver*, which we see and know they will not.

XXXV. For if so, we need not look long after the true Tincture; for it would be a small matter to Digest the Oar's of *Lead*, *Tin*, *Copper* and *Silver*, so as to transmute them into a better Matter or Metal.

XXXVI. And you will find it to be a certain Truth, *that every Genus has its particular* Semen, *or Seed, and cannot be meliorated, unless it is done by the* Acme, *or Superfluity of the Fixity of* Sol *and* Luna.

XXXVII. But I grant, *that the Original or Beginning of Metals in the General, is a Vitriolick, Salt Water, which is impregnated by the Sulphur of every* Genus, *and then is formed or transmuted into such a Metal, according to the kind of the Sulphur.*

XXXVIII. Now if any one should attempt to dissolve the Inferior Metals into their first Water, thro' the first Water, and then to impregnate and fix it with the *Sulphur*, *Semen*, or Seed of *Sol* and *Luna*, the Work would be so long in perfecting, that no Man, tho' never so long Liv'd, could ever live to see the end thereof.

XXXIX. And besides, who is it, that is so fill'd with Learning and Understanding, and the Spirit of Wisdom, that can find out this *first Water of Metals*: without which, this so long Process, could never be accomplished?

XL. In conclusion, be warned, and follow my Advice, which in this Discourse I have given: Observe the words of my Doctrine, and take it for a Maxim of Truth; *That without the Conjunction of Sol and Luna, the Royal Offspring can never be conceived or brought forth.*

CHAP. XXIII.

An APPENDIX,

Containing Certain Natural Experiments.

I. *To make Artificial Flesh.*

Take Crumbs of the best Wheaten Bread, as soon as it comes forth out of the Oven, being very hot, and as much as you please: put it into a bolt head of Glass, (without any other moisture than what is in the Bread it self) which presently seal up Hermetically. Then set it in Digestion in a temperate Balneo, the space of two Months, and it will be turned into a Fibrous Flesh. This being exalted to a higher perfection by the Rules of Art, you may easily see how great a Nourisher and Restorative Wheat is, and what an Excellent Medicine may be made of it.

II. *To make an Artificial Mallago Wine.*

Take a Wine Vessel well Hoopt with Iron Hoops, and one end open, to which a close Cover must be fitted to take on and off at pleasure, set it in a warm place, fill it full of fair Water, to every Gallon of which put two Pounds of Mallago Raisons, first bruised in a Stone Mortar;

Mortar; and to every Twenty Gallons of Water a good handful of Calx Vive: cover the Veſſel cloſe, and keep it warm with Cloths: let it ſtand four or five days to work: then ſee if the Raiſons be riſen up, and beat them down, and cover it again as before, beating them down every fourth or fifth day for three or four Weeks: then put a Tap in, four Inches above the bottom, and ſee if it taſts like Wine; if not, let it ſtand a while longer; after which draw it off into another Wine Veſſel, and to every Twenty Gallons put a Pint or Quart of the beſt Spirit of Wine (as you would have it in ſtrength) two new laid Eggs, and a Quart or better of Allicant well beaten together. Let it ſtand in a Cellar as other Wine till it is fine, and fit to be Drunk.

III. *To make an Artificial Claret.*

Take Water ſix Gallons: choice Cider two Gallons: beſt Mallago Raiſons bruiſed eight Pounds: mix and let them ſtand all in a warm place fourteen days, ſtirring them well once every day. Then preſs out the Raiſons, and put the Liquor into the Veſſel again, to which add juice of Raſp-Berries a Quart: juice of Black Cherries a Pint: juice of Black Berries a Pint and a half: cover this Liquor with Bread ſpread thick with ſtrong Muſtard, the Muſtard ſide being downwards, and ſo let it work by the Fire three or four days; after which Tun it up, let it ſtand a Week, and Bottle it up, ſo will it become a very brisk and pleaſant Drink.

IV. *To make an Artificial Malmſey.*

Take eight Gallons of Spring Water: Engliſh Honey two Gallons: make them Boil over a gentle Fire for an Hour: take it off, and when it is cold, put it into a Rundlet, hanging in the Veſſel a Bag of Spices, and ſet it in the Cellar for half a year, at the end of which you may Drink it.

V. *To make Raſp-berry Wine.*

Take Canary a Gallon: Raſp-berries 2 Gallons: mix and digeſt 24 hours: ſtrain them out, and add Raiſons of the Sun ſtoned three Pounds: digeſt again four or five days, ſometimes ſtirring them together: then pour off the cleareſt, and put it up into Bottles, which put into a cold place: if it be not ſweet enough you may dulcify it with Sugar.

VI. *Another way to do the ſame.*

Take

Take juice of Raſpberries, Bottle it up cloſe, and ſet it in a Cellar, and it will become clear, and keep all the year long, and be very fragrant, a few Spoonfuls of this put into a Pint of Wine ſweetned with Sugar, will give it a full taſte of the Berry: two or three Ounces of the Syrup of the juice will do the ſame.

VII. *To purify Oyl Olive, that it may be eaten with pleaſure.*

Take fair Water 2 Quarts, Oil Olive a Pint: mix, and ſhake them well together for a Quarter of an Hour in a Glaſs; then ſeparate the Water from the Oil with a ſeparating Funnel. Do this four or five times, or more, as you ſee occaſion, till the Oil becomes very pure: and the laſt time waſh it with Roſe Water, then hang in the midſt of the Oil a courſe Bag full of bruiſed Nutmegs, Cloves, and Cinnamon, ſo will you give it an excellent taſte.

VIII. *To purify Butter, and make it of a moſt ſweet taſte.*

Melt Butter with a ſlow Fire in a well glazed Earthen Veſſel, being almoſt filled with fair Water, working them well together, and when it is cold take away the Curds and the Whey at the bottom. Do it again the ſecond time; and if you ſo pleaſe, the third time in Roſe Water, always working them very well together. The Butter thus clarified will be as ſweet in taſte, as the Marrow of any Beaſt, and keep a long time, by reaſon of the great impurity which is removed by this means; the Droſs being near a Quarter of the whole.

IX. *To make Sage, Parſley or Pennyroyal Butter.*

When the Butter is newly made, and well wrought from its Water, Milk, and Wheyiſh part; mix therewith a little Oil of Sage or Parſley, ſo much, till the Butter is ſtrong enough in taſte to your liking, and then temper them well together: this will excuſe you from Eating the Plants therewith: and if you do this with the aforeſaid clarified Butter, it will be far better.

X. *To purify and refine Sugar.*

In a ſtrong Lixivium of Calx Vive diſſolve as much courſe Sugar as it will bear, adding to every Quart of Liquor, 2 Whites of Eggs, beaten into Glair, ſtir them well together, and make them Boil a little, taking off the Skum, as long as any will ariſe: then paſs all through a great Woollen Cloth Bag, ſo the Fœces will remain behind

behind in the Bag, then Boil the Liquor again so long till being dropt upon a cold Plate, being cold, it is as hard as Salt: this done, put it out into Pots or Moulds for that purpose, having a hole in the narrower end thereof, which must be stopt for one Night, afterwards being opened, the Molosses or Treacle will drop forth: then cover the ends of the Pots with Potters Clay, and as that Clay sinks down, by reason of the sinking of the Sugar, fill them up with more Clay, doing thus, till the Sugar will sink no more. Lastly, take it out, and being hard and dry, bind it up in Papers.

XI. *To make a Vegetable grow more glorious than its Species.*

Reduce any Vegetable into its 3 first Principles, and then join them together again, being well purified: put the same into a Rich Earth, and you shall have it produce a Vegetable far more Glorious, than any of its Species.

XII. *To make a Plant grow in two or three Hours.*

Take Ashes of Moss, which moisten with the juice of an old Dunghill, (being pressed out and strained) then dry them a little, and moisten them as before; do this four or five times: put this Mixture, not being very dry, nor very moist, into an Earthen Vessel, and in it set Seeds of Lettice, Purslain, or Parsley; (for they will grow sooner than other Seeds) being first impregnated with the Essence of a Vegetable of its own Species: (some say the juice of the same Plant, but especially the Spirit will do instead of the Essence) till they begin to sprout forth; which then put into the said Earth, with that end upwards which Springs. Put the Vessel into a gentle heat, and when it begins to dry, moisten it with the said juice of Dung: Thus may you have a Sallet while Supper is making ready.

XIII. *To reduce a whole Vegetable into a Liquor, which may be called the Essence thereof.*

Take the whole Plant with Flowers and Roots, bruise them in a Mortar, put all into a large Glass Vessel, (but a Wooden one is better) so that two of three parts may be empty; cover it exceeding close, and let it stand in Putrefaction in a moderate heat for a year, and it will all be turned into a Water.

XIV. *To*

XIV. *To make the Lively Form and Idea of any Plant appear in a Glass.*

Take the former Water (at Sect. 13.) Distill it in a good Glass in Ashes, and there will come forth a Water and Oil, and in the upper part of the Vessel a Volatile Salt: the Oil separate and keep by it self; with the Water dissolve the Volatile Salt, and purify it, by Filtering and Coagulating. This purified Salt imbibe with the said Oil, until it will imbibe no more; Digest them well together for a Month in a Vessel Hermetically Sealed; so will you have a most subtil Essence, which being held over a gentle heat, or the Flame of a Candle, by which means it may be made hot, you will see the fine Substance, (which is like impalpable Ashes or Salt) send forth from the bottom of the Glass, the manifest Form and Idea of the Vegetable, vegetating and growing by little and little, and putting on so fully the form of Stalks, Leaves and Flowers, in such perfect and natural wise, that one would believe the same to be real; when as in truth it is the Spiritual Idea, arising with the Spiritual Essence of the Plant; this, were it joined with its proper Earth, would take to it self a more solid Body. Now as soon as the Vessel or Glass is removed from the Fire, this Idea or Representation vanishes, becoming a Chaos and confused Matter, returning to its Sediment, from whence it arose.

XV. *Another way to make the Essence of a Plant.*

Put the Herbs, Flowers, Seeds, Spices, *&c.* into rectified Spirit of Wine; extract a very strong and deep Tincture, upon which put strong Oil of Salt, and Digest in *Balneo*, till an Oil swim above, which separate; or else draw off the Spirit of Wine in *Balneo*, and the Oil or Essence will remain at bottom: but before the Spirit of Wine is abstracted, the Oil or Essence will be Blood red.

XVI. *Another way to make the true Essence, or rather Quintessence.*

Make the Water, Oil, and Volatile Salt, as before is Taught; and from the Fœces extract the fixed Salt, which purify according to Art; which Salt resolve in a Cellar upon a Marble Stone to an Oil, which is that we call *per Deliquium*; filter it and evaporate, till the Salt is white as Snow, with these Salts imbibe as much of the Oil as you can make it receive; then digest till the Oil will not separate

ſeparate from the Salt, but become a fixed Pouder, melting with an eaſie heat.

XVII. *To make the form of a Firr Tree appear in Colophonia.*

Diſtill Turpentine in a Retort *gradatim:* when all is Diſtilled off, keep the Retort ſtill in a reaſonable heat, that what humidity is ſtill remaining may be evaporated, and it become dry. Take it then off from the Fire, and hold your hand to the bottom of the Retort, and the Turpentine which is dryed, (called alſo Colophonia or Roſin) will crack aſunder in ſeveral places, and in thoſe Cracks or Chaps, you ſhall ſee the perfect figure of Firr Trees, which will there continue many Months.

XVIII. *To make Harts Horn ſeemingly grow in a Glaſs.*

Take Harts Horn broken into ſmall bits, and put them into a Glaſs Retort to be Diſtilled, and you ſhall ſee the Glaſs to be ſeemingly full of Horns; which will continue there ſo long, till the Volatile Salt be come over.

XIX. *An Excellent Invention to make a pleaſant Fire.*

Take of the beſt New Caſtle Coals 3 parts beaten ſmall: Loam one part: mix them well together into a Maſs with Water, of which make Balls, and dry them very well. This Fire is durable, ſweet, and not offenſive, by reaſon of the Smoak or Cinders, as other Coal Fires are, but Burns as well in a Chamber as Charcoal it ſelf. And this Fire may ſerve alſo for Diſtillation.

XX. *To make a durable and laſting Oil.*

1. Take unſlaked Lime, Bay-Salt, Oil Olive, of each a like quantity; mix them well together, and Diſtill in Sand: Cohobate the Oil upon the ſame quantity of freſh Lime and Salt: this do 4 times. 2. The Oil by this means will be clear, and impregnated with what Salt was Volatile in the Lime and Salt. 3. If it be ſeven times Diſtilled, it will be as pure, odoriferous and ſubtil, as many Diſtilled Oils of Vegetables. 4. This Oil whilſt a Diſtilling, has a moſt fragrant Smell, and of a moſt durable quality, which durability comes from the Saline Impregnation: beſides which, it is good againſt any inveterate Ach or Pain in the Limbs, or other parts. 5. A Lamp made with this Oil, will burn ſix or ſeven times as long, as that which is made with other Oil; alſo it burns very ſweet. 6. You ought to be very cautious in making of it, or elſe your Glaſſes will quickly break. 7.

You

You must take very strong Lime, such as your Dyers use, and call *Cauk*.

XXI. *To make a Candle that shall last long.*

Mix with your Tallow unslaked Lime in Pouder: Or make your Candles of Castle Soap: such Candles as these will be admirable for Lamp Furnaces. Now it is the Salt in the Lime and Soap, that preserves the Tallow from burning out so fast, as otherwise it would.

XXII. *To make the Distilled Oil out of any Herb, Seed, Flower, or Paper, in a moment, without a Furnace.*

You must have a long Pipe made of Tin, or Tobacco-Pipe Clay, with a hole in it as big as a small Wallnut, three or four Inches from one end of it, into which you must put the matter you would have the Oil of: set it on Fire with a Candle or a Coal: then put one end of the Pipe into a Bason of fair Water, and blow at the other end, so will the Smoak come into the Water, and the Oil will swim upon it, which you may separate with a Funnel.

XXIII. *To reduce Rosin into Turpentine again.*

Take Oil of Turpentine and the Colophonia, or Rosin thereof, in Pouder: mix these together, and Digest them, and you shall have Turpentine of the same consistency it was before, but of a more fiery and subtil Nature: Pills made hereof are more excellent for opening Obstructions of the Brest, Lungs, Kidneys, Bowels, *&c.* than those that are made of raw Turpentine.

XXIV. *To Write or Engrave upon an Egg, Pibble, Flint,* &c.

Write what you please with Wax or Grease upon an Egg, Pibble, Flint, *&c.* then put it into the strongest Spirit of Vinegar, or Oil of Salt, letting it lie two or three days; and you shall see every place about the Letters or Writing, eaten or consumed away; but the place where the Wax or Grease was not at all touched.

XXV. *To make a Pouder, which being wetted shall be kindled.*

1. Take a Loadstone, pouder it, and put it into a strong Crucible, cover it all over with a Pouder made of Calx Vive and Colophonia, of each a like quantity; put also some of this Pouder under it: when the Crucible is full, cover it, and lute the closures with Potters Earth, put it into a Furnace, and there let it Boil; after take

take it out, and put the matter into another Crucible, and set it in a Furnace also; this do till it becomes a very white and dry Calx. 2. Take of this Calx one part: Sal Niter well purified four parts: and as much Camphire, Sulphur Vive, Oil of Turpentine and Tartar: Grind what is to be Ground to a subtil Pouder. and put all into a Glass Vessel, with as much well rectified Spirit of Wine, as will cover them two inches over. 3. Stop the Vessel close up, and set it in Horse Dung three Months, so will all the matter become an uniform Paste: Evaporate all the Humidity, until the whole Mass becomes a very dry Stone; which take out, pouder it, and keep it very dry. 4. If you take a little of this Pouder, and spit upon it, or pour some Water thereon, it will take Fire presently; so that you may light a Match, or any such thing by it.

XXVI. *To make a Room seem to be on Fire.*

Take rectified Spirit of Wine, and dissolve Camphire therein; evaporate this in a very close Chamber, where no Air can get in; and he that first enters the Chamber with a lighted Candle, will be amazed; for the Chamber will seem to be full of Fire, and very subtil, but of little continuance. This done in a close Cupboard or Press, will be much more perspicuous and visible.

XXVII. *To make the four Elements appear in a Glass.*

Take Jet in fine Pouder an Ounce and half: *Oleum Tartari per deliquium*, (made without addition of any Water) two Ounces, coloured with a light Green, with Verdigrise: add thereto Spirit of Wine, tinged with a light Blew, with Indico, two Ounces: of the best rectified Spirit of Turpentine, tinged of a light Red with Madder, two Ounces: mix all these in a Glass, and shake them together, and you shall see the heavy black Jet fall to the bottom, and represent the Earth: next the Oil of Tartar made green falls, representing the Water: Upon that swims the Blew Spirit of Wine, representing the Air or Sky: And uppermost of all will swim the subtil, red Oil of Turpentine, representing the Element of Fire. It is strange to see how after shaking all these together, they will be distinctly separated one from another. If it be well done, (as it is easie to do) it is an Admirable and Glorious Sight.

XXVIII. *To represent the whole World in a Glass.*

Take

Take the fineſt Sal-Niter, what you pleaſe; Tin, half ſo much: mix them well together, and Calcine them Hermetically: then put them into a Retort, to which adjoin a Glaſs Receiver, with Leaves of Gold, put into the bottom thereof; lute them well together; put Fire to the Retort, until Vapours ariſe that will cleave to the Gold: augment the Fire till no more Fumes aſcend; then take away the Receiver; cloſe it Hermetically, and make a Lamp Fire under it; and you will ſee repreſented in it, the Sun, Moon, Stars, Fountains, Trees, Herbs, Plants, Flowers, Fruits, and indeed, even all things, after a very wonderful manner.

XXIX. *To make a perpetual motion in a Glaſs.*

Take Quickſilver, Tin, *ana* ſeven Ounces: pure Sublimate fourteen Ounces: diſſolve in a Cellar upon a Marble, (which in four days will become like Oil Olive) mix and diſtill in Sand, and there will Sublime a dry Subſtance: put the Water which Diſtills off back upon the Earth, in the bottom of the Stillatory, and diſſolve what you can: Filter it, and Diſtill it again, and this do four or five times; then will that Earth be ſo ſubtil, that being put into a Vial, the ſubtil Atoms thereof will move up and down for ever: but you muſt be ſure to keep the Glaſs cloſe ſtopt, and in a dry place.

XXX. *To make Regulus of Antimony, for Antimonial Cups.*

Take Antimony in Pouder, Niter, of each a Pound: crude Tartar in fine pouder two Pounds: mix, put them into a Crucible, cover the Crucible, and melt, ſo will the *Regulus* fall to the bottom, which pour into a braſs Mortar ſmeared with Oil. *Or thus.* Take Antimony poudered two Pounds: crude Tartar in pouder four Pounds: melt as before. This *Regulus* you may caſt into Cups, Pictures, Medals, or what Figures you pleaſe: Theſe infuſed in two or three Ounces of Wine in an Earthen glazed Veſſel, or in a Glaſs, in a gentle heat all Night, gives you a Liquor in the morning which will Vomit: Doſe from two Drams, to two Ounces and a half; you may ſweeten it if you pleaſe with a little as white Sugar. Theſe Cups or Pictures will laſt for ever, and be as effectual after a thouſand times Infuſionat firſt.

Explicit Liber Septimus.

POLY-

POLYGRAPHICES

LIBER OCTAVUS.

Faber's Arcanum's.

Containing the 112 Chymical Arcana of *Peter John Faber*, a moſt Eminent and Learned Phyſician.

Tranſlated out of Latin *into* Engliſh, *By* William Salmon, *M. D.*

CHAP. I.

The higheſt Tincture of Sol, *fixed, for* Luna.

I. TAKE of Gold and Venus, of each equal parts, melt them together in a ſtrong Crucible, then beat them into thin Plates, and cement them together with a part of the following Cement.

II. Take Antimony and Cinnabar A. ℥ij. Lapis Hæmatitis, common Vitriol calcined red, common Salt prepared, A. ℥j. Bole Armoniack ℥ß. German Azure Stone ℥ß. reduce all into a fine Pouder, which ſtrew upon the aforeſaid Plates (in a ſtrong Crucible) *Stratum ſuper Stratum.*

III. Cement them together with a Fire of Reverberation for twelve hours; then take out the Crucible, and melt the Metal within it: how much of the Venus is carried away in Fumes, you may know by weighing it.

IV. Repeat the Work again with new Venus extracted from the Mine, by melting them, beating them into Plates, and cementing again with the aforesaid Pouder for other twelve hours, with a reverberatory Fire.

V. Continue the Repetition for twelve times, always adding new Venus; so shall you have at last a most rubicund Gold, one part of which being put upon twelve parts of fixed Luna, shall transmute it into most fine Sol; and by this is Gold multiplied.

CHAP. II.

The manner of fixing Luna.

I. TAke of the best Luna calcined with Mercury, as much as you please, reduce it into fine Pouder, and mix it with an equal quantity of the (*a*) Cinnabar of Antimony.

II. Sublime, and in every Sublimation, renew the Cinnabar for three times: what remains in the bottom after the third Sublimation, dissolve in this following Aqua fortis.

III. Take Niter and Vitriol A. ℔j. Antimony and Verdigrise A. ℥iij. mix them, and make an Aqua fortis according to Art.

IV. In the prescribed A. F. dissolve the above prepared Luna; hastening the Dissolution in warm Ashes for three days: after the third day draw off the Aqua fortis by Distillation.

V. That which remains in the bottom, reduce into a body with Borax, so is it fixed and tinged, and after a wonderful manner will embrace the above prepared Tincture of Gold.

VI. And this is the way by the help of which the Tincture of Venus is drawn out of the body of Venus, and

and is transmitted fixed into the body of Sol, and out of Sol again into fixed Luna.

(a) *Some suppose, that for want thereof, you may use Hungarian Cinnabar.*

CHAP. III.

The White fixed Tincture for Venus.

I. ℞ MErcury sublimate ℔ß. or as much as you please; of the most pure and limpid Oil of Tartar ℔j. Borax ℔ij. dissolve the Borax in distilled Vinegar a sufficient quantity; filtrate the Dissolution, which being clear and limpid, join with the former Oil of Tartar; then mix with them the Mercury sublimate in fine Pouder, and let it be dissolved in warm Ashes.

II. Upon that which will not be dissolved, put new Oil of Tartar conjoined as before, with the Dissolution of Borax.

III. Then distil the Dissolution in Ashes; and upon what remains in the bottom, put new Oil of Tartar and Borax as before, till the Mercury shall become in the bottom of the Alembick like Wax, flowing with a very gentle heat, and congealing with cold.

IV. Project one part of this Oil of Mercury, upon ten parts of melted Venus, and it will be all good Silver: And so the fixed Oil of Mercury tinges Venus both within and without, that the Tincture remains for ever.

CHAP. IV.

The fixed Oil of Mercury.

I. ℞ MErcury sublimate, and Sal Armoniack Ana, as much as you please; sublime them both together four times, or till there shall remain in the bottom

of the ſublimatory, a great quantity of fuſible Mercury, and in the neck of the Retort the Sal Armoniack.

II. Break the Retort, reduce the Mercury into Pouder, which diſſolve in (*a*) diſtilled Vinegar: filtrate the Solution, and diſtil the Vinegar: what remains in the bottom diſſolve again in freſh diſtilled Vinegar.

III. At length diſſolve it in common diſtilled Water, which Solution do ſo often, till the Mercury is converted into a pure Oil, which is able to diſſolve all things; but moſt powerfully Gold and Silver.

IV. And Gold and Silver, diſſolved in this Oil of Mercury, and coćted or digeſted till they are converted into a fixed Oil, or fixed Salt, will make a wonderful Projection upon Venus, yea upon crude Mercury.

V. The reaſon is, becauſe that this Oil or Salt being (*b*) fixed, converts the ſame Metals into fine Silver.

VI. If this Salt be made Volatile, and then fixed again, it will be a more powerful Arcanum.

(a) *There is intended Spirit of Vinegar.* (b) *The Oil or Salt is not fixed, but is ſo called in reſpect of the end or intention which is to fix; for no fixed thing can fix a volatile thing, for fixity demonſtrates nothing but deadneſs, and no dead thing can invade another's Property: this is apparent to be intended, by the very Propoſition following theſe words.*

CHAP. V.

The Red Cinnabar of Antimony.

I. TAke of the beſt Antimony and Mercury ſublimate, Ana: diſtil them by a Retort: and to the matter remaining in the Retort, add new Mercury ſublimate, and diſtil again as before.

II. At length, force the matter with a ſtrong Fire, ſo will the Cinnabar of Antimony be ſublimed in the neck of the Retort; which for three days is to be continually in the Retort, till it is very red.

III. But the Liquor which diſtils from the Mercury ſublimate and Antimony, highly rectify by Diſtillations, till it emits no fæces.

IV. To

IV. To this put Mercury seven times sublimed, and, by various and many reiterated Distillations it will be fixed; which you will the more easily obtain, if you add the former (*a*) described Oil conjoined with Luna, and fix them together by reiterated Cohobations.

V. Thus have you the Oil of Mercury and Antimony, which is admirable to transmute Jupiter into Luna, by putting one part upon ten parts of melted Jupiter.

(a) *That Oil is intended at sect. 4. chap. 4. aforegoing.*

CHAP. VI.

A fixed Tincture to project upon Venus.

I. TAke fixed Oil of Tartar, (as we shall hereafter teach) Sulphur Vive, A. ℥ij. mix them, and make a paste, which put into a Retort, and distil, so have you a red Liquor.

II. This Liquor put with crude Mercury into a Glass Retort, draw it off again by Distillation, and the Mercury will be fixed at bottom of the Retort.

III. You may project with this fixed Mercury upon Venus fused in a Crucible (one part upon five parts of Venus) but it will not be able to make a Transmutation, except that the fixed Tartar be conjoined with Luna in a fixed Oil.

IV. The reason is, because there is no fixed Tincture can be made to tinge, without the perfect Metal is converted into an Oil or fixed Salt, from whence is made a fixed Oil by a constant and through boiling.

CHAP. VII.

The fixing of Oil of Tartar.

I. TAke Tartar calcined to whiteness; dissolve it in common Water, filter and make it very pure.

II. Then in a Glaſs Urinal, over a gentle heat in Sand, evaporate the Humidity, till a skin or ſuch like appears to cover it on the top.

III. That ſign appearing, put in a little fair common Water; and boil it again, till a skin appears on the ſuperficies or top of it.

IV. Put again to it a little common fair Water, and boil it again, till you ſee a skin again appear to cover it.

V. Put again more Water, and boil it again, till a skin covers it again: This do ſo many times and ſo long till no more skin will appear to cover it, for then it is fixed, and will remain or endure fuſion in the Fire.

CHAP. VIII.

To fix the Oil of Sal Armoniack.

I. TAke Sal Armoniack ℔j. Quick-lime ℥viij. common Water ℥ſs. mix and incorporate them together: put them into a ſtrong Crucible, which cover and lute very well, putting it in a cementing Fire for four hours, then taking it out.

II. Diſſolve the matter in common warm Water, and make it boil for an hour, then filter, and make the Liquor very clear.

III. This Liquor evaporate, and congeal the Salt, which then mix together with the White of an Egg.

IV. Put this into a moiſt place to diſſolve into Oil, moſt glorioufly fixed: to which conjoin an equal quantity of Mercury ſeven times ſublimed, by cohobating it upon the matter which will not ſublime, till they are both brought into a fixed Oil.

V. One part of this Oil put upon melted Venus ℔xij. tinges it admirably white, which whiteneſs will remain for ever.

VI. But if you conjoin this Oil with Oleum Lunæ, it will be much more noble and perfect.

CHAP.

CHAP. IX.

A wonderful Red Tincture extracted from Vitriol.

I. TAke Roman Vitriol calcined to Redneſs, diſſolve it in diſtilled Vinegar with filtrate, and make very clear, evaporate, deſiccate, and congelate it and reduce it into a very ſubtil Pouder.

II. Imbue it till it grows moiſt with Water of Sal Armoniack, extracted by Diſtillation, and dry it with a gentle Fire.

III. Imbibe it again with Water of Sal Armoniack, drying it as before; this do ſo many times, till it has drunk up ſo much of the Watter of Sal Armoniack, as the Vitriol it ſelf did weigh.

IV. Put the matter ſo imbibed in a large Glaſs Matreſs well ſtopped, which place in a hot Bath for fifteen days, or in Horſe Dung, which keeps more the equality of the heat.

V. Then take the Vitriol out of the Matreſs, and put it into a well luted Retort, from which diſtil with a gentle Fire, to drineſs, or ſo long till no more will come forth.

VI. After augment the force of the Fire gradually, till the Spirit comes forth, and continue it in the ſame degree, till all the Spirits are come over.

VII. Let the Fire be yet augmented, till the Retort grows red and is perfectly hot, ſo will the Vitriol be rubified.

VIII. *That* you ſhall join with the matter found ſublimed in the neck of the Retort, by beating them together: which mix with their own Water contained in the Recipient, by imbibing, beating and drying ſo long till all the Water is infuſed, and imbibed into the ſaid Vitriol.

IX. And the Sublimation is to be reiterated, joining the volatile matter with the fixed; ſo will there be a matter fixed, and very red as Blood.

X. *This* you muſt reduce into Pouder; put it into a ſtrong Glaſs Phial, which cloſe well; bury it in a cold

and moist place for fifteen days or more, till it is dissolved into a most red Water, which filter and make very clear.

XI. Project this upon Mercury seven times sublimed, so will it be rubified, and converted into a red Oil.

XII. This Oil conjoin with an equal quantity of the Oil of Gold, which you shall fix together in a Retort, by abstracting the Humidity with a gentle Fire, so have you a perfect Medicine.

XIII. One part of this Medicine being put upon a thousand parts of crude Mercury, warmed in a Crucible; or upon a thousand parts of Luna, or of any other imperfect Metal, it will convert them into the most pure Gold.

CHAP. X.

To make the aforesaid Oil of Gold.

I. TAke of Sol as much as you please, dissolve it in Royal Aqua fortis wherein Sal Armoniack or common Salt is dissolved.

II. Keep warm the Dissolution for fifteen days, then abstract the A. F. by Distillation, cohobating the distilled Water many times upon the matter remaining in the bottom of the Stillatory.

III. Renew the A. F. three times, till the Sol remains converted in the bottom of the Vessel into a red Oil.

IV. Dissolve a quantity of this Oil in Aqua Ardenti deflegmated, and let them be conjoined.

V. Afterwards abstract the Aqua Ardens or Spirit of Wine, and the Oil of Sol will remain in the bottom of the Vessel.

VI. This Oil conjoin with the aforesaid (a) sublimated Mercury, so have you indeed a perfect Medicine.

(a) *At sect.* 10. *and* 11. *of chap.* 9. *aforegoing.*

CHAP.

CHAP. XI.

To make an increaſe of Gold and Silver.

I. TAke of the beſt foliated Sol ℥j. of the beſt Mercury ℥iiij. mix them together, and make an Amalgama.

II. Then take of common Salt decripitated, as much in weight as is all your Amalgama, which mix together by beating.

III. Put them into a Glaſs Retort in Aſhes, and diſtil with a very ſtrong Fire, ſo will the Mercury aſcend, and be ſeparated from the Gold, which will remain in the bottom of the Veſſel.

IV. The Gold waſh with common fair Water ſo long till it has no taſt of the Salt.

V. Then take it out and melt it alone, and you ſhall find your ounce of Gold to be encreaſed a whole drachm, *viz.* for your ℥viij. you will have ℥ix.

VI. This Gold, if you cement with the Cement deſcribed in (*a*) our firſt Arcanum, and then again amalgamate it with the former Mercury, you ſhall multiply the Gold more and more, even till all (*b*) the Mercury is tranſmuted into Gold.

VII. And by many times cementing the Gold, and amalgamating it with Mercury, and mixing it with decripitated Salt, as is afore ſaid in this Arcanum, you will have a very high and large Augmentation.

(a) *See chap.* 1. *ſect.* 2. (b) *Till a great part of it is tranſmuted.*

CHAP. XII.

A fixed Tincture for Venus.

I. TAke filings of Venus ℔j. of the beſt Mercury waſhed ℔ij. beat them with Vitriol in a Marble Mortar, till they are amalgamated together. II.

II. This Amalgama beat, and by many Lotions make it purely white, to which add Sal Armoniack ℔j. white Arsenick ℥vj. white Tartar ℥j. common Salt decripitated ℥j.

III. Beat all together, and imbibe the Pouder with distilled Vinegar, till the mass becomes of the body and thickness of Honey.

IV. Put it into a Retort, and distil to dryness, or as much as you can make come over; and what sublimes, put upon the Fæces, and mix them by beating or grinding.

V. This Mixture imbibe with new distilled Vinegar (a) so long till nothing will ascend, but all remains fixed in the bottom.

VI. This fixed matter beat, and mix it with the Whites of Eggs, dry it with a gentle heat, and put it into a Pot (not of Glass or glazed) with a fit Cover well luted to it, and calcine it in a strong Fire, for one whole day.

VII. Then dissolve the matter in (*b*) Mineral distilled Vinegar, filtrate and make it very clear; then evaporate the Vinegar by Distillation to dryness.

VIII. Dissolve it again, filter and clarify, which four times repeat, till your fixed matter remains in the bottom of the Alembick, like running Oil.

IX. One part of this, conjoined and melted with as much of the best Luna, is sufficient to be put upon thirty parts of purging Copper.

X. And if the matter be oftentimes dissolved in Mineral distilled Vinegar, and as often coagulated and dissolved again, at length one part will be enough to cast upon an hundred parts of purified Copper.

(a) *Distilling again to dryness, and imbibing and distilling.* (b) *This Mineral Vinegar ought to be extracted with Niter, or common Salt, for then alone it makes the Solutions and Coagulations.*

CHAP.

CHAP. XIII.

The Purgation of Venus *for the former Tincture.*

I. TAke an hundred Whites of Eggs, beat them together with a Stick, till they are converted into a Glair or Water.

II. In this Water put hot (*a*) Eggſhels to the quantity of ℔j. crude Tartar ℔i. put them into a Glaſs Veſſel, ſtop it cloſe, and digeſt it in warm Horſe Dung for eight days; then diſtil a Water therefrom by a Retort.

III. In this Water quench fuſed and melted Copper three or four times; ſo will it be prepared and purged to receive the former Tincture.

(a) *The word the Author uſes is* Calens, *but in what ſenſe is ſomewhat difficult to be underſtood; if the thing he intends, be only dryneſs, doubtleſs they only ought to be made hot or warm: but if Incineration, they ought to be made red hot, or calcined.*

CHAP. XIV.

To congeal or harden Mercury.

I. TAke of Mercury thus prepared as much as you pleaſe. Let the Mercury boil in the Juice of Limons for ſix hours; then boil it again for ſix hours in the Juice of Bears Breech; and then for other ſix hours in common Oil and Vinegar mixt together in equal quantity.

II. The Mercury thus prepared, put into a ſtrong Glaſs Matreſs well luted with this following Lute.

III. ℞ Calx viva well beaten, Tartar well beaten, and common Salt A. q. s. (*a*) make a Paſte with Whites of Eggs, of which make Lute; and with which let the Matreis, wherein is the prepared Mercury, be luted according to Art.

IV. Let

IV. Let the Matreſs have a very narrow mouth, which cloſe very well with a Glaſs Stopple, and the aforeſaid Lute. (*b*)

V. Then put it into a gentle Fire in Aſhes for three hours, afterwards increaſe the Fire, and continue the ſame degree of heat for another day.

VI. This done, break the Glaſs, and you ſhall find the Mercury tranſmuted into good Luna.

(a) *You may ſee the way of making ſeveral other good Lutes fit for this Purpoſe in our* Pharmacopœia Londinenſis *lib. 6. cap. 5. ſect. 3, 5, 10.* (b) *If the neck be narrow enough, you may give it the Hermetick Lute at ſect. 14. of the aforecited place.*

CHAP. XV.

With the Regulus *of Antimony to make Gold.*

I. TAke Regulus of pure Antimony, fine Gold and Silver, of each equal parts, melt and make them run in a Crucible, ſo have you a friable or brittle matter like Glaſs.

II. Beat and pouder it, and make an Amalgama with ℥iij. thereof with the Mercury of Antimony ℥ix. which ſhut up in a Matreſs well cloſed.

III. Put it upon a gentle Fire for a Month; but in ſuch a Fire, as in a Month may inſpiſſate it, and make it grow black.

IV. In the ſecond Month increaſe the Fire, or bury the Matreſs again more deeply in Aſhes; but ſo increaſe the Fire, or bury it ſo much the more deeply, as that the matter may grow up into a mineral Tree.

V. Continue this degree for a Month; at length for eight days augment the Fire, till the matter is melted.

VI. This matter amalgamate again with new common Mercury well waſhed; and boil it again for three Months, as before, augmenting the Fire.

VII. Thus have you the matter of the Projection, one part of which being put upon ten parts of Luna, tranſmutes it into fine Gold. VIII. This

VIII. This matter, if it be throughly and perfectly depurated by Sublimation, and then fixed so as to be a Pouder, fusible like Wax or Butter, you have the Pouder of Projection to be put upon all Metals, one part upon a thousand of any impure Metal.

IX. And if moreover this matter be yet dissolved in mineral distilled Vinegar, and then coagulated, it adds much more to the perfection of the Work.

X. And if it be often dissolved in common Water distilled and coagulated, so that the matter be made (*a*) sweet, it works perfectly, and cures all Diseases, both in Mankind and Metals.

XI. These Solutions being very often iterated or repeated with fair common Water, it will be converted into a sweet red Oil.

(a) *That is meant sweet, as being freed from the Salts or corrosive Acidity of the Spirits of the mineral Vinegar.*

CHAP. XVI.

For the making of Sol.

I. TAke Niter, Verdigrise, Sulphur vive, Roman Vitriol, A. ℔ss. Sal Armoniack ℥iv. Cinnabar ℥ij. reduce them into a fine Pouder and mix them.

II. Put them into a luted Retort, and distil therefrom an Aqua Regis, observing the degrees of Fire.

III. In this A.R. dissolve of the best Sol ℥j. then in another Matress, dissolve a part of the best Mercury well washed ℥iv.

IV. Conjoin the Dissolutions, and with a gentle Fire separate the Aqua Regis, cohobating (the Water drawn off) thrice, upon the matter remaining in the Retort.

V. And put common Water often distilled (when the aforesaid A.R. is separated) upon the Fæces, which dissolve, filter and clarify; this often iterate, separating the A.R. which at last will all come forth.

VI. Then put upon the matter the first Water which is sweet, that at length it may sweeten the matter remaining

maining in the bottom of the Stillatory, and convert it to a sweet and fixed Oil.

VII. One part of this Oil put upon twenty parts of (*a*) Saturn or Luna, will convert it into Gold.

(a) *You must prepare your Saturn, or you will do nothing.*

CHAP. XVII.

For the whitening of Copper.

I. ℞ COmmon Salt calcined ʒfs. Quicklime ʒfs. Arsenick calcined ʒj. Tartar calcined ʒfs. fixed Salt Armoniack, Borax A. ʒij. Mercury sublimed (*a*) seven times as much, mix, and make of all a Pouder.

II. Calcine it (*b*) for an hour, then dissolve it in (*c*) distilled Vinegar, filter and evaporate the Dissolution.

III. Calcine it again a little, and dissolve again in distilled Vinegar; this Work so often repeat, till you have a Salt fusible as Wax, and an incombustible Oil.

IV. One part of this put upon p x. of (*d*) purged Copper aforementioned, converts it into good Silver: this is the best whitening of Copper.

(a) *I suppose there is intended* ʒxiv. or xlvfs. (b) *You must calcine it very gently, lest you lose your Labour.* (c) *Wheresoever you meet with distilled Vinegar, always understand the Spirit thereof, or that from which the flegm is abstracted.* (d) *The way is taught in chap.* 13. *aforegoing.*

CHAP. XVIII.

The Cementation of Sol.

I. TAke Roman Vitriol ʒij. Sal Armoniack ʒj. Verdigrise ʒfs. *Crocus Martis*, Niter, A. ʒi. mix and make a Pouder, which sublime till it will sublime no more.

II. Then

II. Then dissolve it in putrified Urine, filter, clarify and evaporate the Solution; that which remains at bottom, is the secret Cement.

III. Take (*a*) Luna and Gold of each ℥j. melt them together, and let the Mass be beaten into (*b*) thin leaves, which cement with its equal weight of the foregoing Pouder, and the whole Mass will be transmuted into fine Gold.

(a) *You must take cupellated or fine Luna.* (b) *I suppose very small filings, made with a very fine File, may do the work nearly as well.*

CHAP. XIX.

Oil of Sulphur Vive.

I. TAke of Tartar calcined ℔j. Sulphur Vive ℔ss. beat them into Pouder, and put it into a Retort, closing it well, which keep so for two days, without Distillation.

II. That time being past, distil by Ashes with a strong Fire, so shall you have a wonderful Oil, which certainly cures the Falling-sickness, if about gut. x. be taken for some days together in a Morning-fasting. (*a*)

III. So also Mercury prepared, as we have before declared in Chap. XIV. cures the Falling-sickness, being given (*b*) in gr. x.

IV. And if it be cast upon throughly melted Venus, it perfectly whitens it.

(a, b) *In a convenient Vehiculum, as Essence of Peony, Wine of black Cherries, or some such like Liquor.*

CHAP.

CHAP. XX.

A Tincture for Sol.

I. TAke of Sol ℥j. of Luna ℥ſs. of the beſt Mercury waſhed ℥ij. make an Amalgama, which put into a Glaſs body well cloſed.

II. Set it in a gentle heat for twenty or thirty days, till the Amalgama is converted into a red Pouder.

III. Join this with new Mercury, and boil (or digeſt) again till it is fixed, which work repeat four times, and diſſolve it in the following Aqua fortis.

IV. Take Roman Vitriol, Filings of Mars, Sulphur vive, Niter, common Salt, A. ℔ſs. from all which prepare a Water by Diſtillation, which will be very red.

V. In this Water diſſolve the aforeſaid matter, prepared from Gold, Silver and Quick-ſilver.

VI. Then abſtract the Aqua fortis, and cohobate oftentimes till the Water comes forth white.

VII. Diſſolve again in mercurial Vinegar diſtilled; filter, clarify and abſtract the Vinegar.

VIII. After that diſſolve the matter again in common Water diſtilled; then filter, clarify and abſtract the Water, till the matter remains in the bottom of the Veſſel, converted into a running Oil, or fuſible Salt.

IX. Caſt p j. of this Oil or Salt upon crude Mercury made pretty hot p. 100. and the whole will be converted into good Gold.

CHAP. XXI.

The Extraction of Mercury from Antimony.

I. TAke Antimony ℥viij. pouder it finely, and put it into Capacious Matreſs, upon which put the beſt Aqua Vitæ ℔ij. Salt of Tartar ℥vi. Sal Armoniack ℥iij. mix them well together in the ſame Matreſs: ſtop it up cloſe, and putrefy in warm Horſe Dung for fifteen days.

II. Then

II. Then take it forth, and circulate it (being yet close stopt) eight days.

III. After boyl it for two days, and you will find the Mercury in the bottom running, and Volatile: Out of every Eight Pound of Antimony, you will have running Volatile Mercury ℥v.

IV. This is the best Mercury for the performance of the Preparation of that Arcanum at *Chap.* 15. aforegoing.

CHAP. XXII.

An Elixir of the Golden Work.

I. SUblime Mercury seven times with common Salt prepared, and at last sublime the same five or seven times with Sal Armoniack, till the Mercury remain at the bottom fusible as Wax.

II. This Mercury dissolve in mineral distilled Vinegar, filter the Solution, and coagulate, by distilling from thence the Vinegar.

III. Dissolve the Mercury in the Vinegar, which repeat three or four times till the Mercury will melt as Wax.

IV. This Mercury thus prepared, dissolve in pure distilled Rain Water, then coagulate, which do many times; and at length dissolve it in the humidity of the Air.

V. To this clear and limpid Solution add the Calx of Sol (prepared with Mercury and common Salt) which dissolve alone into a most rubicund Liquor.

VI. This Liquor by many Solutions and Coagulations, convert into a fixed Oyl and a pure Elixir.

VII. Being cast upon a thousand parts of fine Luna, it will transmute it into the purest and best Gold.

CHAP. XXIII.

Of Drawing forth the Virgins Milk.

I. TAke Mercury seven times sublimed ℔i. Dissolve it in this following Water.

II. Take May Dew six times Distilled, common Aqua Fortis seven times Distilled A. ℔j. mix them together, and Distill by a Retort two or three times, so have you a very sharp Vinegar.

III. In this you must dissolve your aforesaid seven times sublimed Mercury, which Dissolution putrify for a Month in warm Horse-dung.

IV. Then Distill, and always conjoyn the Water which Distills over, with that part of the Mercury which remains at the bottom, till all the Mercury ascends by Distillation, which will quickly be done if the Artist be a wise searcher out of Nature.

V. For the Water of May Dew must be augmented when the dry Water ascends from the Mercury remaining in the bottom.

VI. Which Mercury is so often to be dissolved in the Distilled Water of May Dew, till at length it all ascends Acid.

VII. This is that which is called Lac Virgineum, or Virgins Milk, and the most sharp Distilled Vinegar (*a*) fitted for the Dissolution of all Metalick Bodies, converting them into a fusible Salt, and a fixed Incombustible Oyl.

VIII. By the help hereof all Our Arcanums are most perfectly compleated, without it nothing true can be found; from whence it comes to pass that this Vinegar is used in the making and perfecting of every Secret.

(a) *This is that Mercurial Vinegar mentioned Chap.* 20. *Sect.* 7. *aforegoing.*

CHAP.

CHAP. XXIV.

For the Whitening of Copper.

I. TAke of the beſt Luna as much as you pleaſe, melt it in a Crucible, and caſt upon it an equal quantity of the whiteſt Arſenick broken into little bits.

II. Caſt it into a Reed, or in the form of an Ingot, and it will be brittle as Glaſs.

III. Then beat it to Pouder, and mix it with an equal quantity of Mercury ſeven times Sublimed: Sublime again till the Mercury is fixed with the Luna in the bottom of the Veſſel.

IV. If this be not quickly done, conjoyn your Luna ſo prepared with fuſible Mercury ſo made (*a*) with Sal-Armoniack as is above ſaid, ſo will your matter be perfectly fixed.

V. This matter diſſolve in our (*b*) Virgins Milk, which Solutions being ſeveral times repeated, it will be converted into a fuſible Salt, and a fixed Oyl.

VI. This is to be ſweetned from its Acrimony, by Diſtilled Water iterated with many Cohobations; ſo will it be a moſt perfect Oyl.

VII. One part of it put upon a thouſand parts of melted Copper, it gives it an Eternal Tincture, which will always remain, yea, in the Fire it ſelf.

(a) *According as is taught in Chap.* 4. *and Chap.* 22. (*b*) *The making of which you may ſee at large Chap.* 23. *aforegoing.*

CHAP. XXV.

A Secret from Antimony and Mercury.

I. TAke Mercury ſeven times Sublimed with Vitriol and common Salt, (the Vitriol calcined to redneſs, being changed every time, and the common Salt diminiſhed, being diſſolved, defecated, and made pure)

that thereby, *viz.* by the Sublimation thereof, the Mercury may extract the Tincture of the Vitriol and Salt.

II. Take of this Mercury seven times Sublimed ℔j. Mineral Antimony, or Antimony as it comes from the Mine, as much; reduce all into a fine Pouder, and mix them together.

III. Put them into a Retort, and digest in warm Horse Dung for 25 days, or a month; which done,

IV. Place the Retort in a Furnace in Ashes, and Distill with a very gentle Fire for 12 Hours, then increase the Fire, till a Red Oyl comes; after which put out the Fire, and cool the Vessels.

V. Take out the Oyl, and put it into a Retort close stopped, which place in a very good heat for 8 days.

VI. After that Distill in Balneo Mariæ six times, and a seventh time in hot Ashes, till it is very pure and clear, limpid, and shining as Gold.

VII. In this Liquor dissolve Gold calcined with Mercury and Salt, or let it be converted into a fixed Oyl, and then conjoin it with its equal weight of Gold, boyling them together till they are fixed.

VIII. Or Distill the Volatile part, which cohobate so often upon the fixed remaining in the bottom of the Vessel, till the whole is fixed.

IX. One part of this fixed Oyl tinges an hundred parts of Luna, and turns it into pure Gold.

X. Also Leaves of Silver heat red hot, and extinguished in this Oyl, are transmuted into fine Gold.

XI. And it fixes Crude Mercury into Gold, if some few drops thereof be projected upon it in a hot Crucible (*a*).

XII. Its Vertues and Power are multiplied if it be often dissolved (in the said Water extracted from Antimony and Mercury seven times Sublimed) repeating the Distillations and Putrefactions.

(a) *In this case it will be much the better way first to fix the Mercury by the fumes of Lead, in such sort that it may endure melting the better, lest it otherwise should all fly away, before the operation is performed.*

CHAP.

CHAP. XXVI.

A Tincture of Silver upon Copper.

I. TAke of Luna (Amalgamated with Mercury) ℥iij. of ☿ extracted with Calx Vive and Tartar from Mercury Sublimate, ʒiij.

II. Let the Mercury be well washed with Salt and Vinegar, to which add Salt often purged till it flow like Wax, which is done by many Solutions, Calcinations, and Fusions.

III. Mix all in a Fixatorie Vessel, which for a Month put upon warm Ashes, till the whole is fixed.

IV. To this add Mercury Sublimate (fixed by many Sublimations with Sal Armoniack) thrice the weight, and fix again; boyl it for a Month, and it will be perfectly fixed.

V. This you must repeat four times, or till the Water flows like Wax without fume.

VI. Then project of this matter p. *j.* upon Venus p. x. and it will be tinged perfectly into Silver.

CHAP. XXVII.

A Tincture of Gold upon Luna.

I. TAke of fine Luna ʒij. of fine Sol ʒj. melt them together, and bring them into thin Leaves, which dissolve in Aqua fortis.

II. To this Dissolution add Mercury seven times Sublimed ʒiij. then Distill to dryness.

III. To this matter add fixed Mercury and fluid or fusible, prepared with Sal Armoniack, as above said; which again dissolve, and abstract the Aqua fortis to dryness, which repeat by thrice cohobating, till the matter flows like Wax without fume.

IV. Project of this p. *j.* upon fine Luna p. x. and it will be good Gold.

CHAP. XXVIII.

Another Tincture of Gold upon Luna.

I. TAke of fine Sol calcined with Mercury, Sulphur, and common Salt prepared and well purified; wash the Calx in warm Water, till it is sweet, and freed from all manner of saltness.

II. Take of this Calx ʒij. Mercury seven times Sublimed, and reduced again into running Mercury ʒij. mix them well.

III. Then put them into a Fixatory or strong Matress well stopt, which place in an Athanor for a Month, that the matter may be congealed.

IV. Dissolve again with the same Mercury prepared in the same manner as aforesaid, by beating and mixing till the matter will flow as Wax.

V. Then dissolve it in our Virgins Milk, or our Distilled Vinegar, which we have declared above, in the Three and Twentieth Chapter.

VI. The Dissolution filter till it is clear, which is many times to be dryed, and to be dissolved again by many Cohobations; which is so often to be iterated till the matter will flow as Wax, without any fume.

VII. Then edulcorate it with Spirit of May Dew, that it may lose all its Acritude; so have you a true Elixir, to project upon Luna.

VIII. One part hereof put upon a thousand parts of melted Luna, will transmute it into the best and finest Gold, which will be more pure, if with patience it is elaborated. It is a long Preparation.

CHAP. XXIX.

A Tincture of Sulphur and Mars for Luna.

I. TAke Scales of Iron (plenty of which you may find in a Smiths Shop) being beaten off from the red hot Iron, ℔j. yellow Sulphur as much.

II. Mix

II. Mix and burn them together, adding new Sulphur ℥j. or ij. for the second or third Combustion.

III. Being burnt, beat it, put it into a Retort, and Distill by Ashes, observing the degrees of Fire, so have you an Oyl of Sulphur in a large quantity; because the Sulphur of the Iron is adjoyned to the common Sulphur, by which the humidity is augmented.

IV. The Distillation being done, augment the Fire, till the matter remaining in the bottom of the Retort is red hot, and well calcined to Redness.

V. This matter thus Calcined Red, take, and put upon it its own Water in a Glass Vessel, to which add Spirit of Life (*a*) four times as much as there was of the Oyl or sharp Water, Distilled from the Sulphur and Mars.

VI. Put these in warm Ashes that they may boyl gently, and extract a Tincture by boyling from the Calcined matter.

VII. This Tincture decant by Inclination, and add new Spirit of Life, putting them into a gentle heat to digest till it is Coloured.

VIII. This Tincture decant, and conjoyn it with the former, which Work so often repeat, till the Spirit of Life or Mercury will be no longer tinged.

IX. Put these Tinctures of the Spirit of Life into a Stillatory, and with a very gentle Fire separate the Spirit from the Tincture, which will remain in the bottom of the Vessel thick like Honey.

X. To this Tincture add of Mercury, (*b*) *here is meant the Mercury of the Philosophers*, well washed an equal ♀uantity, mix them throughly, which digest in a gentle heat for one day, till the Mercury is fixed into a Red Pouder.

XI. This Red Pouder dissolve in our Virgins Milk, and Cohobate often till it is converted into a Red Oyl fixed.

XII. This Oyl conjoyn with an equal Quantity of the Oyl of Gold, and digest in an equal and gentle heat for a Month, and it will perfectly fix the Oyl of Mars, Sulphur and Mercury.

XIII. This being put one part upon melted Luna an hundred parts, gives a wonderful Tincture.

(*a*) *There is meant mineral Spirit of Wine; some think Spirit of Mercury; which is the thing: others Spirit of Quicklime, but they are deceived.*

CHAP. XXX.

A Tincture from Sulphur Vive, *and* Argent. Vive, *upon* Luna.

I. TAke of *Sulphur Vive*, or that which was never yet melted, but is as it was taken out of the Mine, (for that has the better and greater Tincture.)

II. Take of this Sulphur ℔ii. reduce it into Pouder, and put it into a ſtrong capacious Glaſs Urinal; upon which put Spirit of Wine perfectly Deflegmated, ſo much as may cover it the breadth of five or ſix Fingers.

III. Place it in warm Aſhes, that it may gently boyl, taking off the Scum which ariſes with a Spoon, and caſting it away; this boyling continue for three Days and Nights, adding new Spirit of Wine as the former waſtes.

IV. At the end of three days the Sulphur will be fuſible and incombuſtible, which dry with a continued gentle heat, till the Spirit of Wine is totally vaniſhed.

V. This fixed Sulphur mix well with its equal Quantity of Mercury (well waſhed) in a Glaſs Mortar with a Glaſs Veſſel, till they are throughly mingled.

VI. Then put it into a ſtrong Glaſs Matreſs, with Spirit of Wine covering it the breadth of four Fingers, which ſtop very cloſe, and place in warm Horſe Dung for fifteen days, and the Spirit of Wine will be defecated, the matter remaining dry.

VII. Take the Matreſs from out the Horſe Dung, and place it in warm Aſhes, ſo will the matter turn black as Pitch in a few days; and continuing this gentle heat, it will paſs through all Colours, till it comes to a perfect Redneſs, like that of a Ruby.

VIII. This matter fix in a Fixatory in an Athanor for a Month, till its Odour or Smell is moſt fragrant and ſweet, which you may perceive by the aperture of the Veſſel.

IX. If this matter be diſſolved in our (*a*) Virgins Milk, and then again in Spirit of May Dew, till it is ſweet: it will more perfectly make a Tranſmutation into Gold.

X. One

X. One part of it being putupon a thousand parts of melted *Luna*, or upon any other Metal, it transmutes them into the finest Gold.

XI. Yea, being put upon Crude Mercury (*b*) in a hot Crucible, it transmutes it into a Stone of the same Virtue and Efficacy.

XII. One part of this Mercury being put upon an hundred parts of Quicksilver, fixes it into good Gold.

(a) *The way of making it is taught in Chap* 23. *aforegoing.*
(b) *You may first fix it with the fumes of Lead.*

CHAP. XXXI.

A Preparation of Arsenick to whiten Venus.

I. TAke *Sal Niter*, *Roch Alum*, common Salt prepared, A. ℔j. mix and make an Aqua fortis according to Art.

II. The Fœces beat well, and put to them *Crystaline Arsenick* in fine Pouder ℔j. which Sublime once.

III. Beat this Sublimate small, and dissolve it in the aforesaid A. F. and clarifie the Solution.

IV. Distill this dissolved *Arsenick* by a Retort, and you will have in the bottom a dry matter, which in a moist place will resolve into Oyl.

V. To this Oyl add the Oyl of *Luna*, (the Preparation of which we have taught before) and fix them together for a Month in a warm place.

VI. Then abstract the superfluous humidity by Distillation, till there remains in the bottom of the Stillatory a truly fixed Oyl.

VII. This Oyl will penetrate Copper and tinge it white; and one part of it being put upon one hundred parts of melted Copper, will transmute it into good Silver.

CHAP.

CHAP. XXXII.

A fixed Tincture to convert Luan *into* Sol.

I. TAke of the beſt *Luna* calcined with Mercury, and Salt prepared: mix it with an equal Quantity of *Cinnabar* of *Antimony*; theſe Sublime three times.

II. In every Sublimation repeat the *Cinnabar* of *Antimony*.

III. Then diſſolve this matter in a Compound Aqua Fortis, made of Niter and Vitriol, A. ℔j. Antimony, Verdigriſe, A. ʒiij. make the Solution over warm Aſhes.

IV. Keep the Diſſolution warm for three days, at the end of which time Diſtill a Water, and reduce the Fœces into a Body, by melting or diſſolving them with Borax.

V. Thus have you a Tincture for *Luna*, which with an equal Quantity of fine *Sol*, will tranſmute it into good Gold.

CHAP. XXXIII.

Mercury Water.

I. TAke Mercury Sublimate in fine Pouder ℔j. lay it on a ſtrong ſubſtantial plate of Tin, with a hole in its middle; place it on a Glaſs Funnel in a cold place, that the Mercury may melt *per deliquium*.

II. This Liquor Diſtill in Balneo, repeat the Diſtillations, until the whole matter be turned into Water, and doth all ariſe in the Diſtillation.

III. Take all this Diſtilled Water and draw it off in Aſhes, what remains in the bottom of the Alembick let it melt again *per deliquium*, and Diſtill again in Balneo and Aſhes, as before, till no Fœces remain in the bottom of the Alembick.

IV. In

IV. In this Mercurial Water seven times Distilled in Ashes, is Gold (Calcined with Mercury, Salt and Sulphur) to be dissolved.

V. This Solution is to be putrefied for fifteen days in Horse Dung, and Distilled with a gentle Fire in Ashes, and Cohobated upon the Fœces, till it be converted into a true fixt Oyl, whose Vertue is wonderful.

VI. One Pound thereof will go upon an hundred of melted Silver, and turn it into pure Gold, tinging and transmuting of it throughly.

VII. If its Oyl be sweetned with Spirit of May Dew, by often Dissolving, Distilling and Cohobating, its Vertue and Efficacy so encreaseth, that it cures all Diseases both Humane and Metallick.

CHAP. XXXIV.

To tinge Luna *into* Sol.

I. TAke of the best *Sol* calcined, *Crocus Martis*, calcined Brass, of each alike; add thereto *Sal Armoniack*, rectified upon *Crocus Martis*, by Solution of the *Sal Armoniack* in sharp Spirit of Vinegar; for the *Crocus* being so dissolved, tingeth the *Sal Armoniack* with its Colour.

II. By Distillation or Exsiccation and Sublimation, let this Tincture be joyned to the Sal Armoniack.

III. Dissolve of this Sal Armoniack 4 Ounces, in our Vinegar; our Virgins Milk (*a*) and put into this Solution the Pouder of the Crocus, of Gold, and of Calcined Brass, in which perfectly dissolve them all.

IV. Filter and purify the Solution, and let it putrefy for a Month in Horse Dung, then Distill by a Retort in a gentle Fire, or Ash or Sand heat.

V. Cohobate the matter on the Fœces, till it be converted into a fusible Salt, which sweeten with Spirit of May Dew, and then it will tinge very well; one part will go upon ten parts of melted Silver, and transmute it into good Gold.

(a) *See Chap.* 23. *aforegoing.*

CHAP.

CHAP. XXXV.

To make Crocus Martis *more noble, for perfecting the former Secret.*

I. TAke as many Filings of Steel as you pleaſe, waſh them Ten or Twenty times in Water, in which Salt is diſſolved, till the Filings are very clear and pure, then dry them.

II. Put them into a Glaſs Matreſs, and Affuſe thereon ſtrong Spirit of Vinegar, to which add a good Quantity of diſſolved Sal Armoniack.

III. Place the Glaſs Matreſs in the Sun for 8 days, turning it every day, and ſhaking it; then decant the Vinegar, and put on freſh Spirit, with new Sal Armoniack.

IV. Shake well the Matreſs or Veſſel, and put it into the Sun again, until the Vinegar is tinged, which decant alſo, and add it to the former.

V. This Work you muſt repeat, till the Filings are diſſolved in the Spirit of Vinegar and impregnated with the Sal Armoniack.

VI. Diſtill theſe Tinctures with a gentle heat, ſo will the Spirit come off, and leave the Crocus at bottom, moſt admirable in augmenting the Tincture in the former Chapter.

VII. This Crocus may be reduced into a true Red Oyl of Mars; and if it be often diſſolved in Spirit of Vinegar, and then diſſolved in Spirit of May Dew, it will be turned into a moſt Red Oyl.

VIII. This Oyl if it be joyned with the Oyl of Gold, and fixed, it will be a moſt perfect Work, of which one part will go upon an hundred parts of melted Silver.

IX. Mercury ſeven times Sublimed will be tinged by it, and converted into a moſt Red Oyl, nearly equal in Vertue and Power, to the former Oyl of Gold.

CHAP. XXXVI.

To turn Water into good Wine.

I. TAke of the best Wine six Quarts, or what Quantity you please; Distill it in a Glass Alembick, large and high, with a gentle Fire: Or substitute good Spirit of Wine (seven times at least rectified) in its place, that it may be perfectly Dephlegmated.

II. The Spirit thus rectified keep well stopt in a Glass, then prosecute your Distillation, and the Flegm will come over, which rectify seven times, till it be very pure and clear, and free from all manner of Fœces in the Distillation.

III. The Flegm thus prepared, keep in a Glass by it self; increase the Fire in the same Distillation, and you will have a Red and Fœtid Oyl: This you must so often rectify till it be white and clear, and has lost its *Empyreuma*, which keep in a Phial well stopt.

IV. Calcine the remaining Fœces in a Crucible, with a strong open Fire, till they are white; to which Calcined Fœces put the rectified Flegm, in a new Glass Alembick, with a blind head: Let it Boyl for an hour, then filter and purify it.

V. This purified Liquor Distill in an Alembick, and the Fœces remaining Calcine again, as before, and dissolve it in the Flegm: Thus do 7 or 10 times, Calcining, Dissolving and Filtering, till you have a pure white Salt, freed from all Fœces and Impurity.

VI. To this pure Salt add its own rectified Spirit, reserved after the seventh Rectification, and in it dissolve the Salt in a warm Sand heat; filter and purify the Solution, and if there remains any thing undissolved, Calcine it again.

VII. Being Calcined, dissolve it in the rectified Flegm, then Coagulate, and dissolve it in the rectified Spirit; which Solution Distill and Cohobate so long upon the remaining Salt, till it be turned into an Oyl, which purify, and make Volatile, by joyning it with its own Spirit.

VIII. This

VIII. This by continual Digestion fix, being fixed, add to it the former rectified Oyl, and fix both together, then Volatilize and fix it again.

IX. Thus are all the Elements of the Wine joyned in this fixed Mixture; and it will turn Water into good and pure Wine: One Pint will turn 300 Pints of Water into Wine, which is wonderful to see.

CHAP. XXXVII.

To turn the fusible Oyl of the Golden Marchasite into Gold

I. TAke of the best Marchasite of Gold ℔ij. reduce it into very fine impalpable Pouder, which dissolve in *Aqua Regis*, upon warm Ashes.

II. Decant off the clear part of the Solution from the turbid Fœces, Distill the Solution clear, dry the Fœces, and Cohobate the Distilled Water upon the Fœces; always purifying the Solution, and decanting it clear off from the troubled Fœces.

III. At length dry the Marchasite, and add to it of good Gold (calcined with Mercury, Salt and Sulphur) one Ounce, and of the Sal Armoniack rubified (with the Crocus Martis, as above) 2 Drachms; of Mercury 7 times Sublimed 3 Drachms.

IV. Mix and incorporate all together in a Marble Mortar, with a Glass Pestell, and put all into a Retort, and Distill with a gentle Ash heat, till all the humidity is vanished.

V. Then increase the Fire, that the Volatile parts may Sublime into the neck of the Retort; after which break the Retort, and joyn the matter beaten into Pouder in the bottom with what Sublimed into the neck.

VI. Mix them very well together, and Sublime them again; repeat this Work seven times, the matter will be (as fusible as Wax) in the bottom of the Retort.

VII. Joyn this fusible matter with the fixt Oyl of the Alcaly, or fixt Salt; Digest them for a Month in an Athanor in a strong Glass; and if need require, Digest it longer,

longer, until it be congealed into a fusible, yet fixt matter.

VIII. You may project with this, by putting one Ounce thereof upon an hundred Ounces of Mercury, made hot in a Crucible.

CHAP. XXXVIII.

To make the Oyl of an Alcali to prepare the former Secret.

I. TAke Sal Alcali 10 Pounds, beat it in a Marble Mortar, and incorporate it with Distilled Vinegar, of which make round Balls, and dry them in the Sun.

II. Put these Balls into a Reverberatory, and calcine them for 24 hours, then dissolve them in a sufficient quantity of Distilled Vinegar; filter the Solution, and Distill to dryness.

III. Then dissolve it again in fresh Distilled Vinegar, the matter is turned into a fixt Oyl and Salt, fusible as Wax.

CHAP. XXXIX.

To tinge Luna *into* Sol.

I. TAke of the best Antimony well Poudred one Pound, crude Tartar and Salt, of each as much; Pouder them all, and being well mixed, calcine them in a strong Crucible, with a violent Fire.

II. Encrease the Fire till the matter is melted, and let it remain melted for four hours, that the Regulus may fall to the bottom of the Crucible.

III. When the matter is cold, separate it from the Regulus, which keep; the rest of the matter dissolve in fair Water,

Water, by Boyling it; then filter and purify it as much as you can.

IV. This matter thus filtered and purified, mix with the Spirit of Vinegar, so will the Golden Sulphur of the Antimony precipitate.

V. This separate by Filtration, so will the Golden Sulphur remain in the filtering Paper, which dry by a gentle Fire.

VI. The dryed Sulphur dissolve in our Virgins Milk, and Digest it till it be tinged.

VII. Then Distill the Solution, and the acid part of the Distillation Cohobate upon the Fœces, that they may be dissolved again and purified.

VIII. Repeat this Work so often, until it be turned into a red fixt Oyl, which is to be joyned with the Oyl of Gold, and Digested until it is fixed into a fusible and tinging Salt.

IX. One Ounce of this Salt will transmute an hundred Ounces of melted Luna into good Sol.

CHAP. XL.

To make the Mercury *of* Antimony.

I. TAke of the Regulus mentioned in the former Chapter 4 Ounces, of Sal Armoniack, well depurated by Solution and dryed, 8 Ounces.

II. Pouder and mix them all together, and Sublime them in a strong Glass.

III. Repeat the Sublimation 5 or 6 times, till the Regulus does rise with the Sal Armoniack.

IV. Then dissolve all in common fair Water, warmed, and impregnated with the Salt of Tartar; so in the bottom of the Vessel you will find the Regulus turned into a running Mercury, after Menstrual Digestion. See Chap. 21 aforegoing.

CHAP.

CHAP. XLI.

To extract Mercury *from Metals reduced into a Calx.*

I. DIssolve in common Aqua fortis, Salt calcined by degrees, until the Aqua fortis will dissolve no more.

II. Into this Water put Regulus of Antimony, if you desire its Mercury, or the Calx of Lead, Tin, Iron, Copper, Silver or Gold, if you desire their running Mercury.

III. Stop the Glass well wherein the Solution of the metallick Calx is made; digest it for a month in Horse-dung, and then distil off the Aqua fortis, and dry the matter.

IV. Repeat this Work again, digest, distil and dry, and add to it its own weight of Sal Armoniack, and as much of Tartar, upon a good quantity of Aqua ardens, or Spirit of Wine.

V. Digest this Mixture for 15 days, then cause it to boil; and you will find running Mercury in the bottom.

CHAP. XLII.

To Transmute Antimony *into* Sol.

I. TAke Mercury of the Regulus of Antimony ℥iij. of the best Gold filed or made into thin leaves ℥j. make an Amalgama thereof.

II. Then with common Mercury and pure fine Silver, make another Amalgama, beat and mix both the Amalgama's in a Glass Mortar, with a Glass Pestel.

III. Being well mix'd, put them into a long Bolt Head well stopt, and in a gentle heat digest the matter, until it wax black.

IV. Then encrease the Fire, and digest until it grows

white; digeſt ſtill, and encreaſe your Fire, till the Matter wax red as Cinnaber.

V. To this add new Mercury drawn from the Regulus of Antimony or Silver, mix them well together, and digeſt them again, till the matter waxes white, and red as before.

VI. This do three times, and you will have a true Elixir for Sol; one ounce whereof will go upon a thouſand ounces of melted Luna.

VII. And if this matter be diſſolved in the mercurial Water we have taught to prepare in the XXXIII. Chapter aforegoing, it will be an unparalell'd Secret; and being ſweetned with Spirit of May-dew: it cures all Diſeaſes, both Humane and Metallick.

CHAP. XLIII.

To make Mercury *of Silver, and with it a great Elixir.*

I. TAke of the beſt Silver ℥ij. diſſolve it in Aqua fortis, and digeſt it for a month, then diſtil and cohobate three or four times.

II. At length draw off the Aqua fortis to a fourth part, and place the reſt in a cold moiſt place to cryſtallize.

III. To theſe Cryſtals well dry'd, add of good Oil of Tartar made of the beſt and whiteſt Salt of Tartar ℥vj. of diſſolved Sal Armoniack ℥ij. digeſt them in Horſe-dung for a month, or in Balneo, in a Glaſs Matraſs very well ſtopt.

IV. Then add to it ſublim'd Sal Armoniack, and Salt of Tartar, of each equal in weight.

V. Digeſt it with Spirit of Wine for 15 days, and then let it boil, and in the bottom you will find a running Mercury, which dry, and waſh with Salt and Vinegar, and again dry it.

VI. This Mercury amalgamate with Gold and Silver, and digeſt the Amalgama, that it may be turned into a red Powder.

VII. Then

VII. Then nouriſh it with the like Mercury, digeſt it that it may be fix'd, and again diſſolve it: this do ſeven times, and fix it, till it be converted into a red Pouder.

VIII. One ounce of this Pouder will make a Projection upon an hundred ounces of melted Luna, and turn it into good Sol.

IX. And if this Pouder be diſſolv'd in the Water of Mercury, and digeſted into a fix'd Oil; one ounce will project upon a thouſand ounces of melted Luna: it will alſo project upon all other Metals, but chiefly upon Tin, and Lead.

CHAP. XLIV.

To fix and tinge Venus *into good* Luna.

I. TAke of Mercury ſeven times ſublim'd ℥vj. Sal Armoniack as much; Calx of Luna calcin'd with Mercury ℥ij. mix all together and ſublime them.

II. What Sublimes, add to the Fæces, beat them together, and again ſublime in a new Glaſs: which Work repeat till nothing ſublime, but all remains at the bottom of the Glaſs.

III. Then pouder it, and in a moiſt place, let it run *per deliquium*; which Liquor filter, purify and congeal upon warm Aſhes.

IV. Diſſolve it again with the Water which aſcends, filter and congeal upon Aſhes; which Work repeat ſeven times, and it will be a Medicine; of which one ounce will change fifty ounces of Mercury into Luna: and tinge an hundred ounces of Venus into good Luna.

CHAP. XLV.

To fix Luna, *and tinge it into good* Sol.

I. TAke Mercury seven times sublim'd ℥iij. Gold calcin'd (with Mercury, Salt and Sulphur) ℥j. Oil of Crocus Martis often dissolv'd, wash'd and purify'd ℥ij. rubify'd Sal Armoniack ℥iv.

II. Mix them together, and sublime them with a strong Fire in a Glass Matrass in Ashes: what Sublimes, put again to the Fæces which remain in the bottom, and repeat this so often till it will sublime no more.

III. Then what is in the bottom beat and pouder very small: this Pouder put into a Glass with holes in it, over a Glass Funnel, and in a moist place, let it melt *per deliquium* to Water.

IV. This Water, filter, purify and distil it: what remains in the bottom, dissolve again in the Water that distill'd over; and repeat this till the matter remains in the bottom, in a moist, red and fusible Salt.

V. One ounce of this cast upon an hundred ounces of Mercury, warm'd in a Crucible, will transmute it into good Sol: and projected upon an hundred ounces of fine Luna, makes it all Gold of proof.

CHAP. XLVI.

To fix Mercury *into fine* Luna.

I. TAke of calcin'd Tin ℥iv. dissolve it in a sufficient quantity of the Virgins Milk, (in Chap. XXIII. aforegoing.)

II. Digest the Solution for eight days in warm Ashes, that the Calx may be dissolv'd.

III. Dissolve the Calx of Silver (*a*) in the same Virgins Milk, and digest it also for eight days; at length join both these Solutions together, and distil them in Ashes.

IV. To

IV. To the matter remaining in the bottom add ʒiv. of the Oyl of *Sal-Alcali* (*b*) and diſtil it, and dry it.

V. Then join both the diſtillations together, *viz.* what is diſtilled from the Virgins Milk, and what came from the Oil of *Sal Alkali* or fixt Salt.

VI. In this mixture diſſolve the remaining matter in the bottom of the Glaſs, filter and purify it, and again diſtil.

VII. Repeat this Solution, filtration, and diſtillation, till the matter is turned into a fixt Oil, or fuſible Salt.

VIII. One ounce hereof will project upon an hundred ounces of crude Mercury made hot in a Crucible, and tranſmute it into fine Luna.

(a) i. e. Silver Leaves, but truly Calx of Silver. (b) See Chapter 38. afore-going: Salt of Tartar is alſo a Sal Alcali *of the higheſt order, and poſſibly the real thing which is intended.*

CHAP. XLVII.

To fix Mercury *into fine* Sol.

I. TAke of the beſt Minium ʒvi. diſſolve it in a good quantity of our Virgins Milk; and digeſt it for 8 days.

II. Add to it of the Crocus Martis or of its Oil ʒiv. mix all together and putrify it for eight days in Horſe-dung or in a Balneo Mariæ.

III. Then diſtil to a dryneſs, and diſſolve it again with its own Water; filter and purify it: repeating this work, till the matter is converted into a red and fuſible Salt

IV. Add to this Salt of the Oil of Sol ʒii. mix and digeſt till they are fixt; then in their own Water diſſolve the matter again: repeat this ſo often, till all be turned into a true and red fixt Oil.

V. One ounce of this will fix and tinge a thouſand ounces of Mercury, being made hot in a Crucible: it will alſo tinge Luna into fine Sol.

CHAP. XLVIII.

To fix Mercury *into fine* Sol.

I. TAke Crocus Martis ʒiv. of the beſt red Lead as much: diſſolve all in a ſufficient quantity of our Virgins Milk.

II. Digeſt the Solution in a Balneo, *i. e.* a bath for fifteen days; filter and purify it, then diſtil it to dryneſs in a Retort in Aſhes: cohobate upon the fæces, diſſolve, filter and purify again, and diſtil in a Retort to dryneſs; and do this till the matter diſſolve without any fæces.

III. Then diſſolve and diſtil, till the matter be turned into a fuſible Salt: to this Salt add Gold (calcined with Mercury, Salt and Sulphur) well waſhed, ʒij. Oil of Sal Alcali or fixt Salt ʒiij. mix and digeſt for 15. days.

IV. Then draw off the ſuperfluous moiſture, and cohobate by diſſolving, filtering and diſtilling, ſo long, till your Salt is moſt pure, red, and fuſible.

V. One ounce of this Salt will project upon, fix, and tranſmute a thouſand ounces of Mercury into fine Sol.

CHAP. XLIX.

To fix Mercury *into fine* Luna.

I. TAke of the beſt white Lead and of the Calx of Silver (calcin'd with Mercury) of each ʒij. diſſolve them in our Virgins Milk.

II. Filter the Solution, and digeſt it in Balneo for 15. days; then add to the fæces new Virgins Milk that all may be diſſolved; for the Calx of the Silver is hard to diſſolve, and will remain undiſſolved, if you be not careful.

III. You ſhall know when the Luna is diſſolved; for then the fæces in the bottom of the Veſſel will ſeem ſpongy or light.

IV. After all is diſſolved and made pure, diſtil to dryneſs: then diſſolve and purify the Solution again, till

till all the matter be turned into a fusible fixt Salt; which will be done in 12. or 15. Solutions.

V. One ounce of this fusible Salt may be projected upon a hundred ounces of Mercury heat in a Crucible, and it will transmute it into good Luna.

CHAP. L.

To fix Mercury *into true* Sol.

I. TAke the red mineral stone *(a)* heat it hot, and quench it in strong Vinegar *(b)*, do so seven times.

II. Then beat and pouder it very small, and dissolve it in common *Aqua fortis (c)*, putrify the Solution 15 days in Horse-dung, or *Balneo Mariæ*.

III. Filter the clear part of the Solution from the fæces, then distill it, and cohobate upon what remains in the Vessel ten times.

IV. Then dissolve in our Vinegar or Virgins Milk, filter and purify the Solution as before, and distil it.

V. Then dissolve it in Oil or Water of Mercury *(d)*: let it be dissolved, dryed *(e)* and distilled, until it be turned into a fixt Oil, or fusible Salt.

VI. To this Salt add Oil of Sol as much, then fix it, which is done by a short digestion because the said Solar Oil is fixed *(f)* of it self; therefore the fixation is done in a very little time after they are mixed together.

VII. This red Tincture is multiplyed, and its Virtue and Power increased and ℥j. of this Tincture will project upon a thousand ounces of Mercury, and fix it into pure Sol.

(a) *That is Cinnabar native or artificial, but rather native.* (b) *Here you are to understand Spirit of Vinegar, freed from all its flegm.* (c) *Understand the strongest* Aqua fortis *of the commond kind*, viz. *that which is double.* (d) *See the preparation thereof in Chap. 33. aforegoing.* (e) *By drying here is meant coagulating.* (f) *Not that it is absolutely fixed in it self, for indeed it is most Volatile, but it is so called because it is of a fixing property, and fixes other things.*

CHAP. LI.

To make the Oils of Gold and Silver.

I. TAke of the Gold, (calcin'd with Salt, Sulphur, and Mercury, and then waſhed) ℥ij. diſſolve it in a ſufficient quantity of *Aqua regia.*

II. Digeſt it in *Balneo* or Horſe-dung for 15. days, and diſſolve the Solution to the conſumption of a third part, the reſt take from the fire, and expoſe it to the cold Air, that the Gold may congeal *(a)* into yellow Stones or Cryſtals.

III. Put theſe Stones upon a Glaſs, and let it run to Water *(b)*, the reſt of the Solution again diſtil to the third part, then expoſe it to the Air to Cryſtalize, as before, and run *per deliquium*, and diſtil as before.

IV. Repeat this work ſo often, until the Cryſtals or little yellow Stones are turned into a fixed Oil.

V. But by cohobating upon it *Aqua fortis*, it will be ſooner turned into a fuſible Salt, *(c)*. And after this manner is the fixed Oil of Luna prepared.

VI. Theſe Oils are very neceſſary for the perfecting of ſeverals operations, and are the principal things of note in Chymiſtry; for we need no other ſecret, but theſe Oils of Gold and Silver.

VII. And although there are many other things which can do it, yet theſe very Oils augment and multiply, and are of that Virtue, that they are true ferments.

VIII. They turn all other fixed Oils drawn from Minerals or Metals into their own ſubſtances; and ſo by the Oils of Sol and Luna, the fixed Oils of imperfect Metals are multiplied.

(a) *That is, ſhoot into Golden Cryſtals.* (b) *viz. to diſſolve into a liquor* per deliquium. (c) *This is according to the mind of* Paracelſus, *who thinks that by continual affuſion of more of the diſſolvent you will at length divide the matter into ſo ſmall and ſubtil particles that it will become Oil.* See my Doron Medicum, lib. 2. cap. 1. Sect. 16. §. 1. and 5.

CHAP.

CHAP. LII.

To fix Luna *into* Sol.

I. TAke of dryed Roman Vitriol ℥xij. Antimony, and Sulphur, of each ℥iv. Verdigrise, Sublimate, of each ℥ij. Sal Nitre ℥vij. make of these a Water according to Art.

II. Take ℔j. of this Water, and add to it ℥vij. of Crystals of Arsenick, in a large Glass Matrass with a long neck, which circulate till all be fixed.

III. Then dry it, and pouder it: Take of this pouder ℔j. and cast it upon ℔vj. of melted Silver; and it will make it somewhat brittle.

IV. Toast this Metal upon a Cupel, till it be sweet, and then dissolve in *Aqua Regia*; what will not dissolve, melt with Borax in a Crucible, and you will find half the Luna turned into Sol.

CHAP. LIII.

To extract Mercury *from* Sol.

I. TAke what quantity you please of Sol, calcined with Salt, Sulphur, and Mercury, and seven times repeated, by abstracting the Mercury in a Retort, and adding fresh Mercury to the matter remaining in the bottom of the Glass, till the Sol is reduced to a very fine Pouder.

II. Take of this prepared Gold ℥ij. of the best white Salt of Tartar (from which the best rectified Spirit of Wine has been distilled) ℥iv. common Salt decrepitated, dissolved, and congealed again ℥ij. Sal-Armoniack purely sublimed ℥j. the best rectified Spirit of Wine ℥vj. mix them all together.

III. Put all into a Glass Vessel, stopt well, and putrify it in Horse-dung, or Balneo, for a month.

IV. Then distil off the Spirit of Wine, and if any Quick-

Quick-silver remain at bottom, dissolve it in *Aqua fortis*, and cohobate it three or four times.

V. At last put to it the best rectified Spirit of Wine, and make it to boyl, so shall you find the Mercury alone in the bottom of the Vessel, which purify very well, and keep it for perfecting of the following Arcanum.

CHAP. LIV.

To fix this Mercury into most fine Sol.

I. TAke of the forementioned Mercury (of Sol) ℥j. of common Mercury drawn from Cinnabar, with Lime and Salt of Tartar, ℥xx. mix all together, and put to it of the best Oil *j*. drachm: which mix well together in a strong Glass.

II. Digest them for a month in Ashes, till the matter is turned into a fixed red Pouder.

III. Dissolve this Pouder in our Virgins Milk (*a*), the preparation of which we have formerly taught, filter and purify the Solution.

IV. Digest this in Horse-dung for a month: then draw off the Virgins Milk, and keep or reserve it for other secrets.

V. The remaining matter dissolve again in Spirit of May-dew, filter, and purify the Solution, and abstract it again by a gentle or slow distillation.

VI. This work repeat so often, till you have a Salt fusible as Wax or Butter: of which ℥j. will transmute a thousand ounces of common Mercury (well washed or cleansed) into pure Sol.

(a) *See Chapter 23. aforegoing.*

CHAP.

CHAP. LV.

To fix the Mercury *of* Luna *into* Luna.

I. TAke of Mercury drawn from Luna ℥ij. common Mercury, drawn from common ſublimate ℥ij. and an half or ℥xx. Oil of Luna ℥ij. Oil of Tin ℥iij. mix all together.

II. Put them into a ſtrong Glaſs Matraſs, and boyl in an Aſh heat, till the matter is fixed into a Pouder or white Salt.

III. This Powder or Salt diſſolve in our Virgins Milk; filter and purify the Solution: then diſtil off the Milk, and cohobate it ſeveral times, till all the matter be converted into a Salt, fuſible as Wax.

IV. Diſſolve this fuſible Salt in Spirit of *May*-Dew, and dulcifie it by cohobation: ſo long do this, till the Salt be turned into a true and white fixed Oil.

V. One part of this Oil, will tranſmute a thouſand parts of common Mercury into pure and fine Luna, and for ever fix it.

CHAP. LVI.

To cement Luna *into true* Sol.

I. TAke of burnt Braſs ℥j. Roman Vitriol made red, and of the beſt Crocus Martis, of each ℥ij. Lapis Tutia, Sal-Armoniack, of each ℥j. make them into a moſt ſubtil pouder, and mix them together.

II. Take then of the fineſt Sol, and of the fineſt Luna, of each equal parts thereof, which cement with the former Pouder in a Crucible.

III. Lay them in the Crucible, *ſtratum ſuper ſtratum* with the Pouder, which cover and well lute it, and cement for twenty four hours.

IV. Then waſh the Plates, and melt them again, and make Plates, and cement as before with the ſame Pouder:

der: this do seven times, and all the Luna will be turned into the most pure Sol.

CHAP. LVII.

To make Aurum Potabile, *to prolong life.*

I. TAke of the most pure and fine Sol, what you please, dissolve it in *Aqua regia* in which prepared common Salt is dissolved, and putrify the Solution in Horse-dung for a month.

II. Then add thereto half a pound of rectified Spirit of Wine, digest in Balneo for fifteen days, and abstract the Spirit of Wine.

III. The Sol again dissolve, and cohobate seven times upon the matter remaining in the bottom.

IV. Now here is to be noted in this Solution, that the *Aqua fortis (a)* which is first put on the Gold to dissolve it, is to be seven times rectified in new Retorts, that it may be freed from the Salt.

V. The Sol being thus dissolved is then to be put into Spirit of *May*-Dew, and so dissolved: abstract the Spirit, and dissolve again, and abstract to dryness.

VI. This dry matter expose to a cold and moist Air for a night, that it may be dissolved, and the acrimony of the *Aqua fortis (b)* be fully taken away.

VII. Dissolve again *de novo* with new rectified Spirit of Wine, and dry it by distillation; which work seven times repeat, till all the Sol is turned into a sweet Oil.

VIII. This is *Aurum Potabile*, which will cure all Diseases and Infirmities, and prolong life to extream old Age. Dose one grain or drop in a spoonful of good Spirit of Wine *(c)*.

(a. b.) In both these places you are to understand Aqua Regia; *(c) not rectified, for then it will be too strong to be taken: instead thereof you may use pure Canary, or which is better, choice* Cinnamon Water.

CHAP.

CHAP. LVIII.

To make Argentum Potabile, *to Cure all Diseases of the Brain.*

I. TAke of fine Silver what quantity you please, dissolve it in a sufficient quantity of common (*a*) Aqua fortis.

II. Putrify the Solution in Horse-dung for a month, or in *Balneo Mariæ*; then distil the matter to dryness, and cohobate upon the Fæces seven times.

III. Dissolve the matter again into our Virgins Milk; purify the Solution by Filtration, and putrify again in Horse-dung for fifteen days.

IV. Abstract then the *Lac Virgineum*, and cohobate upon that which remains in the bottom.

V. Then dissolve with a sufficient quantity of the best Spirit of Wine; putrify the Solution in warm Horse-dung or *Balneo Mariæ* for eight days; abstract the Spirit and cohobate seven times; and if the Solution be not clear, filter it.

VI. This done, abstract the Spirit of Wine, and dissolve in Spirit of *May*-dew; filter the Solution, and abstract so many times, till the matter is converted into a fusible Salt, and sweet.

VII. And to make it sweeter, you may dissolve it in new fresh rectified Spirit three or four times, so will you have a pure sweet Oil of Luna or *Argentum Potabile*, for the Cure of all Diseases which affect the Brain.

VIII. It is very certain, that if all the Oils of Sol and Luna (before prepar'd) were often dissolv'd in the best rectified Spirit of Wine, and dulcified with Spirit of *May*-dew, and so freed from the Spirit of the Aqua fortis, they might with more safety and pleasantness be taken into the Body, for the curing of Diseases.

IX. Neither is their Virtue and Property of transmuting Metals into Sol and Luna thereby weakned, but rather fortified and extended.

X. But see that you operate warily and skilfully, for there is what can be desired in Chymical Preparations, if you can but obtain these metallick Oils, for the curing

ing of Diſeaſes in Men and Metals, as Experience can teſtify.

XI. Yea, the Bodies of Vegetables may be cured by theſe Oils, perfectly dulcified; for all Bodies, Animal, Vegetable and Mineral have one and the ſame Fountain of Life.

XII. And out of the ſame Fountain, may be preſerved, and brought to the utmoſt Perfection that can be, which few underſtand or believe.

(a) *Without doubt you ought to take the beſt Aqua fortis, elſe you may chance to loſe your Labour.*

CHAP. LIX.

To tranſmute Luna *into* Sol.

I. TAke ℔j. of the beſt Aqua fortis, diſtil it from the Sal Armoniack, and common Salt prepared, of each ℥iij. which repeat ſeven times.

II. Diſſolve in this Royal Water of the moſt fine Gold ℥ij. and of Mercury amalgamated with ſuch Gold ℥iv.

III. Digeſt or boil them in a ſtrong Glaſs Matraſs in warm Aſhes for a month, till the whole matter is converted into a red Pouder.

IV. This Pouder diſſolve in the aforeſaid Water, and digeſt it in a warm *Balneo Mariæ* for a month.

V. Then diſtil to dryneſs; cohobate ſeven times, by putting what is diſtill'd upon that which remains dry at bottom.

VI. Add to the diſtill'd Water Spirit of *May*-dew, in which diſſolve the matter, purify and filter the Solution; this repeat many times, till the matter is converted into a fuſible Salt.

VII. This Salt dulcify with the Spirit of *May*-dew, repeating it with freſh Spirit of *May*-dew, until the Salt be ſweet, and retains no Acrimony.

VIII. One part of this will project upon a thouſand parts of melted Silver: and if you continue diſſolving it in Spirit of *May*-dew, its Virtue will be thereby more and more augmented.

CHAP.

CHAP. LX.

To transmute Venus *into* Luna.

I. TAke Mercury drawn from Sublimate with Lime and Tartar ʒviij. of the best Leaf-silver ʒij. mix and make an Amalgama.

II. Digest this Amalgama in a Matrass well closed in warm Ashes for a month, till it is converted into a Pouder, or grows into a Tree.

III. Let this Mercurial and Lunar Tree be dissolv'd in common Aqua fortis made of Vitriol, Salt petre, and Alum.

IV. Digest this Solution in Balneo for a month, then abstract and distil to dryness; and cohobate seven times with the distill'd Water.

V. Then digest the matter with the most strong Spirit of Vinegar, filtering and purifying the Solution; which putrify in warm Horse-dung for fifteen days.

VI. Then abstract by Distillation, and dissolve what remains at the bottom with Spirit of *May*-dew, seven times rectified.

VII. This Work so often repeat, till the matter is converted into a Salt fusible and fix'd.

VIII. Project one part of this Salt upon a thousand parts of Venus, and it will all be converted into most pure Luna.

IX. Let this Luna, made fusible, be oftentimes dissolv'd in a cold and moist Air, and then congeal'd, that its Virtue thereby may be multiply'd; so thereby you may prepare a Silver Mine for the Transmutation of Venus.

X. From this Mine you may take every month or every week, half its weight, to project on Copper.

XI. But let there be added to the remaining matter Mercury sublim'd or crude; and so the Silver Mine or Matter will never decay, as will be manifest by the following Arcanum. The same may be done with Sol.

CHAP. LXI.

A perpetual Silver Mine, that will never decay.

I. TAke of the Silver and Mercury in the former Chapter ℔j. to which add of the Mercury drawn from Cinnabar, with Lime and Salt of Tartar by Distillation half a pound.

II. Mix and beat all together in a Glass Mortar with a Glass Pestel; then put it into a Matrass with a long neck, which close well, and digest it in warm Ashes for a month; in which time it will be all fix'd and converted into one Substance with the former.

III. Then take half a pound thereof, and cast it upon an hundred pounds of purify'd Copper melted, and it will all be pure Luna.

IV. Now, that this Mine may not decay, put half a pound of prepar'd Mercury, or common Mercury, well wash'd to the aforesaid Mine in a Glass Matrass; and boil or digest it for a month (close stopt) in warm Ashes; so will the whole Medicine be of equal Virtue with the first.

V. And by this manner of feeding it with Mercury, your Mine will last for ever; so that every month you may take out half a pound, for the Tranſmutation of Venus into good Luna.

VI. In the same manner may you likewise proceed with Sol, as shall be declared in the following Arcanum.

CHAP. LXII.

A perpetual Golden Mine, to tranſmute Luna *into* Sol.

I. TAke of the Sol, prepared by some of the former Secrets, or at least, Sol that is by Art coverted into a fix'd Oil or Salt which is fusible: take of this fusible Salt

Salt of Gold ℔j. of Mercury drawn from Cinnabar, as is before taught, half a pound.

II. Mix and beat all together in a Glaſs Mortar, with a Glaſs Peſtil; and put it into a ſtrong Glaſs Matraſs, with a long neck, which ſtop or cloſe well.

III. Put this Matraſs to digeſt in warm Aſhes for a month, and in that time all the Mercury will be converted into a Medicine, of equal Virtue with the former.

IV. Take of this Medicine one part, and caſt it upon a thouſand parts of melted Luna, and it will all be turned into good Sol.

V. To the remaining matter add half a pound of Mercury prepared, *(ut ſupra)* and digeſt it for a month; ſo will you find, that your Golden Mine will be inexhauſtible. Thus by the pure Oils of Sol and Luna are made the Golden and Silver Mines.

CHAP. LXIII.

A tinging Water to tinge Luna.

I. TAke of burnt Braſs (prepared and diſſolved in common (*a*) Aqua fortis, and deſiccated by Abſtraction of the Aqua fortis) half a pound; of the Tincture of Mars, or of *Crocus Martis*, diſſolved into Oil, half a pound; Roman Vitriol calcined only to whiteneſs ℔i. crude Antimony, Sulphur and Mercury ſublimate, of each ℥ij. Verdigriſe, Lapis Tutia, of each ℥ij. pouder them all and mix them.

II. Put them all into a Glaſs Retort well luted, and from hence draw an Aqua fortis, and therewith oftentimes imbibe this matter.

III. Then calcine it in a Crucible with common Salt and common Mercury; or elſe diſſolve your Luna in a Glaſs Alembick, and abſtract the Aqua fortis by Diſtillation; what remains in the bottom will be tinged Luna.

IV. This tinged Luna may with Borax be reduced into a body, throughly tinged with the higheſt Golden colour.

V. The Fœces of this Aqua fortis are very profitable to cement Luna with equal parts of Sol, to tinge it into a Golden colour; they being mixt in equal quantities, made into Plates, and cemented with the said Pouder for twenty four hours in a well luted Crucible according to Art.

(a) *That is made by the common Recipe, but you ought to take the best of that kind*, viz. *Double Aqua fortis.*

CHAP. LXIV.

To multiply Luna.

I. TAke of the best Mercury, well wash'd, ʒij. kill it with common Salt and Man's Spittle, by strongly grinding of it in a Glass Mortar with a Glass Pestil.

II. Being thus mortified or killed, put it into a Crucible, and upon it Pouder of Crystalline Arsenick half a dram; Tartar calcin'd to whiteness with Salt petre, as much.

III. You must have ready another Crucible, in the bottom of which let plates of Copper be made fast, that they may not fall down when it is joined with the lower Crucible.

IV. Join both the Crucibles together, *viz.* That with the Mercury, Arsenick and Tartar, to that with the Copper, letting that with the Copper be uppermost, and lute them well together, that nothing may perspire.

V. Then put them into a reverberating Fire for four hours: for the first hour let the Fire be soft and gentle; for the second stronger; for the third approaching to the highest degree; and for the last hour cover all over the Crucible with live or burning Coals, and make the Fire very strong for that hour.

VI. Then let the Fire go out, and the Crucibles cool: being cool'd, take forth the matter in the upper Crucible, adhering to the Copper plates, which keep.

VII. Take pure fine Silver ʒj. melt it, and put to it by

by degrees the Mercury found in the former ſuperior Crucible, and upon it crude Tartar, till you ſee the matter clear and ſplendid, ſo will your Silver be augmented to the one half.

CHAP. LXV.

To tinge Luna *into* Sol.

I. TAke of the red Oil of Antimony, and of the red Oil of Mars, of each ℥iij. diſtil them together till they be purely clear and red.

II. To this add the Oil of Sol ℥iv. mix them together, and boil or digeſt till they are all fixt into a fuſible Salt, or fixt Oil, which will be done by the help of the Oil of Gold.

III. When they are all fixt, project one part upon an hundred parts of pure Luna, and it will all be tranſmuted into fine Sol.

IV. Theſe Oils of Antimony and Mars we have already taught to make in ſeveral of the aforegoing *Arcanums*; as alſo the Oil of Gold, ſo that it is not neceſſary here to repeat the ſame again.

V. But the true Oil of Antimony we have not yet taught, but in the following Chapter you ſhall certainly find it.

CHAP. LXVI.

To make the true Red Oil of Antimony.

I. TAke male mineral Antimony (which is known by its long and ſparkling beams, for the female is different, and known by its ſlender and ſmall beams) ℔iij. pouder and diſſolve it in ℔vj. of the Spirit of *May*-dew.

II. Mix them in a long neck'd Glaſs Matraſs; and

let them putrify in Horſe-dung for two or three months, or in the preſſings of the Vintage, where the putrefactive heat is more exact; and in which you may keep it for a month.

III. Then diſtil the matter by an Alembick put upon the head of the Matraſs, in warm Aſhes; and diſtil whatever you are able to bring over.

IV. That which comes over put upon freſh male mineral Antimony, and digeſt as before for a month, two or three, and diſtil it after the ſame manner.

V. Then put what is diſtill'd forth on freſh mineral Antimony, and digeſt it for fifteen days; then diſtil it *de novo ut prius*; and repeat this ſo often, till the Spirit of the *May*-dew does ariſe with the Spirit of the Antimony.

VI. Then take of this acid Spirit ℔j. of male mineral Antimony half a pound; digeſt them in warm Aſhes for a day, ſhaking the Glaſs often, till the acid Spirit be tinged of a red colour.

VII. This red Tincture decant by Inclination, and affuſe thereon freſh Spirit: repeat this ſo often, by pouring off, and putting on freſh, till you have a great quantity of tinged Spirit.

VIII. Put all theſe together, and diſtil them in *Balneo Mariæ* with a very gentle heat, till nothing more will ariſe.

IX. And in the bottom of the Glaſs Alembick, there will remain a red Tincture of Antimony: this diſtil *per Cineres*, and a red Oil of Antimony will aſcend.

X. This rectify two or three times in a Glaſs Retort, and the Oil will be pure red.

XI. This Oil diſtil with the Oil of Mars, and mix it all with an equal quantity of the Oil of Gold, and all ſhall be fixt as in the former Secret; and it is a moſt wonderful thing to tinge Luna into Sol.

XII. If you putrify male mineral Antimony in Horſe-dung with Water of Turpentine, the Spirit will be tinged into the colour of Blood.

XIII. This Spirit thus rubify'd, being digeſted upon new and freſh male mineral Antimony, will cauſe it to yield more copiouſly the Oil of Antimony.

XIV. And this Oil will be of the ſame Virtue with the former, being prepared after the ſame method, as when diſſolved in Spirit of *May*-dew. CHAP.

CHAP. LXVII.

To fix Luna.

I. DIssolve Sal Armoniack ℥j. in the Water or Flegm of Vitriol, and as much, *viz.* ℥j. of Sulphur Vive.

II. Distil them in a Glass Retort; and after that the Flegm of the Vitriol is come over, encrease the Fire, and sublime the Sal Armoniack with the Sulphur Vive.

III. Cast of this Sublimate a sufficient quantity on melted Silver in a Crucible, and it shall be fixt to receive the following Tincture.

CHAP. LXVIII.

To extract a Tincture from Mars *to colour* Luna.

I. TAke Filings of the best Steel, heat them red hot in a Crucible, and quench them in strong Vinegar: this repeat seven or ten times.

II. Then take ℥iv. of these Filings; of Sal Armoniack ℥ij. Mercury sublimate as much: dissolve the Sublimate and the Sal Armoniack in warm Water, and filter it.

III. Put this upon the aforesaid Filings in a Glass Retort, or an Alembick: after two or three days abstract the Water; and what remains in the bottom dissolve in our Vinegar or Virgins Milk, and it will be tinged into the colour of Blood.

IV. Decant the Tincture, and affuse more Vinegar or Virgins Milk, until the matter will yield no more Tincture: then distil it, and in the bottom of the Alembick will remain a most excellent red Oil.

V. This Oil will be better, and more penetrating, if you cohobate upon it the Vinegar or Virgins Milk, which will not ascend, but remain in the bottom of the Alembick.

VI. One part of this Oil cast upon fifteen parts of melted Luna, will turn it all into fine Sol.

VII. And if to this Oil, you join an equal quantity of the Oil of Gold, and fix them together in Ashes by Digestion for a month, your Medicine will be the more perfect.

CHAP. LXIX.

To reduce Sol *into* Mercury *with common* Mercury.

I. TAke of the best Sol purified with Antimony, and made into small Filings or thin Leaves, ℥ij. amalgamate it with ℥xxiv. of common Mercury, wash'd and purg'd very well.

II. Divide the Amalgama into four parts, and put it into four several Glasses; add to it twelve times as much *Aqua Regia*, distilled with Sal Armoniack, as the Amalgama weigheth.

III. So divide this Water, that in each Glas there may be the weight of the Amalgama, so that these twelve parts may dissolve the whole Amalgama in a month, by Digestion in Ashes.

IV. When the Amalgama is dissolved, distil off the *Aqua fortis*, and dulcify the remainder with Fountain Water, till all the Antimony of the Salt or *Aqua fortis* is taken away, and the Water comes off sweet.

V. Let the Water be very pure and clear, or distilled; and have a care that no Dust or Filth fall upon the Pouder.

VI. Dry all your matter very well in an Alembick, that the Mercury may be saved.

VII. Then encrease the Fire, that the whole Mercury may be brought over into the Recipient, and in the bottom you will find a calcined Salt, which reverberate for fifteen days in a Reverberatory.

VIII. So will your Sol be well calcined, and brought into an impalpable spungy Pouder.

IX. Take half this Gold thus calcined, and the Mercury

cury that was distilled from it, being well wash'd from the Impurities it contracted from the *Aqua fortis*: take of it as much as of the calcined Gold.

X. Mix or amalgamate them very well together, by beating or rubbing them in a Mortar.

XI. Then put it into a Glass well stopt, which bury in warm Ashes for five days, until it be reduced into a red Pouder.

XII. To this matter add a third part of fresh Mercury, beat or grind, and mix them together, and boil or digest them in a Glass Matrass, till all be converted into a red Pouder.

XIII. Repeat this so often, until the Sol hath imbibed fifteen times its own weight of Mercury.

XIV. Put this Pouder into a great quantity of common Water distilled; stir it with your Finger, that the Water may be thick or troubled; then decant it whilst it is so troubled, and put it into a Glass Vessel.

XV. Put on more of the same matter upon the remaining matter, stirring and moving the Water, till it is troubled again; then decant it immediately.

XVI. Thus continue, until the Water has taken up all the Pouder; so will you have a very subtile Pouder.

XVII. And if there be any thing in the bottom, which will not be taken up with the Water; calcine it with Mercury, by mixing, grinding and digesting them in a Glass Matrass.

XVIII. Then pass it all through Water, as before: take this Water, and let it settle, and let fall its Fæces; decant the Water from the Fæces; so will you have them of a Golden colour.

XIX. Dry them with a gentle Fire, and put them into a Glass Matrass, and digest it in Ashes for a day; then take out the Pouder, and beat or grind it in a Glass Mortar, and digest it in warm Ashes as before.

XX. Then take it out and beat it again, and repeat this eight times, digesting for a day at a time.

XXI. Beat or grind, and digest it again; then put the Pouder into a strong Glass Matrass well luted and stopt, and bury it in a very hot Sand, making under it a very strong Fire, and the superfluous Water of the Mercury will come forth first.

XXII. At last the Mercury will come forth in great quantities;

quantities; for all the Pouder will be turned into Mercury, and there will nothing remain in the Veſſel but a black Pouder.

XXIII. This Pouder, by a ſtrong Fire, will be turned into a black Glaſs. And thus is the Gold reduced into Mercury with common Mercury.

XXIV. The Mercury is amalgamated or joined with the Spirit and Soul of the Gold, and is called animated Mercury; of which are made Golden Mines by the following method.

CHAP. LXX.

To make a Golden Mine.

I. TAke of the Gold above calcined, whereof we have left a half part for this Arcanum: Take, I ſay, ℥iij. or as much as you have left; and put to it a third part of our animated Mercury, as before prepared.

II. Digeſt it in a Glaſs Matraſs, buried in Aſhes; then give a ſtrong Fire, that ſome of the matter in the Matraſs may be fixed.

III. Put back that which comes over in the Diſtillation, upon that which is fixed, and beat them together, incorporating, and mixing, and digeſting or boiling in a Matraſs till the Calx of Gold has drunk up much of the Mercury.

IV. And if the animated Mercury be ſpent with the Spirit of the Gold, then ſubſtitute in the place thereof common Mercury well (waſhed) diſſolved or purified.

V. So will the red Pouder encreaſe in an infinite quantity; and you may encreaſe as much of this Mercury as you pleaſe, making all running and live Mercury; and it ſhall be animated Mercury, and of the ſame Virtue and Efficacy with the former.

VI. Which muſt again be digeſted or boiled with the Calx of Gold, and by degrees converted into a red Pouder.

VII. Of this Pouder make little Pills with Gum Tragacanth diſſolved in Water, and project it upon melted Gold

Gold in a Crucible, and the Calx will be melted with the Gold, and the Gold multiplied.

VIII. After this manner will your Calx be turned into fine Gold, and your Mine be made to encreaſe for ever.

IX. But then you muſt keep the ſaid Calx of Sol fermented with the Water of Mercury, and convert it into a red Pouder, and then into animated Mercury, and this animated Mercury into a Calx, and this Calx project upon melted Gold.

CHAP. LXXI.

To make the aforeſaid Mine have the Virtue of tinging Luna *into* Sol.

I. TAke what quantity you pleaſe of this Mineral or Mine, and put it into a ſtrong Glaſs Matraſs well ſtopt, in warm Aſhes, with a gentle Fire, for fourteen days, till the Calx has acquired a moſt red Tincture.

II. This very red Tincture it acquires only by this Digeſtion, by Virtue of the Spirit of Gold, which gives the moſt perfect red.

III. If it be digeſted longer, it will acquire a greater red, till it looks like deep Saffron or burnt Blood, ſo deep will be the Tincture.

IV. Take of this rubified Calx of Sol ℥iij. of the Oil of Sol as much; and as much of the Oil of Mars, and the red Oil of Antimony, as above prepared.

V. Mix and incorporate all together, and digeſt till they are all converted into a moſt red Pouder: one part of this will project upon a thouſand parts of melted Luna, and tranſmute it into fine Sol.

VI. If this Pouder be diſſolved in our Virgins Milk, into a fixt Oil, be filtered and clarified afterwards, and digeſted and fixed into a ſweet Oil with Spirit of *May*-dew, as we have before taught in many of theſe our Arcanums, it will tranſmute ten thouſand parts of melted Luna into fine Sol.

VII. And if this Oil be yet ſubtilized and attenuated,

it

it will tranſmute Luna without Fire into Sol, and that by bare Infuſion of the Luna in the ſaid Oil.

CHAP. LXXII.

To tranſmute Mercury *into* Sol.

I. TAke Mercury ℔j. crude Vitriol, Verdigriſe, crude Tartar, common Salt, of each ℔j.

II. Put the Vitriol, Verdigriſe, Tartar and common Salt into an Iron Pot, upon which affuſe the ſtrongeſt Vinegar, that they may all be diſſolved.

III. Being diſſolved, put to Fire, that they may boil; and when they begin to boil, put the Mercury into the Pot, and continue the boiling till the half part of the Vinegar is conſumed, or ſomething more.

IV. Then take it from the Fire, and ſtir or ſhake the matter, and decant what is liquid into an Earthen Veſſel; and in the bottom of the Iron Pot you will find your Mercury half congealed or coagulated.

V. This waſh very well with common Water, till the Water comes off clear.

VI. Then digeſt all this Mercury again with the liquid part of the Vinegar which you decanted out of the Iron Pot; and clarify by adding new Vinegar, and boiling again for two or three hours in that Vinegar in which the Verdigriſe, common Salt, Tartar and Vitriol were diſſolved.

VII. After this decant the liquid part by Inclination, and you will find the Mercury half congealed: this Luna waſh again with common fair Water, till the Water comes off clear.

VIII. Expoſe this Mercury to a cold and moiſt Air for three nights, and it will be coagulated very hard.

IX. Reduce it into a very ſubtil Pouder, and mix it with the Yolks of Eggs and *Crocus Martis*, pure Earth (Chalk) *Stratum ſuper Stratum* in a Crucible, giving a ſtrong Fire for two or three hours; and your Mercury will be like Copper.

X. This join with an equal quantity of cupellated or teſted

tested Luna; melt them together, and test them, and you will find your Luna tinged.

XI. This tinged Luna melt with an equal weight of the best Sol, and all will be pure and fine Gold, of a most pure colour.

XII. And if your coagulated Mercury (made hard in the cold) be reduced into a most subtil Pouder, and imbibed with Oil of Mars, and then melted with Luna, all the Luna will be tinged into Sol.

XIII. And thus Mercury may be transmuted into the finest Sol, which shall stand all Tryals, if fine Sol be joined therewith.

XIV. For the Spirit of Verdigrise does convert and fix Mercury into Copper; and then the Oil of Mars does augments its Tincture, and communicate it to the Silver, and by adding fine Sol thereto, all is made into pure Gold.

CHAP. LXXIII.

To transmute Mercury *and* Luna *into* Sol.

I. TAke of the Mercury aforesaid coagulated and fixed in an Iron Pot, with Verdigrise, Vitriol, Tartar and common Salt: Take, I say, of this Mercury ℥vj. of Silver calcined with Salt, Sulphur and Mercury, as much.

II. Mix them well, and imbibe this Calx with the Oil of Mars three or four times, imbibing and drying it in a Crucible.

III. Add then of Mercury Sublimate ℥xvij. and beat or grind them well together, and imbibe it three or four times, imbibing and drying it in a Crucible: then melt it, and all will be pure fine Sol.

IV. This Sol, if thou dissolvest in our Vinegar or Virgins Milk, and it be digested into a red fixed Oil, and then conjoined with equal weight of the Oil of Gold, and fixed together, you will have an Oil, one part of which will project upon an hundred parts of melted Luna, and transmute it into fine Sol, at all assays.

CHAP.

CHAP. LXXIV.

To tinge Venus *into* Luna.

I. TAke of Luna calcined with Salt, Sulphur and Mercury, and three times repeated with fresh Salt, Sulphur and Mercury: Take, I say, of Silver thus prepared ℥xviij. which imbibe in the following Water eleven times, imbibing and drying in a Crucible upon the Luna.

II. Then take of Sal Armoniack ℥xviij. Mercury seven times sublimed ℥xvij. mix them together and dissolve them in warm Water distilled; and filter the Solution.

III. In this Water imbibe the aforesaid Calx of Silver, and then dissolve it in Spirit of Vinegar.

IV. That which will not dissolve in warm Ashes, calcine again with fresh Salt, Sulphur and Mercury.

V. This Calx imbibe and exsicate in the aforesaid Water of Sal Armoniack so often, till it is all dissolved.

VI. These Solutions of Luna put into a Glass Alembick or Retort, cohobating oftentimes upon the remaining matter in the bottom, till the Vinegar does ascend sweet and insipid.

VII. Then add fresh Vinegar, and again dissolve and coagulate, and that seven times, till the Vinegar ascends sharp, and the Solution be turned into a fixed Oil or fusible Salt.

VIII. One part of this Oil projected upon an hundred parts of melted Venus, turns or transmutes it all into good Luna.

CHAP. LXXV.

To tinge the same Venus *into* Luna.

I. TAke of the before prepared Alcali Oil, (in Chap. XXXVIII.) Mercury seven times sublimed with fixed Sal Armoniack, of each ℥xx. II. Dis-

II. Dissolve them in warm common Water distilled; filter the Solution, and abstract the Water by Distillation.

III. Take this Salt and Mercury, with Oil of Tartar, and dissolve them in the strongest Spirit of Vinegar, and distil to dryness.

IV. Cohobate this Spirit of Vinegar now drawn off so long, till the matter is converted into a fixt Oil.

V. Project one part of this Oil upon an equal weight of melted Luna; mix them well in a Crucible, and the Oil will be reduced to a Pouder.

VI. Take of this Pouder one part, and project it upon an hundred parts of melted Venus, and it will be all most fine Luna.

VII. If you dissolve this Pouder in our Vinegar, it will be converted into a fixed Oil: one part of which will transmute a thousand parts of melted Venus into the best and most pure Luna, not to be parallelled in purity, whiteness and sound.

CHAP. LXXVI.

To tinge Luna *into* Sol.

I. TAke crude Antimony ℥xx. as much *Crocus Martis*: crude Tartar ℥xij. Salt Petre as much; pouder and mix them.

II. Then put it into a strong Crucible, and with a violent Fire calcine for six hours; melt it well, that the Regulus may fall to the bottom of the Crucible.

III. The Crucible being cold, break it, and take out the Regulus; the rest of the matter dissolve in pure clear Fountain Water; boil the Solution, and filter it.

IV. To this filtered Liquor add, by degrees, distilled Vinegar, *viz.* drop by drop, and a Golden Sulphur of Antimony will precipitate to the bottom.

V. To this Sulphur well dryed add an equal quantity of *Crocus Martis*, and as much of fixed Sal Armoniack, with ℥xvj. of Mercury sublimate.

VI. Mix them all and let them stand in a Glass Matrass

trafs with a long neck, in a ſtrong Sand heat for a month; then diſſolve all in common Water, diſtilled and warm; filter the Solution, and it will be of a fine red colour.

VII. Diſtil it now to dryneſs, diſſolve again, and diſtil to dryneſs, doing thus fifteen times.

VIII. So ſhall you have at length a red fixt Oil; to which add the Oil of Sol and Oil of Antimony, and digeſt them in a Matraſs for a month, till they are all united and fixed together.

IX. So will you obtain a fixt Oil, one part of which being projected upon a thouſand parts of melted Luna, will tranſmute it all into good Sol at all aſſays.

X. But it will be more ſtrong and effectual, if the Luna on which you do project be fixt; yet the conſequence of this is not very great in this Work, becauſe here the *Oleum Solis* does fix the Luna.

XI. Thus have you a Golden Oil of the fixt Sulphur of Antimony, wonderfully Efficacious in the Tranſmutation of Metals, if you know how to work.

CHAP. LXXVII.

To tinge Luna *into* Sol.

I. TAke of the Water from the above prepared Regulus of Antimony (before the Sulphur is precipitated from it with Spirit of Vinegar) ℔ij. *Crocus Metallorum* well rubified as much.

II. Make an Amalgama or Paſte of the *Crocus*, which dry with a gentle Fire, then calcine it in a Crucible for four hours, after which diſſolve it in common diſtilled Water or *May*-dew.

III. Purify and filter the Solution; and what of the *Crocus* will not diſſolve, calcine in a ſtrong Crucible with a moſt vehement Fire for a day and a night.

IV. Then imbibe it again with the aforeſaid Water, and make it pure; which dry and calcine for two or three hours: after which diſſolve it in Spirit of *May*-dew.

V. Repeat

V. Repeat this the third time, calcining what doth not dissolve, till all the *Crocus* is turned into a most red Water.

VI. To this Water add Mercury seven times sublimed, and digest till they be turned into a red Oil: project one part of this upon thirty parts of melted Luna, and it shall be all fine Sol.

VII. But if an equal quantity of the *Oleum Solis* be added to it, and fixed together in a Glass Matrass for a month, it will be the more effectual and powerful in Transmutation.

CHAP. LXXVIII.

To make a Water of Mercury.

I. TAke of Cinnabar of Mercury sublimed from Vitriol and Nitre three or four times, always taking fresh Nitre and Vitriol: the Mercury thus prepared by the Cinnabar, mix with a sufficient quantity of pure white Salt of Tartar.

II. Dissolve it by a Retort, and bring over the Mercury in a live and running body: this strain through a Cloth or Leather, and mix with it an equal quantity of common Mercury.

III. Put them together into a Retort, and digest in Balneo for eight days, then distil by a Retort in Ashes, so will you have a Water come over in great quantity.

IV. That which remains in the bottom will be a white Salt, which dissolve in a moist place, and rectify it by Distillation in a Retort, always dissolving what remains in the bottom.

V. That which will not ascend, join with your first distilled Water, and rectify it seven times, and it will be the best Water for performing of many great Works, but chiefly the following Secrets.

CHAP.

CHAP. LXXIX.

To tinge Venus *into* Luna.

I. TAke Luna calcined with Salt, Sulphur and Mercury ʒiij. diſſolve this Calx of Luna in a ſufficient quantity of the afore prepared mercurial Water.

II. Digeſt this Diſſolution in a gentle heat, and diſtil off the *Aqua Mercurii*, and cohobate it on the matter, till nothing more will riſe or aſcend.

III. Thus at length you will have *Oleum Lunæ*, which will tranſmute Venus into good Luna, one part being projected upon fifteen parts of melted Venus.

CHAP. LXXX.

Another way to make the Aqua Mercurii.

I. TAke of Sol calcined with Mercury, Salt and Sulphur ʒiij. diſſolve it in the above prepared mercurial Water.

II. Diſtil the Solution, and cohobate ſo often upon the Solar Calx, till it is converted into a fixed Oil, or fuſible Salt, having paſſed through all colours, and becomes red, fixt and fuſible as Wax.

III. One part of this fixt Salt will tranſmute an hundred parts of fine Luna into pure and fine Sol.

IV. If this Oil be joined with a ſufficient quantity of the *Aqua Mercurii*, and diſtilled, and all be made volatile; and after, by conſtant Digeſtion, be again fixt, its Power and Virtue will be multiplied *ad infinitum*.

CHAP.

CHAP. LXXXI.

To make the Aqua Mercurii *another way.*

I. TAke common Mercury well washed and squeezed through Leather, and inclose it in a strong Matrass with a long Neck, which Seal up Hermetically.

II. The Matrass being thus Sealed up, put it into a putrifying heat, with Woad, *viz.* where the Woad is prepared in the Shops to Dye Cloth with, there being a great heat, for four or five Months; let the Glass I say be buried in the warm Woad up to half the Neck.

III. Leave it in that heat for three or four Months, and in that time will all your Mercury be turned to Water, which rectify seven times, till it be most clear, pure and limpid, and leaves no Fæces in Distillation.

IV. With this Mercury you may work great Things in the perfect Metals, by dissolving and coagulating them, and converting them into a fusible and fixed Salt.

V. Thereby you have many Secrets and Elixirs to tinge Luna into Sol, and Venus into Luna; and the rest of the imperfect Metals, as Tin and Lead into Sol and Luna.

VI. This *Aqua Mercurii* may be made in a putrifying heat of the pressing of Grapes, which being rectified, is of the same Vertue and Efficacy.

CHAP. LXXXII.

To make an Elixir of the white Stones found among Lead.

I. TAke the white Stones which are found in Leaden Mines, and towards the North of the same Mines, for that it is most moist: Take I say a Stone newly taken out of the Mine, and break it into little pieces, with little pieces also of the Mine or Ore.

II. Put them all into a Retort well luted, and Distil for two days in a strong Fire, till the Retort grows red hot.

III. Let the Recipient be large, and to a third part full of the Spirit of *May* Dew, that it may receive the Spirits that come over.

IV. When all the Spirits are drawn over, and the Retort has been kept in a red hot heat for two or three days, then take it from the Fire, and being cold, break it.

V. If the matter be of a red colour, it is well; but if it be more of a white, then it is to be calcined in a Crucible, with a very ſtrong Fire, for ſix or eight hours.

VI. Now we come to the Water, which is to be Diſtilled with a very gentle heat, till the Acid Spirits aſcend, or are come forth, which are to be received in an open Veſſel.

VII. And the Spirits of *May* Dew, which will aſcend firſt, are to be kept; but in the Acid Spirits are to be diſſolved the calcined matter, upon which a great quantity of the ſaid Spirit is to be put, and in a Glaſs Veſſel.

VIII. Let it be well ſtopt, and made to boyl for an hour, then filter and purify it.

IX. Upon the matter remaining undiſſolved, put more Acid Spirit, and boyl it again in a Glaſs Veſſel cloſe ſtopt, for an Hour, which filter and clarify as before.

X. Mix and Diſtil all the Solutions to dryneſs, and diſſolve the matter again, by affuſing thereon all that which has Diſtilled over.

XI. This Solution filter and clarify, and Diſtil again; which Work ſo often repeat, till you have a white Salt or Pouder.

XII. If all the matter will not yet diſſolve, but ſome of it does remain, it muſt be calcined again, and diſſolved as before, till the whole or intire matter is diſſolved and converted into a fuſible Salt, which is ſo often to be diſſolved in our Acid Spirit, till by repeated Diſtillations it is brought to a Volatility.

XIII. And it is then farther to be diſſolved in the ſaid Acid Spirit, till by repeated Diſtillations it is brought to a Water, which is to be rectified ſeven times at the leaſt.

XIV. Then it will have acquired an exceeding penetrating Vertue in diſſolving of all Metals; and in this Water thus prepared is to be diſſolved the perfect Metals, as Sol and Luna; one part of the Metal in ten parts of the Water.

XV. Mix,

XV. Mix, dissolve and digest the Solution, or boyl it in a Glass Matrass, well closed or sealed up Hermetically which is better: Digest for Nine or Twelve Months, until the Water, with the Metal dissolved, be converted into a fusible Salt, fixed and red, if you have dissolved Sol in it; or fixed and white, if you have dissolved Luna in it.

XVI. Thus at length is it become a wonderful and strange Secret, the true *Arabian* Elixir, stupendiously converting all impure Metals into Sol or Luna.

XVII. And by dissolving this Pouder after Congelation, in new and fresh Water above prepared, it acquires far greater Vertues in Transmutation.

XVIII. And from hence its Vertues and Force may be augmented to an Infinity.

CHAP. LXXXIII.

To prepare an Elixir from Pearl.

I. TAke Golden or Silver coloured Pearls, as many as you please, Pouder them, and mix them with an equal quantity of Sulphur Vive.

II. Calcine them in a Crucible, with a strong Fire, until the Sulphur be consumed; then add new, but not so much as before, and Calcine it as formerly.

III. Increase the Fire, and make the Crucible red hot, for four or six hours; then let it cool, take out the matter and beat it small.

IV. Put it into a Retort, lute it well all over, and Distil in a strong Fire, that all the Acid Sulphureous Spirits may come forth, which are to be received in a Vessel half full of *May* Dew.

V. When all the Spirit is come over, break the Retort, and take out the matter, Pouder it, and expose it to the cold Air for a Night; then put it into a well luted Retort, and with a strong Fire Distill it into the same Receiver, that the yet remaining Sulphureous Spirits may be brought over.

VI. Repeat this Work seven times, exposing it to the Air, and then Distilling of it, until the Water in the Recipient have an Acid Taste.

VII. Diſtil this Water in a gentle Fire, leſt it boyl, and when the Acid Spirits come forth, change the Receiver, and put a clean Receiver to, that you may receive them apart.

VIII. Rectify them ſeven times, that they may be purified; and in this Acid Spirit diſſolve the matter left in the bottom of the Retort, after the firſt Diſtillations.

IX. And in a Glaſs well ſtopt, with a gentle Fire, digeſt the Solution, then filter it, and upon the remaining undiſſolved matter, put more Acid Spirits.

X. Diſſolve by Digeſting, and filter the Solution; this do till the greater part of the matter prepared from the Pearls be diſſolved.

XI. Diſtil this Solution to dryneſs, and put the remaining dry matter into the Water Diſtilled from it; purify and filter the Solution; this do till you have a pure Salt, without any Fæces ſubſiding in the Solution.

XII. Take of this Salt what quantity you pleaſe, and diſſolve it in freſh Acid Spirit well dephlegmated, and digeſt the Solution in a gentle heat.

XIII. Then diſtil to dryneſs, keeping the Vinegar, and caſting away that which comes over firſt, becauſe it is inſipid; or if you pleaſe, you may put it to the inſipid Diſtilled Water.

XIV. Repeat this Work till the Salt becomes Volatile, and aſcends with the Acid Spirit.

XV. And thus often diſſolve it in the ſaid Vinegar, always ſeparating the Flegm which comes firſt, and repeat it till your Salt be turned into an Acetum, and riſes with the Acid Spirit.

XVI. This Spirit rectify ſeven times, by ſeparating it from its Flegm; and in this Spirit thus rectified, diſſolve the perfect Metals, one part in ten parts of this Divine Water.

XVII. Digeſt this Solution in a Glaſs well ſtopt, or Hermetically ſealed, (leſt any thing aſcend) until the matter is fixed into a fuſible fixed Salt.

XVIII. But firſt it is to be diſſolved four times in our Acid Water, and fixed and coagulated.

XIX. Thus have you at length an Elixir moſt powerful for the Tranſmutation of imperfect Metals into Sol and Luna.

XX. If

XX. If there be Sol or Luna dissolved in this Acid Water, and congealed by a continual Digestion, you will have a stupendious Elixir for the Great Work.

XXI. This Metallick Spirit of a Mineral may be drawn from any Marchasite or Mineral, because it is inherent in them, and does give the Formal and Essential Being to them all.

XXII. But the way of drawing it is more facile in some than in others.

XXIII. And the true way, according to the Chymical Art, is here most faithfully delivered, if you understand the way of Calcining, Dissolving, Distilling, and such other like Chymical Operations.

XXIV. For these things are absolutely necessary for you to know, that you may separate from the Spirit all Fæculential Impurities, the Dross or Lees of the Elements.

XXV. This being thus perfected, there remains nothing at last to be done, but only to Digest.

CHAP. LXXXIV.

To make small Pearls into great ones.

I. TAke of the least, yet clearest and brightest Pearls, what quantity you please, dissolve them in our Acid Spirit, or in the Water of Mercury, Distilled Twelve times, or more, till it is sweet and clear.

II. In this Water I say, dissolve your Pearls in a Glass, which stop well, and put it over a gentle heat.

III. When all your Pearls are dissolved, filter the Solution, and purify it, and Distill in a gentle Balneo.

IV. When the Distillation is over, cohobate the Distilled Water upon the remaining matter, that it may again be dissolved and purified.

V. This Work reiterate so long, that at length it may dissolve without any Fæces, and remain more clear and splendid at the bottom of the Alembick, like true Pearls.

VI. Then have in a readiness Silver Moulds, which let be gilded with Gold, made of that bigness and Figure you desire your Pearls to be of.

VII. And with a Silver Spatula take your matter thus prepared and fill your Moulds on both parts, which let be perforated with a small hole, to pass a Silver Wire or Thread through, that the Pearls may be bored through.

VIII. Then close your Moulds, (being full of the prepared matter) and let them stand for two or three days in a warm place, that they may harden.

IX. After which take out your Pearls from the Moulds, and put them into a warm Glass, which cover with another Glass.

X. Or rather hang them in a Phial with a Thread fastned to them, and tyed about the Neck of the Phial; which Phial stop, and let it stand in a moderate heat for fifteen days, that they may be well hardned.

XI. After that your Pearls are well hardned, take your Mercurial or Acid Liquor, wherein you dissolved your Pearls, and reduced them to their first matter; in which Liquor let some of your Pearl be dissolved.

XII. Often repeat the Distillation, till your Pearls are turned to a Volatile Salt, and then to a Liquor.

XIII. Take this Water or Volatile Salt of Pearls, and put it into the Glass where your Pearls are suspended.

XIV. Let the bottom of the Glass be round, but let not the Pearls touch the Water, but hang as it were about the middle of the Glass, your Water covering somewhat more than the bottom thereof.

XV. This done, stop up the Glass close, and let it stand to digest in a warm place, or gentle heat, for a Month, or so long, till your Pearls shine, and are of a splendent Colour, so as to please you; then keep them, for they are perfect.

XVI. Almost after the same manner you may prepare great and refulgent Rubies from small ones; but yet it is after a more perfect way and manner.

XVII. If you project of the fixt Oil of Gold on melted Crystal, you may prepare excellent Rubies or Carbuncles according to Art.

CHAP.

CHAP. LXXXV.

To make malleable Glaſs.

I. TAke Oil of Luna Twenty Drachms, Oil of Mercury, or its Water ſeven times rectified, one Pound; mix them together and Diſtil them.

II. Repeat the Diſtillation till the *Oleum Lunæ* riſes with the Water of Mercury in Diſtillation.

III. Diſtil this Water again till it is fixed, and converted into a fixed Oil; and this repeat four times.

IV. In the fourth time the Oil of Luna is fixed with the Oil of Mercury, ſo that they render Glaſs malleable; for ſo great is the Viſcoſity in your Oil, that it removes the brittleneſs of the Glaſs, and ſo leaves it of a malleable temper.

V. The reaſon is, becauſe that the Radical moiſture of the Glaſs is multiplyed by the Radical moiſture of the Metals, which is plentiful and turgent, or ſwelling in the Oils of Luna and Mercury.

VI. And if in this Oil made Volatile, Diamonds ſhould be diſſolved, and then digeſted into a fixt Oil, it would tranſmute all Glaſs into Diamonds, only by projecting this Oil on melted Glaſs.

VII. There are alſo other precious Stones comprehended within this Oil, when it is made Volatile, and digeſted, and fixed again by Digeſtion continually, for the ſpace of a year.

VIII. Alſo this Oil can turn Glaſs into precious Stones of any kind whatſoever, if therein, (being made Volatile) precious Stones of the ſame kind have been diſſolved and digeſted with it into a fixed Oil.

IX. For as Metals are included in their fixed Oils, ſo are precious Stones in theirs, as *Raymundus Lullius* doth witneſs in many places; the which thing we ſhall teach you in the following Chapter.

CHAP. LXXXVI.

To make Carbuncles of Cryſtal.

I. TAke Oil of Sol three Ounces, Oil of the Vital Mercury before prepared, two Pounds; diſſolve the Oil of Sol in the Water or Oil of Mercury.

II. This Diſtil ſo often, by cohobating the Water of Mercury upon the Oil of Sol, till it does aſcend both red and clear.

III. In this clear and limpid Oil diſſolve the beſt Rubies, purify the Solution, and Diſtil it ſo often till all comes over, and the Oil does ſhine and ſparkle in the darkeſt of places; (for the Goodneſs and Beauty of Carbuncles conſiſt in their Splendent Rays.)

IV. Keep and digeſt this Water in continual Digeſtion for a Year in a Glaſs Matraſs, Hermetically ſealed up, till it is moſt perfectly fixed, which will be in about a year.

V. Take this Radiant, or Glorious Red fixed Oil, and project it upon melted Glaſs, or rather Cryſtal, a Pound in weight.

VI. For if you uſe leſs than a Pound weight of Cryſtal, the Cryſtal would be turned into a Medicine; but two or three Grains or Drops will be ſufficient for a Pound of melted Cryſtal, and will turn it into a pure and ſhining Carbuncle, which you muſt cauſe the Lapidaries to poliſh.

VII. This Oil of Carbuncles is profitable to preſerve Health, and is equal in Virtues and Properties to the Oil of Gold, for the conſervation of the ſame, and the prolongation of Life, even beyond the bounds of Humane Nature.

CHAP. LXXXVII.

To beautify Trees with Fruit three times in a year.

I. TAke of that Fruit which you would have to grow, three times a Year, beat it, and expreſs therefrom the Juice, which put into a Wooden Veſſel well cloſed, adding to it a little Salt, and place it in a Cellar.

II. When

II. When it grows warm, distil it in a gentle heat, to obtain its Spirit; which rectify, and separate from its Flegm.

III. Keep it all, and rectify it seven times, and reserve the Spirit in a Glass Vessel well stopt.

IV. The Flegm rectify seven times or more, till it emits no Fœces, but ascends pure.

V. All the Fœces or Body of the Fruit calcine (adding new Fruit in Calcination) in an Earthen Pot able to endure the Fire, and in an open Fire calcine also a great quantity of Fruit, that you may have good store of Ashes.

VI. Let the Ashes be calcined to a whiteness: dissolve the Salt in the rectified matter, by boiling in a Glass Vessel well stopt.

VII. When it boils, purify the Solution by Filtration; then calcine the Ashes again in a strong Crucible; which done, boil them in new Flegm seven times rectified.

VIII. Purify the Solution by Filtration; mix all the Solutions together, and distil them to dryness.

IX. Calcine the Salt remaining in the bottom, and with a gentle Fire melt it: then dissolve it again in distilled Flegm, and purify it by Filtration.

X. Then distil again, and repeat these Operations, till you have a most white Salt.

XI. Dissolve this Salt in the above reserved Spirit, distil them together, and cohobate very often, till the above-mentioned Salt does rise with the Spirit.

XII. This Salt arising, you have in readiness the Fruit of that kind, from whence this Spirit and Salt did proceed.

XIII. Now beat and bruise your Fruit, and mix it with some of your Flegm, and a little of your Spirit; mix them well, and put them to grow sowr in the Sun, and let the Flegm be turned into Vinegar.

XIV. This Vinegar distil often, and in it dissolve your fixt Salt, and by reiterated Cohobations convert it into a fusible Salt.

XV. This Salt volatilize with its Spirit; and being volatile, turn it into Water, to which add half of your Salt melted, and digest it into a fixt Salt.

XVI. This fixt Salt volatilize after the former manner, and

and convert it into Water; to which add half of your Salt melted; convert it again into a fixt Salt, by boiling it in a close Vessel.

XVII. This Work you must do four or seven times, making the fixt volatile, and the volatile fixt; and so you shall attain the aforesaid Secret; whose Virtue and Property is to adorn Trees three times a year, with the Fruit of its own kind.

XVIII. The way and manner of doing it, is thus: Take of your melted or fixt Salt ℥j. and dissolve it in five quarts of common fair Water, or *May*-dew: and with this Water, water or sprinkle your Tree, and it will cause it to flourish with Leaves and Fruit every three or four months.

XIX. But you must observe to gather the Fruit as soon as it is ripe; and then presently again to water the Tree every day with a little of your former Water, wherein is dissolved an ounce of your said fixt Salt.

XX. It is also to be watered with other common Water, not forgetting also very well to dung and prune the same.

XXI. Hence we may conclude the Salt is made volatile and fixt, by means of the Ferment.

XXII. If you dissolve the Salt in *May*-dew, and in this impregnated Water moisten or steep Corn, it will be very much multiplied; the encrease will be much more plentiful, and the Grains and Ears of Corn will also be much larger.

XXIII. After this manner you may multiply and encrease any other Fruit or Grain whatsoever, in very large proportions.

CHAP. LXXXVIII.

To fix Mercury *with the Salt of Tin.*

I. TAke pure Salt of Tin purified from all its Fæces ℥vij. Mercury seven times sublimed ℥iij. mix and incorporate them together, and in a strong Glass sublime them.

II. Sub-

II. Sublime a second time upon the Fœces which are left in the bottom of the Glass.

III. Then weigh it, and if it be heavier than it was, it is well, and doth begin to fix a part of the Mercury with the Salt of Tin.

IV. Continue the Sublimation of the Mercury upon the Fœces, by beating and mixing them together, until all be fixt, and the Mercury remain in the bottom.

V. This will be done about the fiftieth time; for the Mercury is very slowly fixt; but at length it doth fix, and give a metallick Fusion, as *Geber* witnesseth.

VI. For the Proof of the Truth hereof, when you have thus fixt Mercury, add a little new Mercury seven times sublimed, *viz.* about ℥ij. or ʒij. which you shall mix and sublime together, and immediately about the third or fourth part will be fixt by the Sublimation, and converted into a fusible and fixt Mercury.

VII. Repeat this four or seven times, by adding to your fixt Mercury, new Mercury seven times sublimed, until you have a great quantity of Mercury fixt, and flowing as Wax.

VIII. One part of this projected upon an hundred parts of melted Copper, will transmute it into fine Luna.

IX. And being projected upon fine Luna melted in a Crucible, it will turn the Luna into a Medicine, of the same Virtue and Property.

To fix Mercury *into a white Oil, which will transmute impure Metals into* Sol.

CHAP. LXXXIX.

I. TAke pure Oil of Mars ʒiv. Oil of Sol ℥iv. mix them together, and add thereto Mercury seven times sublimed ʒiij. mix and sublime them in a strong Glass Matrass.

II. What sublimes put back to the Fœces, till at length it be all most perfectly fixt.

III. Add to it new Mercury seven times sublimed ℥ij.

and

and mix them together, by beating and grinding them; and ſublime ſo long till that which remains in the bottom of the Matraſs be fixt, and will melt as Wax, and be congealed in the cold.

IV. Take of this matter one part, and project it upon crude Mercury one hundred parts, and the Mercury ſhall all of it be turned into good Sol.

V. Alſo if you project it upon Saturn, Jupiter or Venus, it will turn them all into fine Sol.

VI. And if this Mercury be fixt, and tinged with the fixt Tincture of Sol, it will tranſmute all Metals into Sol.

VII. For Mercury thus prepared, is true Sol opened, fixing and tinging all the imperfect Metals into its own Subſtance.

VIII. Which Subſtance being perfect and communicable, it tranſmits its Perfection to impure Metals, and perfectly digeſts their indigeſted and imperfect Subſtance.

CHAP. XC.

To fix Mercury *into a white Oil, which will tranſmute impure Metals into* Luna.

I. TAke *Oleum Lunæ* and *Oleum Jovis*, of each ℥iij. to which add Mercury ſeven times ſublimed ℥iij. mix and ſublime them together.

II. Put back what is ſublimed to the Fœces, and repeat this Work ſo long, till all the matter be fixt together in the bottom of the Glaſs Matraſs.

III. To this fixt Mercury add freſh or new Mercury ſeven times ſublimed, and ſublime as before, till all be fixt in the bottom of the Matraſs.

IV. And that it may the ſooner fix, add to every Sublimation freſh Mercury: and repeat this till you have a white Oil flowing like Wax, and fixt.

V. Take one part of this Oil, and project it upon an hundred parts of any imperfect Metal, and all will be converted into moſt fine Luna.

VI. If this Oil be diſſolved or mixed with Mercury-Water,

Water, and make volatile, and again fixt by Digestion, for a year, in a strong Glass Matrass Hermetically sealed, you will have a white Elixir, which will project upon all the imperfect Metals, one part transmuting a thousand parts.

VII. He who understands this Art, will not contradict these Secrets; yet they require an ingenious and exquisite Artificer or Operator to perform them.

CHAP. XCI.

To make a red Tincture of Nitre.

I. TAke the best Nitre and pouder it; calcine it with Charcoal in an Iron Crucible or Pot: dissolve the calcined matter in Spirit of *May*-dew, filter and distil it to dryness.

II. Calcine it again with a soft and gentle Fire, taking great care it melt not, then dissolve, filter and distil it again.

III. Repeat this Work, always dissolving with fresh *May*-dew, until you have a fixt Oil of Nitre flowing like Wax.

IV. This Oil is to be made volatile, by often dissolving, distilling and exsiccating of it.

V. Take of this volatile Salt, a large quantity, and with *May*-dew, putrify it for a month in Horse-dung in a Glass Matrass well stopt.

VI. Then distil till all your matter is converted into the Spirits of *May*-dew, and is purely volatile, and separate it from its Flegm by a gentle heat in Balneo.

VII. That which remains in the bottom of the Vessel, and will ascend by the heat of a Balneum, distil *per cineres*, and repeat it seven times.

VIII. So have you the pure and universal Mercury of the World, most subtil and volatile; by the help whereof most wonderful things are to be done in Chymistry, but chiefly in the following Secrets.

CHAP. XCII.

To make a white Elixir.

I. TAke of Leaf Silver, or Silver Calcined, as much as you pleaſe, diſſolve it in a ſufficient quantity of this Mercury, and the Univerſal Liquor above prepared.

II. Digeſt the Solution for Eight days in Horſe Dung, then Diſtil it to dryneſs.

III. Cohobate that which Diſtils over upon the remaining matter, always putrifying the Solution for eight days.

IV. Repeat this ſo often, till the Solution of the Luna aſcends with the Spirit which diſſolved it; this Water Diſtil ſeven times in new Retorts.

V. Put to this Spirit or Water as much cupellated, teſted, or refined Silver, as it will diſſolve.

VI. This Solution being clear and pure, put it into a long Necked Glaſs Matraſs, which ſtop well, and digeſt it in an Athanor, until it is fixed into a white Oil.

VII. One part of this Oil will tranſmute a thouſand parts of any other Metal into pure Luna; it will alſo tranſmute crude Mercury into fine Silver, one drop thereof being caſt upon it.

VIII. If you yet proceed farther, and make this *Oleum Lunæ* thus prepared Volatile, and then bring it again into a fixed Oil, it will tranſmute all other Metals into fine Luna, without any Fire.

IX. And one drop being put upon the Metal, it will penetrate even to the Center of the Metal, and will tinge and tranſmute into fine Luna all imperfect Metals upon which it is projected.

X. But if it be ſeven times turned into a Water, and then fixed again, it will Tranſmute in an infinite manner the ſaid imperfect Metals into Luna.

XI. And if it be projected upon Luna, it will turn the Luna into a Medicine of the ſame vertue and property: Thus will your Medicine be multiplyed *ad infinitum*; nor need you to do the ſame Work over again *de novo*.

CHAP.

CHAP. XCIII.

To make a red Elixir for Transmutation of all other Metals into Sol.

I. TAke of the best Sol seven times purged with Antimony, in fine Filings, or in Leaves, 18 Drachms, dissolve it in our above prepared Spirit.

II. Digest the Solution in a Glass Retort *in Balneo Mariæ* for eight days, then Distil it in Ashes.

III. Cohobate upon the matter in the Retort, (and if need be, add new Spirit to help it to dissolve) so often, till the Sol does ascend with the Spirit in a red or white Water.

IV. In this Water seven times Distilled, dissolve as much fresh Sol as it will take up, and digest this Solution in a Glass Hermetically sealed, till it be turned into a most Red Oil.

V. This Oil is wonderful in preserving of Health; one drop taken once a Week does prolong Life beyond the bounds of Humane Nature.

VI. Being projected on base Metals, it Transmutes them into fine Gold; and being projected on Sol, it changes it into a Medicine of the same vertue; and cast on Crystal, it produceth Rubies and Carbuncles.

VII. It also makes Glass malleable, and Rubies to be of a resplendent Colour; it multiplys the Fruits of all sorts of Trees, if some drops be dissolved in Water, and the Tree watred therewith.

VIII. It likewise renders all Animals more pleasant and strong, and prolongs their Lives: Thus by this Medicine, (which exceeds all others) is whole Nature renewed.

CHAP. XCIV.

To prepare the Spirits of May *Dew for the former Secrets.*

I. GAther Dew in the Month of *May*, with a clean white Linnen Cloth spread upon the Grass, which expres

expreſs from the Cloth; thus gather a very large quantity, and filter it.

II. Put this into a great and capacious Glaſs Matraſs, which ſtop well, and digeſt it in Horſe Dung for fourteen days, then Diſtil it *in Balneo* to a fourth part.

III. This fourth part remaining, caſt away, for it is nothing worth; and that which was Diſtilled, digeſt again in a large Matraſs well ſtopt, in Horſe Dung, for fourteen days.

IV. Then Diſtil to a fourth part, as before; do thus four times, digeſting what is Diſtilled over, and Diſtilling always to a fourth part, caſting away every time the ſaid fourth part remaining in the Matraſs.

V. Thus will you have a moſt pure Spirit of Dew, and very penetrating; by the help whereof you may prepare the Calcined Sol or Gold; make it Volatile, and turn it into Water, as we have taught in Chap. 61 aforegoing.

VI. Thereby Salts are Calcined, made volatile, and fixed, and converted into a volatile Spirit or Water.

VII. And by the help thereof all the fixed Salts of Metals are made volatile, and converted into a Spirit or Water; and if you are indeed an Artiſt, you may by this turn all Metals into their firſt matter.

VIII. And out of this pure matter, freed from all its Fæces and Excrements, is made an Elixir of a wonderful virtue in Tranſmuting of Metals.

CHAP. XCV.

The fixing of Arſenick.

I. TAke well ſublimed Arſenick, and mix it with Oil of Tartar, and make it into a Paſte, with Water of Sal Armoniack, ſo as it may be a ſoft Paſte.

II. Put this Paſte into a Glaſs Matraſs well ſtopped, and Digeſt it in a temperate heat for Twenty Four hours.

III. Then take it out and grind it on a Marble, moiſtening it with Oil of Tartar and Water of Sal Armoniack, and Digeſt it again, repeating this Work four times.

IV. Then grind it well on a Marble, diſſolve it in Horſe Dung in a Glaſs Matraſs well ſtopt, and congeal or evaporate upon warm Aſhes.

V. Diſſolve

V. Dissolve it again in Horse-dung, and amalgamate it five times; so will you find your Arsenick fixed and flowing as wax; one part of which will tinge twenty parts of Copper.

VI. If this Oyl be dissolved in Spirit of May-dew, and purified, and then joyned with an equal quantity of *Oleum Lunæ*, and *Oleum Mercurii*, and coagulated; it will tinge yet more powerfully.

VII. One part thereof being projected upon an hundred parts of melted Venus, will tinge and transmute it all into fine and most pure Luna.

CHAP. XCVI.

To resolve Sol *into its first matter.*

I. WIthout regeneration no Medical or Chymical Arcanum is possible to be attained: therefore if you desire to obtain any thing from the common Gold, it must be regenerated.

II. If that this Gold may be regenerated, it is to be reduced into its first Principles, but chiefly into its vital Sulphur, the Balsam of whole nature.

III. This Sulphur is called Gold; and Gold freed from its Fetters, is enabled to exercise its vertue and strength, and those Actions and Properties that lay hid in it.

IV. To discover this, we must dissolve Gold with Gold, that is, with the internal Sulphur of Nature, which lurketh or lyes hid in all things.

V. Let us with common Sulphur, so often draw the Sulphur from other things, that in its center it may comprehend the Sulphur of another.

VI. Take therefore common Sulphur in a very great quantity, *viz.* as much as you please; and dissolve it in common *Aqua-fortis*; and circulate it in a glass Matrass well stopped, till the *Aqua-fortis* be sweet and insipid.

VII. Then draw it off by distillation, and put it on fresh; digest and circulate in warm Ashes, till it also be sweet, which distil off as before.

VIII. Do thus till the *Aqua-fortis* will be no more sweet, but sharp, and comes over strong: then force it all over; and the remaining matter digest till it waxes white; and continue the heat till it grows of a pure colour.

IX. This matter is so often to be dissolved in the rectified Spirit of Wine, (the Spirit being fresh every time) until a most red Tincture does ascend with the Spirit.

X. This Tincture is to be separated from the Spirit of *Wine* by distillation *in Balneo*.

XI. Then the Glass is to be removed into Ashes, where the Tincture is to be distilled off; and you are to rectifie it seven times.

XII, In this Tincture which is the true Sulphur of Nature, is Sol to be dissolved, in a very gentle heat; and being so dissolved, to be circulated, and so often distilled till it ascends with the Sulphur of Nature.

XIII. Then dissolve more common Sol in this Sulphur, and in a well stopt Glass digest until all be converted into a most red Oyl, fixed and of a most sweet odour.

XIV. This most fragrant Oyl preserves and prolongs life, and has wonderful effects in transmutation.

XV. This Oyl wants an equal in Alchymy: for one part thereof will transmute a thousand parts of any imperfect Metal; by projecting it thereon.

CHAP. XCVII.

To make the Spirit of Mercury.

I. TAke Mercury sublimate ℔j. of the best Potters Clay ℔iij. pouder them both, and with Spirit of May-dew, malax them together, and make little Balls thereof, which dry.

II. Being dryed, moisten them with Wine, and dry again: then put them into a Retort well luted, and give fire by degrees for four and twenty Hours.

III. If

III. If any thing ſublime into the neck of the Retort, mix it with more Clay, and moiſten it with the liquor which comes over, and again diſtil it, till nothing ſublime, but that the Mercury paſſes over in a Spirit.

IV. This Spirit rectifie ſeven times at the leaſt.

V. With this Spirit you may do wonderful things in tranſmutation of Metals, for which cauſe I have inſerted it among theſe Secrets.

CHAP. XCVIII.

To make a Spirit of Lime, which will diſſolve all things.

I. TAke Quicklime, what quantity you pleaſe, and diſtil Spirit of Wine from it ten or fifteen times; renewing the Spirit, and often pouring freſh on the Calx or Lime, remaining at the bottom.

II. Take of this Calx three Parts, of Potters Clay eight parts; of pure Salt of Tartar one Part: mix them together, and in a luted Retort, diſtil them with a ſtrong Fire, until all the Spirits come forth.

III. Rectifie this Spirit well: Then will it diſſolve all Metals, and work Wonders in Tranſmutation.

IV. If you diſſolve Cryſtal in this Spirit; you ſhall have a Salt of Cryſtal; and a true Secret for diſſolving the Stone in both Reins and Bladder.

V. The Doſe is half a Drachm in *Wild Alexander* Water: It is alſo a ſecret, ſure and ſafe Remedy in the Gout.

CHAP. XCIX.

To tranſmute Jupiter *into* Luna.

I. TAke *Jupiter*, melt it, and quench it in the Water of Eggſhels, and it will loſe its crackling and eaſineſs of melting.

II. Then take it, and amalgamate it with the like quantity of well washed Mercury.

III. Wash the Amalgama with common Water and decrepitated Salt: and when the Jupiter rather than the Amalgama is clear or clean, put it into a Retort, and distil it with a strong Fire, that the Mercury may be separated from the Jupiter.

IV. Wash your Mercury and cleanse it, by pressing it through Leather, and again amalgamate it with the Jupiter, and wash the Amalgama as before, with Salt and Water.

V. Distil the Amalgama again with a strong Fire: The Mercury wash, and press through Leather, amalgamate it with Jupiter, and distil twelve times.

VI. At last mix half a part of Luna with it (the Mercury being separated from it;) then tast that Mixture, and you will find your Luna much augmented.

VII. This is done by washing and distilling, and amalgamating with the Jupiter; for so is the Mercury fixed, and by its own Sulphur turned into Luna.

VIII. But if good Luna had been added to it at first, the Work would have been done sooner and better; for the Luna will harden the Jupiter.

CHAP. C.

To make a white Elixir to transmute all Metals into Luna.

I. TAke Mercury, seven times sublimed; dissolve it in common *Aqua-fortis*; digest the Solution for ten days in *Balneo Mariæ*, and *in Balneo* distil it to dryness.

II. The matter being dry, sublime it: and dissolve a part of the matter by it self, in a cold and moist place: The Solution digest for ten Days, then distil it, and repeat the distillation three times, which keep in a Glass close stopped.

III. The other part of the Mercury sublime so often in a Retort, till it be fixed in the bottom thereof.

IV. To

IV. To this fixed part joyn an equal part of the Spirit of Mercury, as it is prepared and distilled above, and in a Glass sealed up, putrifie it *in Balneo* for fifteen days, till it grows white.

V. This white matter sublime in Ashes, into the Sulphur of Nature.

VI. This Sulphur dissolve with two Parts of your Spirit before reserved; digest the Solution *in Balneo* for ten Days.

VII. Then gently distil off the Spirit, and what remains in the bottom, is the Oyl of the Sulphur of Nature, which is to be fermented with an equal part of the Oyl of Luna, then digest till it be fixed, and is become perfectly white, in a Glass Matrass well closed.

VIII. This being projected upon fused Luna in a Crucible, the Luna will become as brittle as Glass.

IX. One part of this Glass, will tinge a thousand parts of Venus into true Luna.

X. The Oyl of Luna for this secret is thus to be prepared. Take of the first Luna in Leaves ℥iv. dissolve it in *Aqua-fortis*, digest the Solution for a month *in Balneo*.

XI. This digested matter distil *per Balneum*, with a gentle heat: And to the liquid matter remaining in the bottom, put rectified Spirit of Wine, so much as may over-top it about four Inches.

XII. This matter digest *in Balneo* ten Days, then distil off the Spirit of Wine.

XIII. The remaining matter at bottom, digest *in Balneo* for one hundred and fifty Days, till it putrifies and grows white.

XIV. This white matter sublime, then dissolve it in Alcholisate Spirit of Wine, and digest it *in Balneo* for ten Days; after which abstract the Spirit, and that which remains in the bottom is the Oyl of Luna, and the Ferment of the white Stone.

XV. If this Oyl be filtred and dissolved in the Spirit of Mercury, it will at last become a true Stone, and of admirable vertues, as is before declared.

XVI. After the same manner may you work with Sol, to make the red Elixir, which will transmute all other Metals into fine Sol.

CHAP. CI.

To make a red Tincture of Mars *for* Sol.

I. DIssolve Iron in our dissolving Water, and digest the solution *in Balneo* for ten days.

II. Then draw off the *Aqua-fortis* in a gentle heat: the matter remaining in the bottom dissolve in Spirit of Vinegar, digest it ten days, and then distil off the Vinegar.

III. Dissolve it again in fresh Spirit of Vinegar, and digest it for ten days *in Balneo* and then distil off the Spirit *ut supra.*

IV. To the matter remaining in the bottom affuse Spirit of Wine, so much as may cover it six inches over, and digest the matter *in Balneo* for ten days.

V. Abstract the Spirit of Wine by distillation, and the red tincture of *Mars* remaining in the bottom distil till it ascends by the Alembick, which rectify three or four times, or till it be most pure.

VI. Then from its Earth draw a Salt, which purify by many solutions and calcinations, and then joyn it with an equal weight of its Tincture, or red rectifyed Oil.

VII. Digest these together till they are fixed into a Rubine, which ferment with *Oleum Solis*, whose preparation we have taught in several places before going.

VIII. The matter being all fixed, cast one part upon three parts of melted *Sol*; and then upon a thousand weight of Luna, or any other Metal, and all will be good *Sol.*

IX. But farther, if this matter be joyned with the volatile Tincture of Mars, and dissolved, and then again fixed; its virtue in transmuting of imperfect Metals, will be thereby very much increased, almost *ad infinitum.*

X. And if that one part thereof be projected upon (100000) an hundred thousand parts of any imperfect Metal, it will be all transmuted into good Sol.

XI. And if this Medicine be cast upon Sol, it will be transmuted into a Medicine of equal virtue to the former.

CHAP.

CHAP. CII.

To make an Elixir *and Medicine of* Jupiter *for the white Work.*

I. TAke Mercury of Tin, half a pound; dissolve it in common *Aqua-fortis*, and digest it *in Balneo* for ten days.

II. Then distil off the *Aqua-fortis* to dryness, and repeat this work three times, *viz.* dissolving that which remains in the bottom, with new *Aqua-fortis*, and digest ten days, and distilling off the *Aqua-fortis* to dryness.

III. Repeat the solution again with fresh *Aqua-fortis*; digest *ut supra*, and then draw off the Spirit in Ashes.

IV. Put what remains in the bottom into a strong Glass Matrass well luted, and sublime it with a strong fire for six hours.

V. What sublimes, mix with fresh Mercury, drawn from Jupiter as aforesaid, incorporate them together, and make an Amalgama.

VI. This Amalgama wash well, and filter it with clear Oil, so that the Mercury may not appear to run.

VII. But a Pouder being made of both Mercuries with Ashes, let it be sublimed for six hours; and to this matter add an Amalgama of Luna with the Mercury of Jupiter, and sublime till all remain fixed in the bottom of the Vessel, and melts like Wax.

VIII. And this is done, by adding new Mercury of Jupiter sublimed, and then dissolve in *Aqua-fortis*, and again sublimed; thus will it become fixed and flowing like Wax.

IX. This Medicine being projected upon Saturn, Jupiter, Venus or Mercury, converts them all into fine Luna; one part being projected upon an hundred of any imperfect Metal.

X. And if it be projected upon fine Luna, all the Luna will be turned into a Medicine of equal Virtue with the former.

CHAP. CIII.

A leſſer tincture for the white Work.

I. TAke common Salt diſſolved in *May*-dew, and ſo often coagulated, till it will melt in the fire like Wax; which that it may the ſooner be performed, every time you coagulate, melt it in the crucible, and ſo caſt it into the Water of *May*-dew.

II. Then it is to be filtred, and this is to be ſo often done, till it will melt like Wax as aforeſaid.

III. Take of this matter, ℥xix. of pure white Salt drawn from Egg-ſhells ℥xix. Mercury ſeven times ſublimed and dulcified, ℥xx. pure white Salt of Vitriol ℥xviii. mix all well together.

IV. Then put them into a ſtrong Glaſs Matraſs well luted, and ſublime them with a ſtrong fire four or ſeven times.

V. To this matter add of ſublimed and fixt Arſenick, ℥xviii. of calcined Luna ℥xix. of ſublimed and fixed Sal-Armoniack ℥xviij. mix them.

VI. Then ſublime them, and repeat the ſublimations upon the faces, till the whole matter be fixed, and nothing more will aſcend.

VII. Then diſſolve this whole matter in a cold and moiſt place, letting it run *per deliquium*; filter, purify, and coagulate the Solution.

VIII. This Coagulum diſſolve in *May*-dew, till all be converted into a fixed Oil.

IX. One part of this Oil projected upon an hundred parts of fuſed Venus, will tranſmute it all into fine Luna.

X. Theſe Salts thus prepared and made fuſible, receive their chiefeſt Tincture from the Arſenick, Mercury, and Luna, which are all diſſolved with theſe Salts and by Art prepared, and converted into a white fixed Oil.

XI. This Oil wonderfully tingeth, and by tinging doth fix; for it has in it ſelf fixedneſs, and permanency, in the fire.

CHAP.

CHAP. CIV.

Of the Physical Stone made of Dew.

I. TAke a great quantity of *April*, or *May*-dew, and distil it with a gentle heat, till it becomes somewhat thick in the bottom of the Alembick.

II. Put into this Water a quantity of the Loadstone, and from the same with a very strong fire, in a Retort, draw forth an acid or sharp Spirit, which rectify seven times and reserve it.

III. The Loadstone calcine with a strong fire in a strong Crucible for three hours, and extract a most profitable Salt, with the flegm of the Dew, before distilled, by boiling the Loadstone in the said flegm.

IV. Filter the flegm and distil it in an Alembick, in the bottom of which you shall find a most pure white Salt.

V. This Salt calcine in a Crucible with a strong fire, three or four hours; and then dissolve it in the Spirit of *May*-dew, before prepared.

VI. This solution filter and distil with a very gentle heat, and that which remains in the bottom, dissolve, and filtrate, so long till it emits no fæces in dissolution, and remains in the bottom of the Alembick, in the form of a most pure white Oil.

VII. Sublime or cause this Oil to ascend with a very strong fire into the Sulphur of nature: This Sulphur dissolve in the Acid Spirit above prepared and reserved.

VIII. This Solution purify, and dry or evaporate it by distillation; and again dissolve it and evaporate it by distillation; and this so often repeat till your Sulphur is dissolved into a volatile Water, and ascends by the Alembick with the acid Spirit.

IX. And thus is this acid Spirit made the true Vinegar of the Chymists, most sharp, and dissolving all things.

X. Take of this most sharp Vinegar, twenty eight drachms: of the finest and best Sol, seventeen drachms: dissolve the Sol in the said Vinegar.

XI. Digest

XI. Digeſt this ſolution in a Matraſs well ſtopt for a month, then put it upon an Alembick and diſtil it to dryneſs.

XII. What diſtils, cohobate upon the matter remaining in the bottom, and repeat this work ſo often, till it is all converted into a red fixed Oyl in the bottom of the Matraſs or diſtillatory.

XIII. Separate the flegm or inſipid drops of Water, which came over firſt in the diſtillation of our Vinegar; and put that only upon the remaining matter which is ſharp or acid, till it is all fixed into a red fixed Oil.

XIV. One part of this will turn a thouſand parts of any imperfect Metal into pure Sol: and if it be projected upon an equal weight of fine Sol, it will convert it all into a Medicine of the ſame Virtue and property.

XV. And if you diſſolve this Medicine with new and freſh acid Spirit, and digeſt it again in a well ſtopt Matraſs, till all is turned into a red fixed Oil, your Medicine will be multiplied both in quantity and Virtue.

CHAP. CV.

To fix Mercury.

I. TAke Mercury dulcified and often ſublimed eight drachms: Salt-peter depurated and freed from all its common Salt, as much: mix them together.

II. Sublime them in a ſtrong Matraſs, with a very ſtrong fire: then ſublime without the fæces which are left in the bottom of the Glaſs.

III. And ſo long ſublime, till it is fixed in the bottom; ſo have you a fuſible, fixing, and tinging Mercury; of which one part will go upon an hundred parts of melted Venus.

IV. And if this fixed Oil of Mercury, be joyned with the fixed Oil of Luna, it will tinge the more powerfully, and its virtues will be multiplyed.

V. And if this fixed Oil be diſſolved in our ſtrong Vinegar, prepared in the former Chapter, it will be all converted

converted into a Spiritous Water, which will penetrate and dissolve all things.

VI. And herewith are performed strange and stupendious secrets, with Sol, Luna, and precious Stones, in order to Mans health, as also for making Glass malleable, and turning it into precious stones.

CHAP. CVI.

To congeal Mercury *into* Luna.

I. TAke Auripigmentum, half a pound: Mercury Sublimate as much; mix them, and grind them till they become a most fine pouder.

II. Put it into a Retort, and distil (according to Art) in Ashes a gummose liquor, which rectify seven times.

III. Then take well washed Mercury four ounces, which amalgamate with filings or leaves of the most pure Luna: wash the Amalgama with Salt and Spirit of Vinegar till it be white and pure.

IV. Imbibe this Amalgama in the former liquor, and digest in a Matrass covered with *Lutum Sapientiæ* close stopt in a strong fire, for four days, and increase the fire for eleven Hours.

V. At last melt it in a Crucible, and it will be most fine Luna.

VI. And if you add a little Calx of Tin well calcined and well washed, it will be better, and you will find in the fusion a greater quantity of Luna.

CHAP. CVII.

To extract the Mercury *of* Antimony.

I. TAke flowers of Antimony made *per se* in an earthen Vessel, as much as you please; and add thereto pure Salt of Tartar in very fine Pouder, Quick-lime, and

and Sal-Armoniack, of each as much as of the flowers of Antimony.

II. To these add of the best Spirit of Wine a sufficient quantity; and in a Glass Matrass well stopt, digest them for a month in warm Horse-dung, or *in Balneo*.

III. Then distil, and at the end of the distillation, you will find a running Mercury of Antimony in the bottom of the Receiver.

CHAP. CVIII.

To convert Lead into Mercury.

I. TAke of the best Salt of Borax three ounces: Salt of Lead three ounces: Oil of Tartar three ounces: filings of Lead four ounces: Sal-Armoniack three ounces: The best Spirit of Wine six ounces; mix them well together.

II. Put them into a Glass Matrass, stop it well, and digest *in Balneo* for a month; then distil, and a running Mercury will be drawn from the Lead.

III. This Mercury you may easily fix into Luna with *Oleum Lunæ*; and into Sol, with *Oleum Solis*; the manner and way of doing which, you may collect out of some of the aforegoing Chapters.

CHAP. CIX.

A tincture of Sol *for the transmutation of* Luna.

I. TAke of the mineral of Sol, (which has not yet past the fire) one pound, beat it into bits, or into a gross pouder, and put it into a well luted Retort.

II. Distil with a strong fire, and what comes over, keep in the Recipient close stopt.

III. What

III. What remains in the Retort, expose (whilst it is yet hot) to the cold Air for a Night; and in the morning put it into the Retort again, and distil it as before into the same Recipient.

IV. What remains in the bottom of the Retort, expose again (whilst it is yet hot) to the cold Air for a whole night; the next morning put it into the Retort again and distil it.

V. This work repeat so often till you have a very great quantity of Water.

VI. Then take your Mineral which remains in the bottom of the Retort, and dissolve it in a strong *Aqua-fortis*.

VII. Purify the Solution, and digest it for a whole month in *Balneo Mariæ*.

VIII. Then distil to dryness, and cohobate the Water distilled off upon the fæces till it grows sweet.

IX. After which, dissolve the matter remaining in the bottom, with the above reserved Water (in the receiver well stopped) drawn from the mineral exposed to the cold Air.

X. Being dissolved, filter and purify the Solution; putrifie it for a month in *Balneo*, then distil to dryness: cohobate, and distil again, until your matter ascends the Alembick in a wonderful Salt.

XI. This Salt dissolve, and distil till it is converted into an Acid-Water, which rectify, and free it from all its insipid flegm.

XII. Then in this most strong rectified Vinegar, dissolve Sol calcined with Salt and Mercury: all being well dissolved, purify the Solution and digest it (abstracting the flegm if any be) until the matter by a constant digestion is converted into a red and and fixed Oil.

XIII. This Oil (as the other above prepared red Oils) may be multiplyed, and its Virtue and Power extended in like manner.

XIV. One part thereof will project upon a thousand parts of any imperfect Metal, and transmute it into most fine Sol, without comparison.

CHAP.

CHAP. CX.

A tincture of Luna *for other* Metals.

I. TAke of the mineral of Luna in groſs Pouder two pounds: Mercury ſeven times ſublimed half a pound: mix them togethet, and in *Balneo Mariæ* putrify them for a month.

II. Then diſtil into a Recipient well joyned or luted to the neck of the Retort: what comes over into the Receiver, keep therein well ſtopped.

III. The matter remaining in the Retort expoſe while it is yet hot, to the cold Air for a night: break the Retort, and if any thing be ſublimed into the neck thereof, bruiſe and grind it, and mix it again with the matter.

IV. Then diſtil it as before, and keep the liquor that comes over into the Recipient, with the other cloſe ſtopt; and expoſe the matter whilſt yet hot to the cold Air for a night *ut ſupra*.

V. What ſublimes or aſcends, if any be, mix with the remaining matter, and again diſtil in a new Retort.

VI. This work ſo often repeat, till you have a very great quantity of Acid Water, which rectify, and ſeparate from its flegm.

VII. Then diſſolve of the matter remaining in the Retort four ounces; in a ſufficient quantity of *Aqua-fortis*: you are not to diſſolve all your matter, becauſe it will be too much; four ounces will be enough.

VIII. Digeſt the Solution *in Balneo* for a month, then diſtil and dry it: and this work ſo often repeat, till your diſſolved matter is converted into an Oil.

IX. Diſſolve this Oil in the Acid Water above reſerved in the recipient: then diſtil it to drynèſs, and ſo often repeat the diſtillation, till all the Oil aſcends with the Acid Water, and the whole becomes one Acid.

X. Rectify the Acid liquor ſeven times; and therein diſſolve a fit quantity of Luna, and repeat the Solution and Diſtillation, till it be all turned into a fixed Oil very clear.

XI. This

XI. This Oil converts all imperfect Metals into fine Luna.

XII. And if you dissolve it again in the above reserved Acid Water, and according to art digest it into a fixed Oil of Luna, one part will go upon ten thousand Parts of any imperfect Metal.

XIII. And being projected upon Luna, it converts it into a Medicine of the same virtue and property.

CHAP. CXI.

To make a red Oil of Vitriol, a secret in the cure of all Diseases.

I. TAke Salt of Vitriol a pound: make it red by manifold Calcinations and Solutions, so often iterated, till it becomes to the highest redness,

II. Dissolve it in the best rectified Spirit of Wine three pounds; and digest the Solution in *Balneo Mariæ* for a month.

III. Distil it in a Retort, with a strong fire; cohobate the Spirit upon the red Salt, and so often repeat the Cohobation, till with the Spirit of Wine, a red Oil ascends; or the Spirit is tinged with a red Tincture from the Salt of Vitriol.

IV. Distil this tinged Spirit *in Balneo Mariæ*, with a gentle heat, and the red Tincture will remain in the bottom.

V. The Spirit of Wine thus denudated of its Tincture, put upon the Salt of Vitriol again, that it may be again tinged.

VI. Repeat this till your Salt of Vitriol is all come over with the Spirit of Wine, or converted into a Volatile Tincture.

VII. This Tincture separate also from the Spirit of Wine, and rectifie it three or four times by a Retort in Ashes.

VIII. In this rectified Tincture dissolve the Calx of Sol; so will it become fixed by means thereof, and both converted into an Oil.

IX. This

IX. This being by art made volatile, and then fixed again, becomes a very great medicine curing all Diseases; and purifying or purging the leprosy of all Metals.

X. One grain of it is sufficient for the prolongation and conservation of human life for many years; and for curing of any disease.

XI. One grain also is enough to transmute a pound of Saturn, Jupiter, Mercury or Luna into the most fine Sol.

CHAP. CXII.

To extract a red Tincture from Arsenick.

I, TAke Crystal Arsenick half a pound: Pouder it very fine, and dissolve it in common *Aqua-fortis* seven times distilled and rectified.

II. Filter and purify the Solution, and digest it in *Balneo* for fifteen days, then distil to dryness.

III. Dissolve again in the self same Water that came over, cohobate upon the fæces, dissolve, clarify, filter, and distil: and do thus so often, till it dissolves without any fæces, and the solution becomes of a red colour, with a white Salt settling at bottom.

IV. Separate this Salt, and keep it for the white Tincture, to project for the white.

V. Now take only the Solution, and put to it a fourth part of Sol: but let the Sol be first dissolved in *Aqua Regia.*

VI. Then joyn the Solutions, and digest them, in *Balneo Mariæ* for a month, and then distil to dryness.

VII. Cohobate, or again put back the Water to the fæces and again dissolve, purify and filter the Solution, and distil to dryness.

VIII. Dissolve again, and repeat this work, till it emits no fæces, but your matter is converted into a most rubicund Oil.

IX. This Oil circulate in a Glass Matrass with a long neck well stop'd, till the Oil is so fixed, as that it will not in the least ascend.

X. Take

X. Take of this Oil one penny weight, and project it upon fine Luna one pound, fused in a Crucible, and it will transmute it all into the most pure Sol.

CHAP. CXIII.

The conclusion of this eighth Book.

I. I *Peter John Faber* here publish these *Arcana* for the production of Sol and Luna, and dedicate them to the Sons of Philosophy, not as having been all experienced by me, but as they are agreeable to reason, the principles of Alchymy and true fundamentals of Art; I am unwilling to draw you into expences, or cause you to exhaust your Treasure, consume or lose your time: my design is that you may reap Fruit by our Instructions.

II. For this purpose it is necessary that we convert Metals whether pure or impure into a pure Salt: for it is only profitable to us that by a Metallick Sulphur we tinge the saline parts of Metals: to which purpose the *Arcana* in this present work wholly tend: teaching how Metals and Minerals may be converted into a pure saline and fusible substance.

III. Thus proceeding in this Art of Alchymy, you will not blame but praise me, for that I advise you not to things vain, but such as are advantageous and profitable. This is the secret in Alchymy as I have said, to convert Metals into a fusible Salt: to volatize this Salt with the Spirit that turned the Metal into such a Salt; to make the volatile fixt, and the fixt volatile again; and this again fixt, till the Royal Sulphur is able to digest and tinge the Imperfect Metals into Sol and Luna.

IV. This is done by Dissolution and Coagulation. This is the Sum and accomplishment of the whole Art; there is nothing more true in this learning; God himself is witness. By the *Arcana* here laid down, you may see how fruitful Alchymy is in the production of Sol and Luna: but this you will never compleatly perceive, unless you understand the *humidum Radicale* or Mercury

of Metals; and how to free and depurate it, from its impurity and fæces.

V. For the transmutation of Metals consists only in the pure and fixed Metallick Mercury or *radical moisture*, educed by patience and constancy in operating; for they require a long time to be brought to a laudable and desired end: Art is long and tedious, and requires a patient, learned, expert, and constant Operator. Chymical fruits are not suddenly brought to maturity, but by length of time, and a previous and continual digestion, therefore is patience and constancy so requisite.

VI. Chymistry imitates Nature, and is tedious in digesting and perfecting of Metals. The very Fruits of Vegetables call for a Years digestion; much more will the incorruptible Fruits of Minerals and Metals exact a longer time to accomplish their maturity and perfection: for the Metallick substance or Sulphur cannot be perfectly and absolutely united with its Mercury or Radical Juice, but by length of time, and a previous digestion.

VII. The perfection of all Metals consists in the well depurating of their Metallick juice or moisture; and so absolute a union between them, that the strength of fire shall not be able to separate them. Therefore think not much of the time you imploy in depurating and digesting of this Mercury, or *Radical moisture*, or Juice of Metals in these our preceeding *Arcana*.

VIII. For thereby it is manifest that the Metallick juice or moisture is freed from its Elementary fæculencies, and by digestion perfectly united and joyned together. The truth of these things I doubt not of in the least, although I have not actually experienced them all, because they are clear by the principles of Art and Nature, the latter of which will not deceive you, if you act according to her Method.

IX. I have experienced some of these secrets to be true; wherefore I believe the rest to be so too: and I doubt not but you will find them most faithfully laid down, if you exactly adhere to, and follow what is written, having patience in digesting, uniting, and fixing, according to the tenor of the Arcanum you pretend to follow.

X. And

X. And if they require a longer time than I have prescribed, be not backwards to give it, till you compleat what you seek for: and although the depuration and digestion be very tedious, yet this encouragement you have, never to be frustrated of the perfection you seek after. Love and wish me well; and so Farewel.

Explicit Liber Octavus.

POLYGRAPHICES

LIBER NONUS.

Of Chiromantical Signatures.

CHAP. I.

A Rational Demonſtration of Chiromantical Signatures.

I. THE Foundation of Chiromancy depends upon the true Appropriation of the ſeveral Mounts, Fingers, or Places in the Hand, to their proper Stars or Planets.

II. The Ancients have aſſigned the Root of the middle Finger to *Saturn*; of the fore Finger to *Jupiter*; of the Hollow of the Hand to *Mars*; the Root of the Ring Finger to *Sol*; of the Thumb to *Venus*; of the little Finger to *Mercury*; and laſtly, the Brawn of the Hand, near the Wriſt, to *Luna*.

III. That Line which comes round the Ball of the Thumb, towards the Root or Mount of *Jupiter*, is called *Linea Jovialis*, or the Life Line; that from the Wriſt to the Root or Mount of *Saturn*, *Linea Saturnialis*; but if it points to the Root or Mount of *Sol*, *Linea Solaris*, if to *Mercury*, *Linea Mercurialis*: that which goes from *Linea Jovialis* to the Mount of *Luna*, *Linea Lunaris*, *Epatica*, or the Natural Line.

IV. The other great Line above it is called *Linea Stellata*, or the Line of Fortune, alſo *Menſalis*, the Menſal or Table Line, becauſe it limits the Mounts of the Planets, and is impreſſed with various Virtues in thoſe places, according

cording to the Nature of the Planet, whose Mount it runs under, or sets a boundary unto: Lastly, The space between the Natural Line and the Line of Fortune, is called *Mensa*, the Table.

V. All other Lines shall either proceed out of the sides of the former, or else from some proper Mount.

VI. Every Line, great or small, long or short, hath a certain Beginning or Root, from which it rises; and a certain End or Point to which it tends.

VII. The distance between both ends, is the way of its Passage; in which way it either crosses some other Line, or else is crossed; if it do neither, its Signification is continual, and ought so much the more to be taken notice of.

VIII. Every Mount hath a proper Signification, which it receives from the Significations of its proper Planet, being abstractly considered: the same understand of all the principal Lines aforesaid.

IX. *Saturn* is the Author of Old Age, Inheritances, Melancholy, Malice, Sorrow, Misery, Calamities, Enemies, Imprisonments, Sickness, Diseases, Perplexities, Cares, Poverty, Crosses, Death, and whatsoever Evil can befal Humane Life: he signifies Fathers, Old Men, Labourers, Dyers, Smiths and Jesuits.

X. *He also signifies one Austere and Satyrical, with a Head declining, Eyes fixed upon the Earth, hanging Lips and a sullen Countenance, wasting himself with a furious Silence.*

XI. *He gives a Complexion or Colour between Black and Yellow, Meager, Distorted, of an hard Skin, eminent Veins, small Eyes, Eye-brows almost joined together, a thin Beard, thick Lips, cast-down Looks, an heavy Gate, and stumbling as he goes.*

XII. *He signifies Envy, and envious Men, a Way-layer or Padder upon the High-way. But where he is well placed, he signifies one Subtil, Wise or Crafty, Intelligent, Ingenious, one of profound Thoughts, given up to secret Contemplations, a Preserver or Keeper of hidden Things, and a Finder out of Things that are lost.*

XIII. *Jupiter* is the Author of Health, Strength, Moderation, Sobriety, Mercy, Riches, Substance, Goodness, Liberty, Religion, Honesty, Justice, Modesty, and all other things which may make a Man happy: he signifies Churches, Church-men, Lawyers, Scholars, Clothiers, and the like.

XIV. *He signifies one good natured, fortunate, sweet, pleasant, a well Wisher; one honest, neat, of good Parentage, and honourable. He gives Cheerfulness, right Judgment, Truth, Heavenly Wisdom, Understanding, and is the Bestower of Riches, Goodness and Virtue. He denotes one merry, ingenious, fair, honourable, hospitable, kind, and every ways good.*

XV. *He prefigures a Man of a Sanguine Complexion, between White and Red, of a delicate Body, good Stature, high Fore-head, and a Head lifted up, Eyes somewhat big, short Nostrils, large Teeth, a light coloured Beard, a tall compleat Body, honest, just and fair Conditioned.*

XVI. *Mars* is the Author of Strife, Contention, Pride, Presumption, Tyranny, Thefts, Murders, Victory, Conquest, Infortunacy, Boldness and Dangers: he signifies Physicians, Chirurgeons, Apothecaries, the Camp, all Military Men and Preferments, edge Tools, Butchers, Carpenters, Gunners, Bailiffs, and the like.

XVII. *He is the Author of War, Fighting, Blood and Strife; and signifies one strong, bold, quarrelsom, insolent, a Traytor, or a Subverter and Overturner of States and Kingdoms. He gives Power and Might, Heat and Burning; and signifies Violence, Contention, Impudence, and all disordered, inconsiderate and heady Actions.*

XVIII. *His Countenance is terrible, cruel, fierce, angry, proud, hasty and imperious. He gives a red Complexion, deep yellow or black Hair, round Visage, fiery Eyes, and a savage revengeful Look: well placed, he signifies Chirurgeons, Captains, Commanders, and Great Men under Military Discipline.*

XIX. *Sol* is the Author of Honour, Glory, Renown, Preferment, Life, Generosity, Magnanimity, Soveraignty, Dominion, Power, Treasures, Gold, Silver, and whatsoever may make the Life of Man splendid: he signifies Kings, Princes, Rulers, and all Men in Power, Minters, Gold-smiths, long Life and Wisdom.

XX. *He signifies one of a noble and generous Nature, fortunate, honest, neat, prudent, intelligent, wise; the Governor and Bestower of Life and Beauty, and the Dispeller of Evil: whence the* Greeks *sometimes called him* Ἀλεξίκακον *and* Phœbus.

XXI. *The* Hebrews *call him* שמש Shemesh, *from ministring or Serving, he being the chief Minister and Servant of*

of the whole World; *and the* Arabians שמס Shames.

XXII. *He gives Courage, Honour and Majesty, a Man considerate, wise and prudent, one of a middle Stature, comly Personage, curled Hair and browniſh, of a red or sanguine Complexion, trusty and magnanimous*; *but being ill placed, Vain-glorious and a Tyrant.*

XXIII. *Venus* is the Author of Joy, Pleasure, Mirth, Solace, Lust, Uncleanness and Idleness: she signifies Women-kind, Sisters, Ladies, Whores, Curiosities, Lapidaries, Silk-men, Taylors, Mercers, Upholsterers, Pictures, Picture-drawers, the Pox, and Diseases proceeding from Uncleanness.

XXIV. *She signifies one mild of Disposition, fair, beautiful, pleasant and merry, given to Mirth and Jollity, and the Author of Fruitfulness. She foreshews Joy, Friendship, Mercy, Bounty, Love, Sports, Dalliance, Dancing, Embracing, Kissing, and such like. Being hot and moist, she is the Mistress of Generation, makes an aimable, pleasant and chearful Countenance, prettily mixed with Red.*

XXV. *She gives a compleat Body, enclining to Tanness, fair and round Visaged, with beautiful rowling Eyes, brown or flaxen coloured Hair, of a lovely Disposition, gentle, bountiful, courteous, affable and merciful: being ill placed or disposed, she signifies Whores, Strumpets, Bawds, Pimps, Panders, Thieves, and such like.*

XXVI. *Mercury* is the Author of Craft, Subtilty, Policy, Deceit, Perjury, Study, Hearing and Merchandizing; he signifies Merchants, Clerks, Scholars, Secretaries, Ambassadors, Pages, Messengers, Poets, Orators, Stationers, Cheaters, Thieves, petty Lawyers, Philosophers, Mathematicians, Astrologers.

XXVII. *He signifies one swift, nimble, eloquent, industrious, wise, rational, a diver into abstruse Mysteries, Good with the Good, Bad with the Bad, Male with the Male, and Female with the Female, an Interpreter or Expounder of the Mysteries of Nature*; *one mutable, changeable or inconstant, lively, prompt, and of a ready Wit.*

XXVIII. *He gives a Complexion neither very white nor very black, a long Visage, an high Forehead, small Eyes, Brown or almost Black, an even Nose and something long, thin Beard, long and slender Fingers, one busy, subtil, witty, sharp and wary. Being ill placed or disposed, he signifies*

Thieves, cheating Sollicitors, knaviſh Lawyers, Knights of the Poſt, Witches, Wizards, Diviners, &c.

XXIX. *Luna* is the Author of popular Fame, both Good and Evil, Joy and Sorrow, Mutability and Inconſtancy, Affection and Diſaffection, Moiſture, and every Effect which may be ſaid to be common: ſhe ſignifies Waters, Ships, Seamen of all ſorts, Queens, Ladies, a Governeſs, the common People in general, Neighbours, Mothers, Kindred, Fiſhmongers, Vintners, Tapſters, Midwives, Nurſes and Travellers.

XXX. *She is the Tranſlator of Light from one Planet to another, imparting her Light to all the other Stars, and comprehending or receiving their Virtues and Powers. She gives Cold and Moiſture, feminine Honour and Glory, Chaſtity, Piety, Mercy, and the Subduer of Carnal Affections, taking care of all States and Conditions of Men, both by Sea and Land.*

XXXI. *Her Influence is over Tempeſts and Storms at Sea, over the Birds of the Air, and the Beaſts of the Field, over Serpents at Land, and Fiſhes in the Water, making things to ebb and flow, according to her decreaſe or encreaſe.*

XXXII. *She ſhews one moveable, benigne, innocent, ſimple, chaſte and curious; gives a pale Countenance, middle Stature, round Viſage, and either black, brown or grey Eyes, according as ſhe is Aſpected, and the Sign ſhe is in, tender Body, Fleſhy, and of a ſoft and ſmooth Skin; one that is facil or eaſy to be entreated, an Affecter of News and new Things, inconſtant,* &c. *Being ill placed or diſpoſed, ſhe ſignifies one Beetle-browed, Ill-natured, and a Scold.*

This being known, underſtand,

XXXIII. *Firſt,* That the Lines take their Signification from the Mount of that Planet from whence they riſe.

XXXIV. *Secondly,* That the place from whence any Line riſes, ſhews the Ground, Cauſe or Original of the things ſignified by that Line; the Line or Mount to which it points, ſhews the Iſſue to what the thing tends, and what may be the end of the Matter ſignified.

XXXV. *Thirdly,* That whether the Line ſignifies Good or Evil, if it be cut or croſſed by any other Line, that Line ſo cutting it will at a certain time not only abate the Good, but alſo take away the Evil, if it is ſo ſignified.

XXXVI. *Fourthly,* That the Nature and Quality of that Line thus deſtroying the Signification of the former,

is known by considering from what place it rises, and to what place it tends.

XXXVII. *Fifthly*, That a double Judgment arises from every Line, by accounting it, first, from the one end; secondly, from the other.

XXXVIII. *Sixthly*, That little Lines rising out of the sides of any other Line, both augment the things signified by that Line; and also signify new matter arising by things signified by the Line from whence they rise; and the place to which they point, shew to what they tend.

XXXIX. *Seventhly*, That the Mounts or Lines adorned with Stars, or small Lines not crossed, or pointing to evil places, shew great Good and Happiness to the Person, by things signified by the same Mount or Line: and on the contrary vitiated with crosses, spots or knots, shew much Evil and Perplexity.

XL. *Lastly*, The beginning of the Lines, shew in the beginning or fore part of Life; the middle, in the middle part of Life; and the ends of them, the latter part, or end of Life: so that if any Evil or Good be signified by any Line, you must hint the time according to the aforesaid Reason.

XLI. From these Rules (being observed) you may attain to the Knowledge of the Natures, Qualities and Dispositions of all sorts of People, their Affections and Passions, answerable to the Virtues and Influences of the Stars and Planets, which the ancient Mathematicians and Astrologers have, by long Experience, taken notice of, and observed, as does sufficiently appear by their Works.

XLII. *'Tis true, here we ought to enquire into the denominated times when the things signified should come to pass; but because that Matter is something long and abstruse, (being more fit to be handled in a particular Tract, wherein all its Curiosities may be examined) this our present Work being a Subject of another nature, and these things not essential to our purpose, we shall at this time say little of it here.*

XLIII. *Notwithstanding, although we have not here delineated every thing in particular, yet we have laid (as it were) the Ground and Foundation of the Art; out of which, as out of a Fountain, the industrious Student may, at his own Leisure and Pleasure, rear a stately Fabrick. Be pleased to view the second Figure of the Hand, in which the Numbers*

signify

signify Years: therein you may partly see the Geometrical Reason of that measure of time.

CHAP. II.

Whether Right or Left Hand is to be Judged by.

I. IF it is demanded which of the Hands is to be chosen to make a Judgment by, it is generally answered by Artists, The Left Hand, tho' you may make your Views and Observations on both; for that in the one the length of Life is best known, and in the other Riches and Honour.

II. However, you are also to consider, whether the Person is Right or Left Handed; if Right-handed, the Left is chiefly to be chosen: but if Left-handed, then the Right, because the Hand that is most in Use, has generally fewest Lines, they many times being worn out, altered or obscured by much using.

III. But however, you are to consider both the Hands, and see which Hand has most or greatest number of Lines upon it; which are fairest, largest and deepest; and which are either continued very long, or cut short, or divided into considerable breaches by other eminent Lines; and to chuse that Hand to make the chiefest of your Judgment from.

IV. However, they will have the Left Hand to be that in which the Chiromancer ought to lay the Foundation of his Predictions, as being nearest to, and reaching the Heart, also governed by *Sol*, and dedicated to *Jupiter*.

V. By this Hand (says *Avicenna*) and the Thumb, the Physician should know the State of his Patient, all the Veins, Arteries and Lines of this Hand and Arm, going to the most noble parts of the Body, particularly to the Heart, which is the Seat of all Desires, Affections and Lusts; and whence proceed also all the Conceptions of our Actions.

VI. Wherefore (say they) the Artist must by all means draw his Judgments from this Hand, which he must

must earnestly view, and observe the Disposition of the Lines, their Position, Colours and Accidents; tho' he may withal look on the Right Hand, and especially the Wrist, which is the place of Years, whence may be known the length of Life, and the Diseases which may happen to the Person.

VII. Take into Consideration also, the Temper and Constitution of the Body, that it be not wearied at the time when you make your Observation of the Lines; for Action thro' Heat, draws the Blood from the Centre to the Circumference and extream Parts, and so by Extenuation the natural Heat is exhausted.

VIII. Be cautious also of the callous or brawny Condition of the Hand, made so by Labour, or otherwise; for this clouds the Lines, and makes them not so perceptible.

IX. You are not to observe the Hands of Children under four or six Years of Age; for in those tender Years, the Substance of the Body is too fluid and soft, uncertain, and apt to receive divers and various Forms and Lines, by reason the Constitution and Temperament is very much subject to alter.

X. Nor make your Observations and Judgment at any time when the Body is Fasting, nor yet when it abounds with Gluttony and Drunkenness, or is overtoiled with Labour, Thoughtfulness and Care.

XI. Judgment is not to be given when either the Person or the Artist is distempered thro' Fear, Anger, overmuch Joy, Sorrow or Grief, Wrath, Fury, Passions or Infirmities, or is affected with any acute Disease, as Fevers, *&c.* excess of *Venus*, &c. for in these Cases the Body is alterable, and receives a false Impression, which will much hurt your Judgment.

XII. *Lastly*, It is to be observed, that in some People the one Hand has no Lines at all, except the Life Line and Table Line, and sometimes no Life Line, but only a broken Table Line or Natural Line, whilst the other Hand shall be full of very eminent, fair and large, and expressive Lines: in this Case, this other Hand, fullest of Lines, is to be taken, and Judgment to be made by it, whether it be the Right or the Left.

CHAP.

CHAP. III.

Of the Planetary Mounts.

I. THE Hand is divided into three Parts, *viz.* The *Wriſt*, the *Palm*, and the *Fingers*. The *Wriſt* is the lower part of the Hand, and is the place of the *Reſtricta*. The *Palm* is the hollow of the Hand, from the *Reſtricta* to the Fingers long ways; and from the Extremity of the other ſide of the Thumb, to the outſide of the little Finger, or Mount of *Luna*. The *Fingers* are five, attributed to five of the Planets, the Thumb or *Pollex* to *Venus*; the fore Finger or *Index* to *Jupiter*; the middle Finger or *Medius* to *Saturn*; the Ring Finger or *Annularis* to *Sol*; and the little Finger or *Auricularis* to *Mercury*.

II. Theſe Fingers, at their Baſes, have certain Mounts, which are attributed to the ſame Planets which the Fingers are.

III. The four Fingers have twelve Joynts, attributed to the twelve Signs of the *Zodiack*, viz. To the firſt, ſecond and third Joynts of the fore Finger, *Gemini*, *Taurus* and *Aries*; to the firſt, ſecond and third of the middle Finger, *Piſces*, *Aquarius* and *Capricorn*; to the firſt, ſecond and third of the Ring Finger, *Virgo*, *Leo* and *Cancer*; and to the firſt, ſecond and third of the little Finger, *Sagitary*, *Scorpio* and *Libra*: the firſt Joynt of each Finger is the Root which borders on the Mount of the ſame, and the third Joynt is the Extremity or End thereof.

IV. Every Mount denotes ſomething worthy of Conſideration; the Mount of *Venus*, is the Mount of Love; the Mount of *Jupiter*, Riches and Honour; the Mount of *Saturn*, Misfortunes; the Mount of *Sol*, Honour and Riches; the Mount of *Mercury*, Sciences, *viz.* Theſe are the places where thoſe particular things are to be enquired about.

V. In the middle of the Palm is the Triangle of *Mars*, which ſignifies Fury, and things Military; and towards the outſide of the Hand, under the Mount of *Mercury*, is the Mount of *Luna*, which ſhews the Affections of the Mind.

VI. Now,

VI. Now, according to the different Natures of Men and Women, such are the various different Marks, Characters, Signatures and Impressions in their Hands, shewing their natural Inclinations, Dispositions or Fates, whether they be good or evil.

VII. *Saturnian* Persons have more of the Characters of *Saturn* on the Mount of *Saturn*, in their Hand, than any other Characters, especially that large *Saturnian* Line arising from the Wrist, and running thro' the Palm to the Mount of *Saturn*; which, when it is well coloured, fair and strait, it denotes good Fortune.

VIII. The same, if the Character of *Jupiter*, Crosses, Stars, parallel Lines, Scales, Branches, Triangles, Rhombus's be found either in the Finger, Mount or Line of *Saturn*, they foreshew Friends, good Counsel, deep Cogitations, fair Buildings, delighting in Agriculture, loving long Journies, Riches, Prosperity and Success in Trading, getting Money on all hands, one of few Words, Discreet, Prudent, and of long Life, even to old Age; yet with all this Prosperity, towards their latter days, they signify Palsies, neurotick Pains, and Ingratitude from such to whom they have formerly been very kind.

IX. But if upon those places of *Saturn* there be infortunate Signs, as Semi-circles, broken Lines, and imperfect like Grates or Gridirons, or like Hairs, or the Character of *Saturn*; or if the *Mons Saturni* is turbid, crooked, wrinkled or ill coloured, these things are Significations of one Proud, Self-will'd, Conceited, a Boaster, Dissembler, and unsociable, unworthy, ungrateful, plunged in manifold Labours and Troubles, under the Frowns and Anger of most People, attended with Poverty, and they usually Die wretched and unlamented.

X. Jovial Persons are known by the Plurality of Lines on the Mount of *Jupiter*, more of them and fairer on this Mount, than elsewhere, they signify one wise, judicious, faithful, religious, and an excellent Moralist, bold, confident in Dangers, merciful, tender-hearted, friendly, merry and chearful, loving Good and hating Evil, and likely to have many Children.

XI. If the good Characters mentioned at *Sect.* VIII. aforegoing, be on this Mount, they are of general Good, import and declare Prelacy and Preferment, Riches, Content and true Friendship, and indicate the Person, whether

whether Man or Woman, to be beloved or favoured of Kings, Princes or great Perſonages; that they ſhall lead an honeſt Life, and affect the Converſation of righteous People.

XII. But if the evil Characters mentioned at *Sect.* IX. aforegoing, be found on this Mount, it ſhews them to be inceſtuous, and femininely affected, not loving, as they ought, their own Parents, attended with Poverty, Weakneſs, and of an unpleaſing Converſation.

XIII. The Letter O being round on the Mount of *Jupiter*, ſhews Honeſty of Life, and Riches all the days of Life, and to be much beloved of Women, of Princes and great Perſons; and the Perſon to be of a ſubtil Wit: but if the Letter O be oval like a Shield, it ſhews Nobleneſs of Mind, Wiſdom, Prudence, Diſcretion, loving and kind beyond meaſure, of a piercing Intellect, growing in Riches and Wealth, and in Love and good Repute with all Perſons, and yet will find but few faithful Friends all the days of their Life.

XIV. *Martial* Perſons are ſuch whom the Line of Life and Natural Line direct, being continued, and well coloured; it ſignifies Boldneſs, much Action, Promptneſs, yet inconſtant, raſh, fierce, ſtout, little caring for Riches or fearing Poverty, getting by right or wrong, without reſpect to Juſtice.

XV. If the good Characters at *Sect.* VIII. be in the Triangle of *Mars*, they ſignify Riches, and Familiarity with Princes, great Captains and Generals, Ingenious, much loving Sciences, and ſuch as can bridle their Anger.

XVI. If the evil Characters at *Sect.* IX. be found in the place of *Mars*, it ſhews one of a hard and ſtoney Heart, full of Wrath and Iniquity, a Patricide or a Fratricide, one of evil Conditions, and ſubject to Stone or Gout; a Perſon Contentious in his Nature, affecting vile Women, Murtherers of Wives or Husbands, Falſe, Lyers, Treacherous, Companions of Thieves and wicked Perſons, ſtudying cloſe and ſecret Miſchiefs.

XVII. *Solar* Perſons have Lines more frequently manifeſt on the Mount of *Sol* than elſewhere, which ſhews them great Inventors and Imitators of ingenious Arts, doing often ſuch things as they were never taught, yet many times poor and ſlighted, but honoured of Strangers.

gers. They are easie to be angred, very loving, yet scarcely having a faithful Friend, of a free and voluble Tongue, easie and harmless Conversation, but often betraying themselves to their Enemies. They love Women, are Courtiers, faithful in their Trust, Wise, Prudent, Noble and Generous.

XVIII. If the good Characters at *Sect.* 8. be found on the mount of *Sol*, it shews a Person, who tho' he may have many Enemies, yet they shall not be able to prejudice him, but he shall be always able to overtop their Malice, and overcome them: He shall grow mighty, and greater than his Parents, and for his Wisdom, Prudence and Generosity shall be beloved of great Persons, and sometimes exalted to Government and Dominion, to great Riches and Honours.

XIX. But if the evil Characters at *Sect.* 9. be found on the said *Solar* Mount, they signifie the quite contrary to all the former; the Man shall be a waster and destroyer, and sometimes a Patricide, shall prey upon and subvert other Men, a great lover of Women, sordid in Luxury, loving and delighting therein: He may chance to be hurt by Iron, or Fire, apt to have diseases in his Head, Eyes, and Stomach, and oft-times to die a sudden, or untimely Death.

XX. *Veneral* Persons are such as have the *Mons Veneris*, adorned with lines more than any other place; and tho' they have many times good Fortune, yet they are generally Careless, little minding the cares and affairs of the World; delighting to live Delicately, Nicely, and Idly, without labour or care, of a sweet kind and loving Disposition, and apt to be Amorous, Affable, lavish in their Expences, delighting with Cupid, Mirth, Singing, Dancing, and Musick, eagerly running after every thing their fancy affects.

XXI. If the good Characters at *Sect.* 8. be found upon the mount of *Venus*, they shew merriment, keeping company with noble Persons, growing Rich by Marrying such, and a bettering their Condition by means of goood Women and Religious Persons: they are searchers out of secret things, true, faithful, Amorous, lovers of Gardens, fine Houses, Pictures, and Gallantry, but withal Luxurious, in their sporting and delights with Women,

Women, for which they may be publickly Scandalized, but otherwise Fortunate, and may acquire Riches.

XXII. But if on the *Mons Veneris* shall be found the evil Characters at *Sect. 9.* it shews the Person to be unfaithful, bewitched to the love of Women, suffering much disgrace thereby, poor and mean, injurious, a Fornicator an Adulterer, defiling himself with his own Blood, Incestuous, a Sodomite, a Person doing sordid and vile things, a murtherer of Wives or Husbands, a defiler of their Fathers Beds, and possibly may receive some hurt in the Eyes by Iron or Fire.

XXIII. *Mercurial* Persons are such as have many and eminent Lines upon the mount of *Mercury*, and such delight in Singing, Dancing, Eloquence, Musick, making of Orations, Arts and Sciences, as Grammar, Rhetorick, Logick, Arithmetick, Geometry, Astronomy, Dialing, Cosmography, Geography, Navigation, Astrology, Law, and the searching into profound deep and secret things, and loving, and frequenting such company as delight in these things.

XXIV. If good Characters are upon that mount or finger, they shew fame and honour by Arts and Sciences; they that Travel into forreign Countries, trade and deal abroad, and get great substance thereby, and it may be, be preferred to some Honours, Authority, rule or command in those Places, be apt to learn several Languages, and be teachers of Arts and Sciences; and tho' wise and discreet and very Ingenrous, yet be put poor and mean in Youth, but may abound in Riches after the middle Age of Life.

XXV. But if the evil Characters are upon that mount, it denotes the Person to be light fingred, Thievish, Fastidious, Impure, Inordinate, Concubinators, Liers, Swearers, Perjured, Treacherous, Unjust, Meddlers with other Peoples business, unstable, unconstant, bold, foolish, of a sly muttering Tongue, evil minded, negligent and careless of their own Affairs, counterfeiters of Seals, forgers of Writings and false Deeds, and such as for the most part continue such an infamous course of living all the days of their Lives.

XXVI. *Lunar* Persons are such as have on the Quadrangle of Mount of *Luna* many, fair and eminent Lines,

Lines more than are to be found on other Mounts or Parts of the Hand, it shews the Person to be mutable and changeable in his Nature and Disposition, often apt to change his Mind, movable in his Person, as also in his Fortune, not long stable in any Condition, very busy Persons, and apt to thrust themselves into much Business, and to become very popular.

XXVII. If the good Characters at *Sect.* VIII. be found on this Mount, it denotes them to be fortunate, to be religious, and to love religious Company, yet subtil and lofty minded, popular, and learned in Arts and Sciences, they will go to Sea, or get Riches by the Seafaring Trade, are apt to Travel, and get Wealth thereby; they are faithful, honest, of good Report, Noble, Magnanimous, and will rise to Preferments and Honours by the Means and Favours of Rich and Noble Women.

XXVIII. But if any deformed Figures be found on this Mount, or such as are not fair to the Aspect or Eye, the Person will be afflicted with many Sorrows, be troubled with manifold Diseases and Vexations, will consume his paternal Substance, and go behind hand in the World, be a Perseverer in Evil, involved, and as it were, drowned in Libidinous Actions, unstable in all things he undertakes, and be affected with the Phthisick, Asthma, Blindness or hurts of the Eyes, and Distempers proceeding from Wind, and possibly may perish by some untimely Death.

XXIX. If on the *Mons Lunæ* be found a well constituted Cross, with fair and bold Lines, it shews the first and third part of their Lives to be poor and needy; but in the second part of their Lives, they shall abound in Riches, even to Admiration; and again in Age be reduced to their first Condition, according as the other Mounts and Lines shew an encrease or diminution of Fortune.

XXX. It were good in this Case, to advise such Persons not to Marry, but rather to retire, if they have a Substance which will answer it, or else to betake themselves to the Service of some Great or Noble Person, where they may lead an easy, safe and quiet Life, free from the Turmoils of the World, and the manifold Changes of unconstant Fortune.

CHAP. IV.

The General Judgments of the Hand.

I. IF the end of the *Digitus Mercurij* extends beyond the last Joynt of the *Annularis*, such a Man is Master of his House, and has, or shall have an obedient and well-pleasing Wife: but if it is short, and reaches not to the Joynt, he has, or will have a Shrew, an imperious, commanding Woman, and one who will wear the Breeches.

II. But if in one Hand the little Finger exceeds the Joynt of the *Annularis*, and in the other it is shorter, it denotes one Wife to be obedient and good, and another to be a Shrew, disobedient and evil.

III. If the longest little Finger is on that Hand, which shews the Lines most conspicuous, then the first Wife will be the good Wife, the second the evil: and contrariwise, if the shortest little Finger be on the most significant Hand.

IV. If there be any Lines at the tops of Fingers, beware of Drowning or falling into Water: observe in what Finger these are, so may you know the Month in which this Misfortune will happen.

V. If they are on the *Digitus Jovis*, the Danger will be in *March*, *April* or *May*; if on the *Digitus Saturni*, then in *December*, *January* or *February*; if on the *Digitus Solis*, then in *June*, *July* or *August*; but if on the *Digitus Mercurij*, the Danger will be in the Months of *September*, *October* or *November*.

VI. If you find two Lines under the Joynt of the Thumb, it shews great Inheritances and Possessions; but if there is but one, it shews no great Wealth: if these Lines be great and apparent, the Person has some Estate, about which he is in Debate or Law Suits.

VII. If between the Joynts of the Thumb there be two Lines stretched out, and well united, the Person will be a Gamester; but by means of his Gaming, he will be in danger of his Life: but if they be dis-joined, or winding and crooked, he will hazzard to fall into Thieves hands, and be Robbed.

VIII. If

VIII. If the Hand has two Lines joined together within, under the last Joynt of the Thumb, it shews Danger by Water; but if they are pale, it signifies that Danger to be in Childhood, or that it will happen in Age: but if these Lines are without, it threatens Loss by Fire.

IX. If a Woman has Lines at the Root of the Thumb, upon the Mount of *Venus*, so many Lines as there are, so many Children shall she have; if they Verge towards the outside of the Hand, so many Men shall have to do with her, or Marry her.

X. If the first Joynt of the Thumb has Lines which joins to it within, from the part of the fore Finger, that Person will be in danger of Hanging, and so much the more certain it is, by how much the more the said Line represents it, and descends from the Table Line.

XI. But if the said Line be united without, and not within, it shews the Person shall loose his Head; if it is environed all about, the Person shall be Hanged.

XII. If the Table Line is crooked, and falls between the middle and fore Fingers, it signifies Effusion of Blood.

XIII. If the Fingers are thicker at the Joynts than between, and that the *Internodia* be small, slender and dry, as if the Flesh were wasted, it foreshews Poverty and Misery; the Person is a great Talker, and otherwise.

XIV. The *Mons Veneris* swelling up, or being high, shews Luxury, Wantonness, unlawful Loves and Whoring.

XV. If on the Mount of *Venus* several Lines shall thwart from the Line of Life to it, the Person is Luxurious and Wanton; and for that shall be hated.

XVI. But when you find two Lines (from the Life Line) near the Thumb, and they fair and apparent, they signify much Wealth and Riches.

XVII. If you find the Fingers retorted, as it were, at the highest Joynt, and a little bending backwards orderly, it is a sign of a virtuous Envy or Emulation, and that the Person is a professed Enemy to Vice.

XVIII. If the whole Fingers shall be bending backwards, it shews one Ingenious and Subtil, but sometimes Unjust and Mischievious.

XIX. If the Line of Life shall be separated or divided into halves, the Person shall be Wounded into his Body with a Sword.

XX. If the Hand is shorter than it should be, according to the Proportion of the other Members, it shews the Person is a great Talker, a Glutton, Censorius, Insatiable, Injurious.

XXI. If a Woman has the Palm of the Hand short, and the Fingers long, it is a sign that she shall bring forth with great Pain and Difficulty. The reason is, because the privy Parts are narrow, for the Fingers have Resemblance of them.

XXII. If a Person has a Hand something long, and the Fingers somewhat thick, it shews the Person to be slothful, idle and careless, yet a good Person and very modest.

XXIII. If the Hands be long and great, it shews one Liberal and good Conditioned, a Person of Subtilty, and of a great Spirit, a Person of Prudence and Advice, and a faithful Friend.

XXIV. If the Palm of the Hand is long, and the Fingers of a good Proportion, and not soft in touching, but rather hard, it shews one Ingenious, but Mutable, and given to Luxury and Wantonness.

XXV. If the Palm of the Hand is longer than its due Proportion, and the Fingers more thick, and also short, by so much as they are the more short, they signify the Person to be so much the more idle, careless, negligent, foolish and proud.

XXVI. If the Hand is hollow, solid, and well knit in the Joynts, the Person is likely to live long; but if over-thwarted, it shews shortness of Life.

XXVII. If the Hand is according to the Proportion of the rest of the Body, but the Fingers are too short and thick, and fat at the ends, it shews a Person Vicious, and furnished with crafty and evil Designs.

XXVIII. If angular Branches spring from the Table Line towards the Mounts of any of the Planets, they signify much Good, Profit and Gain to the Person, from things signified by that Planet.

XXIX. If angular Branches, with fair and good Lines, spring from the Natural Line, and tend towards any of the Planetary Mounts, they signify Health, Strength and Wealth,

Walth, and that the Perſon ſhall bend his mind to ſuch things as that Planet naturally ſignifies.

XXX. If angular Branches, with fair and good Lines, ſhall ſpring from the Life Line, tending towards ſome of the Planetary Mounts, they ſignify Strength of Life, and Years, and that the Life ſhall be made happy and eaſy by ſuch things as are ſignified by the Planets who are Lords of thoſe Mounts.

CHAP. V.

Of the Line of Life.

I. Κ Αρδιακὴ *Linea Cardiaca, Linea Vitalis.* The Line of Life is that which encludeth the Mount of the Thumb.

II. This Line, broad and of a lively colour, well or largely drawn, without Interſections and Points, ſhews long Life, and one ſubject to few Diſeaſes; but ſlender, ſhort and broken, or cut with little croſs Lines, of a pale or black colour, ſhews ſhort Life, with many Infirmities.

III. If it makes a good Angle with the *Hepatica*, and the Angle be adorned with Parallels or little Croſſes, it ſhews a good Wit and a pleaſant Diſpoſition.

IV. This *Linea Vitalis* abounding with Branches towards the upper end, and thoſe Branches extending themſelves towards *Linea Hepatica*, foreſhew Riches and Honour; but if thoſe Branches deſcend towards the *Reſtricta*, they threaten Poverty, Contempt and deceitful Servants.

V. If this Line be cut with little Lines like Hairs, it ſignifies Diſeaſes, which if they fall towards the *Hepatica*, ſhews in the younger Years, in the middle of the Line, in the middle of the Age, if towards the *Reſtricta*, in the latter Years.

VI. If this Line be any where broken, it threatens great Danger of Life in that Age which the place of the ſaid Breach betokeneth, which you may find out with a great deal of Exactneſs, if you divide the Line into

ninety equal parts, beginning to number them from A towards B.

VII. If the Character of *Sol*, (*viz.* ☉) be found in this Line, it shews the loss of an Eye, if two such Figures, the loss of both Eyes.

VIII. A Line passing through this *Vital* to the Triangle of *Mars*, shews Wounds and Fevers, and many Misfortunes in Journeying.

IX. A Line proceeding from the Vital beneath the Angle it makes with the *Hepatica* to the Mount of *Saturn*, shews an Envious Man, as also some dangerous *Saturnian* Disease, as a Consumption, *&c.* which shall fall in those Years signified by that part of the Vital Line, which the said Line toucheth.

X. But such a Line passing from the Vital to the Ring Finger, shews Honour and Wealth, and that by means of some Noble Woman.

XI. If it is long, not cut, of a good colour, and well answering the Writ, it shews a long and quiet Life.

XII. If a Star be placed therein, some of whose Beams may reach to the Mount of *Venus*, *Jupiter* or *Mars*, it shews Misfortune in matters of Love, Honour or War.

XIII. If there is a double Line of Life, they signify many Years and fortunate, and the Favour of Kings, Princes and great Men; also Victory in Wars, encrease or Power and Wealth.

XIV. If a Woman has a double Line of Life, they signify great Fortune, and a Woman much beloved of her Husband; if she proves Unchast, she becomes a Mistress to some great Man or Men.

XV. If the Life Line be pale or livid, it shews much Fury, which will be the cause of shortning the Life.

XVI. If it strikes up with Branches between the Mounts of *Jupiter* and *Venus*, it is a sign of great Riches and Honours.

XVII. If a Star be at the lower end of it, it shews Diseases in old Age: if any Lines thwart or cross it, they are unfortunate, and signify so many Diseases.

XVIII. If there are three Stars within this Line, they signify Calumny, Slander and Disgrace by means of Women, *& contra.*

XIX. If there be Crosses in it, Women shall love him, but he shall be Unfortunate by reason of them, and in danger of his Life. XX. If

XX. If this Line is entire, long, clear, ruddy, it is a sign of long Life, Health and good Fortune; but if short and abrupt, the Person will Die young.

XXI. If it makes an Angle with the *Mensal* under the Mount of *Jupiter*, it shews great Credit and Reputation with the People, and much Wealth by Industry.

XXII. The *Linea Vitalis* being cut at top, between the Thumb and Mount of *Jupiter*, shews Sickness in Youth, or the younger Years; but if on the side of the Triangle of *Mars*, more towards the middle of Life.

XXIII. If a Triangle is in the midst of the Line of Life, the Person will be Murthered: if there be two such Triangles in it, they will Die by the hand of Justice.

XXIV. If there are Lines coming from the Mount of *Venus*, and crossing the Life Line, it denotes one unfortunate in Love, and Death either by Sickness or otherwise.

XXV. The Line of Life crookedly forked, with uneven Crosses, towards the Wrist, it shews one not very Wise, a Wanderer and Vagabond.

XXVI. Two Crosses at the upper end of the Line of Life, near the Thumb, in a Womans Hand, it denotes her to be Unchast, Lewd and Shameless.

XXVII. If it is divided in the middle, it shews great Sickness in the middle part of Life; if towards the Wrist, a languishing Disease in old Age.

XXVIII. The Line of Life gross and red, it signifies one Proud, Haughty and Cruel, and delighting in Cruelty; one of a good Ingenuity, but employs it to evil Designs.

XXIX. If there be three Stars or three Points in the Line of Life, they shew Slanders and Disgrace by occasion of Women: if those Stars are without the Line, the Person receives Disgrace, but recovers his Reputation again.

XXX. If a Triangle is at the end of the Line of Life, towards the Wrist, it shews one full of Words, False, and importunate in begging any thing.

XXXI. If a Cross is made between the Line of Life and the middle or Natural Line, it shews the Person to be Generous, Liberal, Noble and Wise, and one beloved and respected of the greater and better Sort.

XXXII. If the *Soror Martis* is parallel to the Line of Life, having a Cross, it signifies Goodness, Sweetness of Temper, and Uprightness of Mind.

XXXIII. If it branches towards the *Hepatica*, or Natural Line, it shews Honour, Riches and Dignities.

XXXIV. If it branches out towards the Wrist, it denotes Unfaithfulness of Servants, Calumny, Disgrace and Poverty.

XXXV. If it is diffused into divers small Lines, it prenotes Sickness, Poverty and Want towards old Age.

XXXVI. If there be Crosses in it looking towards the *Hepatica*, it shews Dangers, Misfortunes, malign Fevers, and sudden Death.

XXXVII. If it is forked, so as one of its Branches point towards the *Mons Solis*, it signifies honourable Marriage, Riches by Women-kind, and Favors from Women.

XXXVIII. If the two ends of the Fork bend towards the Mount of *Venus*, it indicates Whordoms, Fornication, Adultery, Incest and Sodomy.

XXXIX. If the same thing be found in a Womans Hand, it shews an infamous, impudent, lustful, shameless Whore.

CHAP. VI.

Of the Epatick, or Natural Line.

I. THE Natural or Liver Line is that which runs from the Life Line or Mount of *Jupiter* through the middle of the Palm, terminating generally upon the Mount of *Luna*.

II. This Line straight, continued and not cut by other oblique Lines, shews a healthy Constitution and long Life; but short or broken, not reaching beyond the middle of the Palm, signifies a short Life replete with many Diseases.

III. The longer this Line is, so much the longer Life it signifies, if it be cut at the end thereof, it threatens the end of Life with some dangerous Disease

IV. If

IV. If any Breach appears, (yet such an one as seems almost continued) it shews a Change of Life, if under the middle Finger, in strength of Years, if under the Ring Finger, in declining Age.

V. If the upper part of it be far distant from the Vital, it shews manifold Diseases of the Heart, and also a prodigal Person.

VI. If it be crooked, unequal, of various Colours, and cut by other Lines, it shews an evil Habit of the Liver, and Diseases thence proceeding, one Ill-natured and Foolish.

VII. If straight drawn and well coloured, shews Wit, Honour and Health.

VIII. If it has a Parallel or Sister, it gives Inheritances.

IX. If continued with little hard Knots, it shews Murder according to the number of those Knots.

X. If it terminates with a Fork or Angle towards the Mount of *Luna*, it shews a Foolish, Hypocritical, Ill-natured Person; if it tends to the *Mensal*, it shews a Slanderous and Envious Person.

XI. When it cuts the Vital eminently to the Mount of *Venus* or *Soror Martis*, especially if the same be of a ruddy colour, shews danger of Thieves and many ill Diseases, threatning Life.

XII. If it has many Crosses in it, it signifies Riches and good Fortune; but he will be one given to Lying and Flattery.

XIII. So many Lines as are between this Line and the *Mensal*, so many Sicknesses they signify to happen in the first Age, but they shall not be Mortal: if the said Lines extend to the middle Finger, those Sicknesses shall happen in the second Age; but if they reach as far as the fore Finger, those Sicknesses shall happen in old Age; in the first of which beware of Death.

XIV. If in this Line there be any Knots, so many as there are, so many Murthers shall the Person commit.

XV. If a Woman have these Knots, she will Kill her Husband, or some of her Children.

XVI. If it is of a pale colour, it shews an Ill-conditioned Person, and subject to many Diseases.

XVII. If there be any Crosses upon it, or but half Crosses, it denotes the Person to be beloved by some eminent

minent Church-men, as Biſhops, *&c.* and to have Preferment by their means.

XVIII. If it has a Croſs in it near the middle Finger, it ſhews a violent Death by Aſſaſſination.

XIX. If it is retorted, and touches the Table Line, it denotes ſome great Loſs to happen unexpectedly, and by Accident.

XX. If this *Hepatick* Line is double, it ſhews that an Inheritance ſhall fall to the Perſon in their middle Age.

XXI. The number of Croſſes between the *Hepatick* and the *Mons Lunæ*, ſignify ſo many Favours from great Men, but with danger of Impriſonment.

XXII. If this Line is great and broad, it denotes many Years, at leaſt 80 or 90 Years, and in old Age, Poverty.

XXIII. If this Line is cut in two and diſcontinued, and ſhall be ſo cut by certain Clefts, let the Perſon avoid Princes and great Men, and their Services, leaſt he looſe his Life.

XXIV. A half Triangle or Triangle being juſt between this Line and the Line of Life, in the Plain of *Mars*, it ſignifies Combats, Duelling and Quarrelling.

XXV. If it is twice forked, and looks towards the *Hypothenar*, it ſhews Hypocriſie, Zeal, and Deceit in Religion.

XXVI. If it be obſcure and thick, it ſhews a weak, dull Mind; but if it is little, with this Obſcurity, it ſhews one Fooliſh, and full of vain and idle Words.

XXVII. If it has in it certain Points and Marks, he will be ſubject to Diſeaſes, and be in danger of being Murthered.

XXVIII. If this Line is not found when the Vital and Menſal ſhall join together and make an Angle, the Perſon will be Bold, Beſtial and Cruel, and in danger of his Life, till his 30th Year is paſt.

XXIX. If this Line is wanting, and inſtead thereof a Star or Croſs be found, let him beware of the Gallows.

XXX. If this Line makes an Angle with the Life Line, tho' obtuſe, or there be any Stars or Croſſes between it and the Life Line, it ſhews one Virtuous and Good, of a generous Spirit and noble Courage: but in a Woman, it ſignifies Malice, and an ill Underſtanding betwixt her and her Husband.

XXXI. If

XXXI. If in a Man this Line is red and well coloured, with some Branches making an Angle, it shews one Cruel, Mercileſs, and given to Quarrelling and Fighting.

XXXII. The same in a Womans Hand, shews her to be at Variance with her Husband, and may be in danger of Killing him, without any Cause or Reason.

XXXIII. If a Woman has this Line half doubled, it signifies that she will live to a great Age, and Marry many Husbands, yet not have many Children, being very Letcherous.

XXXIV. If in this Line there is a right-lin'd Triangle, near the Table Line, and the Line of Life, it shews a Man too singular as to matters of Religion, and one that will not be Prieſt-ridden.

XXXV. If this Line is straight and not distinct, but is crossed by other Lines, it shews Health, a great Understanding and Memory, yet one Hair-brain'd, changeable in the most serious things, and scarcely resolved in any thing.

XXXVI. If the *Hepatica* reaches almost to the Wrist with the *Cephalica*, it shews Weakneſs of Brain and Simplicity, and danger of Madneſs or Dotage: and in a Woman, that she shall have hard Travel in Child-bearing, and may grow Crased in her Underſtanding.

XXXVII. If the *Hepatica* is winding up and down, and waving, it shews an ill Mind, a Cheat, a Thief, *&c.* but otherwise it shews an Honeſt, True, Juſt, Virtuous, Good Perſon.

XXXVIII. If it is forked, or when there is above it this Figure ⊕ *viz.* Part of Fortune, it shews great Riches and Dignities, Knowledge of Arts and Sciences, Greatneſs and Subtilty of Spirit.

XXXIX. If together with the *Cephalica* it is forked, or makes up a Triangle or Quadrangle, it shews one Covetous of Wealth and Honour, which he will endeavour for by all ways right or wrong.

XL. The *Epatica* straight, shews Health and Proſperity; but if crooked, Sickneſs and Shortneſs of Life; if crooked and of divers colours, Weakneſs, Swooning, Palpitation of the Heart, Waſting, *&c.*

XLI. If it is well coloured, it shews Goodneſs, one of a subtil Spirit, pleasant and Merry.

XLII. If

XLII. If there be a Croſs at one of its Extreamities, it denotes danger of being Robbed, and at length ſudden Death: and if forked in the Extreamities, Poverty, Beggary and Contempt; and in old Age, one overwhelmed with Cares, Troubles, Afflictions and Straights.

CHAP. VII.

Of the Cephalica or Head Line.

I. THE *Cephalica* ariſeth below from the *Cardiaca*, and is drawn thence to the *Epatica*, thereby making a Triangular Figure.

II. Making ſuch a perfect Figure, and it having a lively colour, without Interſection, declares one of great Prudence, and a Perſon of no Vulgar Wit or Fortune.

III. So much the more perfect the Triangle, ſo much the more Fortunate, and it ſhews a Man very Wiſe, Temperate and Couragious.

IV. If the Triangle be obtuſe, it ſhews an evil Nature, Clowniſh and Rude, if there be no Triangle, it is ſtill worſe, and ſhews the Perſon to be Fooliſh, a Liar and Prodigal, and generally one of a ſhort Life.

V. The higher Angle being right, or not very acute, ſhews a Generous Man; but if it be very acute, or if it touch the Line of Life under the Mount of the middle Finger, it declares a miſerable, hard and covetous Wretch, alſo foreſhews a Conſumption.

VI. The left Angle made upon the *Epatica*, in the *Ferient*, (being a right Angle) ſhews a profound Underſtanding.

VII. The *Cephalica* caſting unequal and irregular Cleſts to *Mons Lunæ*, thereby conſtituting ſtrange Characters, ſhews a dull Head, and Danger by the Sea in Men: but in Women Diſcontents, Miſcarriages, and the like.

VIII. But caſting equal Lines, it preſages the contrary in both Sexes: to wit, In Men Wiſdom, and Succeſs at Sea; and in Women Contentment and happy Childbearing.

IX. If

IX. If the *Cephalica* makes a Cleft or apparent Star upward to the *Cavea Martis*, it ſhews Boldneſs and Magnanimity of Mind: but if it let the ſame fall downward, it manifeſts Deceit and Cowardiſe.

X. The *Cephalica* joined to the *Reſtricta* by a remarkable Concourſe, ſhews a happy and joyful old Age.

XI. But if it be drawn upwards, (in form like a Fork) towards the place of Fortune, it ſhews much Subtilty and Craft in the Management of Affairs.

XII. If in this Fork the Character of ⊕ *Sors* be found, it ſhews Riches and Honour by the Mans own Induſtry.

XIII. This is the Line which makes a Triangle with two other Lines, *viz.* the *Epatica* running on the Top, or if you pleaſe, on the Baſis of the Triangle, the Line of *Saturn* under the *Mons Saturni*, making the one Leg; and this Line riſing from the bottom of the *Saturnia* towards the *Mons Solis* or *Mercurij*, making the other Leg.

XIV. A Croſs or Croſſes in the Extremity of this Line, ſignifies one Pious and Religious, Devout, and a Votary to Sanctity.

XV. The *Cephalica* making a Triangle with the *Epatica* and *Cardiaca*, it ſhews Ingenuity, good Fortune, a happy Life, and a quiet and peaceable old Age.

XVI. The *Cephaljca* forked towards the *Menſal*, ſhews a Perſon active in all kinds of Affairs, and one very Ingenious in Arts and Sciences, and taking Pleaſure in the ſame.

XVII. If it is ſtarry towards the Plain of *Mars*, it prenotes Boldneſs, Courage, Promptitude, Raſhneſs and Stoutneſs.

XVIII. If the *Cephalica* near the Hand-wriſt be not divided or interrupted, but of a good Proportion and Colour, and aſcending up to the Line of the Stomach or *Epatica*, and making with the *Linea Vitalis* a perfect Triangle, it ſhews one Prudent and Wiſe, Fortunate and Proſperous in all things, and that he is the Favourite of Fortune.

XIX. If the *Cephalica* is ſhort, it ſhews Folly, Prodigality, Beggary, Lying and ſhortneſs of Life.

XX The *Cephalica* broken or divided, and winding, it ſignifies Misfortunes, Weakneſs of Brain, and of the

Animal

Animal Functions, Fearful and Foolish: and if a Woman, she Dies in Child-bed, or has hard Labour.

XXI. If it is without any breaking at the *Restricta*, it shews Honesty and Quietness, Glory, Prudence, Wisdom, and much Wealth or Riches, and a good old Age, without Trouble.

XXII. If there be in this Line any Stars, being in the *Triangulum Martis*, it denotes the Man apt to pick Quarrels.

XXIII. But if a Star be in this Line, looking towards the Brawn of the Hand, it shews one subject to Theft, Robbery, Fraud, Deceit, and other ill Actions.

CHAP. VIII.

Of the Mensal *Line, or Line of Fortune.*

I. THE *Mensal* or Line of Fortune (called also *Linea Thoralis*) takes its Original from under the Mount of *Mercury*, and extends it self towards the Mount of *Jupiter*.

II. This Line, if it be long enough and without Incisures, shews Strength of Body, and Constancy of Mind; the contrary if it be short, crooked or cut.

III. If it terminates under the Mount of *Saturn*, it shews a foolish, idle and deceitful Person.

IV. If in this Line be found certain Pricks or Points, it shews a Letcherous Person.

V. If the *Epatica* be wanting, and the *Mensal* be annexed to the *Vital*, it forethews either Beheading, Hanging, or other untimely Death.

VI. If from the *Mensal* a Line ascends to the space between the Mounts of *Jupiter* and *Saturn*, another to the space between the Mounts of *Saturn* and *Sol*, and a third to the space between the Mounts of *Sol* and *Mercury*, it signifies an Envious, Turbulent and Contentious Person.

VII. A little Line only thus drawn to the space between the *Mons Saturni & Solis*, shews Labour and Sorrow.

VIII. If

VIII. If annexed to the *Epatica*, making therewith an acute Angle, the ſame.

IX. The *Menſal* projecting ſmall Branches to the *Mons Jovis*, ſhews Honour and Glory.

X. But if it be naked or ſingle, it ſhews Poverty and Diſtreſs.

XI. If it cuts the Mount of *Jupiter*, it ſhews a covetous Mind, and great Pride.

XII. If it ſend a Branch between the *Mons Jovis* & *Saturni*, it ſhews in a Man, a Wound in his Head; but in a Woman, Miſcarriage or Danger in Child-bearing.

XIII. Confuſed little Lines in the *Menſal* ſhew Sickneſs and diſeaſes; if under the *Mons Saturni*, in Youth; under the *Mons Solis*, in the middle Age; under the *Mons Mercurii*, in old Age.

XIV. If there be no *Menſal* at all, it ſhews one Faithleſs, Baſe, Inconſtant and Malicious.

XV. The ſpace between this *Menſal* and the *Linea Hepatica*, is called the Table: if this Table is fair and large, broad and continued, or filled with good Characters, it ſhews a large and ample Fortune, and the larger the more ſplendid the Fortune.

XVI. The beginning of this Table, which is moſtly under the Mount of *Jupiter*, ſhews the beginning and former parts of Life: that part of it near the Mount of *Luna* and under *Mercury*, the latter parts of Life.

XVII. In the *Menſal* Line conſiſts the greateſt part of Chiromantical Signatures, becauſe it runs along under the four Mounts of *Jupiter*, *Saturn*, *Sol* and *Mercury*, and moſtly terminates upon the Mount of *Luna*.

XVIII. If a Star is upon this Line under the Mount of *Jupiter*, it ſhews evil in reſpect of Riches; if under the Mount of *Saturn*, want of Health; if under the Mount of *Sol*, Diſhonour and Diſreſpect; if under the Mount of *Mercury*, want of Succeſs as to Sciences and Merchandizing.

XIX. If a Croſs is upon this Line in the ſame places, it ſhews good Fortune in the ſame things as the other did evil: thus Authors: but I have obſerved, that a Star in thoſe places has preſaged ſingular good Fortune to the Perſon; and therefore referr thoſe Judgments to ſome ill Characters placed thereon.

XX. If

XX. If this Table Line is large, clear and well coloured, it shews Pleasantness, Courage, Liberality, Magnanimity of Mind, Faithfulness and long Life.

XXI. If there be Crosses in this Line towards the little Finger, it foreshews Death in a proportionate number of Years; but a little Star signifies Exile, Imprisonment and Shame: I am of Opinion, that a little Star shews the lesser Good.

XXII. The Table Line making an Angle with the *Epatica*, under the Thumb, shews one superlatively Covetous.

XXIII. The *Mensal* naked and single near the Mount of *Jupiter*, or a Star there, it shews Poverty.

XXIV. If other Lines thwart this Line, it signifies so many Afflictions and Sickness, which sometimes may be caused thro' Love.

XXV. The *Mensal* stretching beyond the middle Finger, it shews Felicity and Riches; but if not, Poverty: and in a Woman, that she will be given to Whoring and Pleasure, Vanity and Lying.

XXVI. If it is double or divided into three, in one of the Extremities, it shews one Fortunate, Stout, Liberal and Modest.

XXVII. If it is forked in the end towards the *Mons Jovis*, or full of Branches near the *Mons Lunæ*, or hairy at the Extremities, it signifies disquiet and doubt of Mind, Anxieties, Misery, and Losses; or Riches acquired thro' Violence and Deceit; but the Person himself may possibly be of a good Humor.

XXVIII. If it gives Branches between the fore Finger and the middle Finger, it shews a Wound in the Head, Quarrelling; and to a Woman, Death in Child-bed.

XXIX. But if it gives Branches on the Mount of *Jupiter*, it signifies Prelacy, or Ecclesiastical Honours, Dignities and Preferments: so also if there is upon this Line two Crosses.

XXX. If visible Points be seen in this Line, it shews Lustfulness, Lasciviousness and Incontinence.

XXXI. If the *Mensal* is crooked, it shews untimely Death by some Accident or Casualty, or Biting of some Mad Beast.

XXXII. If in the Extremity near the *Mons Lunæ* there is found an O or Circle, and if the Line be double, it shews

shews Wounds by Weapons or Fire; and in Combats and Duels he will be overcome.

XXXIII. The *Mensal* ending between the middle and fore Fingers, it prenotes one very Weak and Sickly, subject to Bloody Fluxes; and if it be a Woman, she will Die either in Child-bed, or by some Flux of Blood.

XXXIV. If two Branches issue from the *Mensal*, and reach to the *Natural* or *Epatica*, thro' the middle of a Cross, it gives the finding of hidden Treasures, and by the means of *Saturn*, if under the *Mons Saturni*. He that has such Branches shall be Fortunate, thro' finding out hidden things.

XXXV. The *Mensal* having a Branch towards the fore Finger, and another towards the middle Finger, if it be blunted or obtuse, it shews one Fortunate, and that shall obtain great Riches.

XXXVI. If upon the *Mensal* there be another Line, it signifies Inconstancy, as *Taisner* and *Indagine* say; and if it be a Woman, she will delight in Company-keeping, but may not be so bad as reported.

XXXVII. Two Branches going out of the *Mensal* like the Character of ♒ *Aquarius*, bending towards the little Finger, it shews one very desirous of Learning and Knowledge, even to those Arts which are unlawful, as Sorcery, whereby he may loose his Life or Honour.

XXXVIII. If in the *Mensal* a Cutting happens between the Ring Finger and little Finger, which separates the two Mounts thwarting this Line, it shews Loss and Ruine by Law Suits, and Suits about an Inheritance of Land.

XXXIX. If the *Mensal* is wanting, it shews loss of Estate, or of an Inheritance; but in length of time he may, by his own Industry, gain Wealth and Riches beyond Expectation.

CHAP. IX.

Of the Restricta *or* Cauda Draconis.

1. THE *Restricta* is that Line which divides the Hand from the Arm, either by a single, double or triple

Transcursion, thereby determining the τὸ ὑποκείμενον or Subject of Art; which by some is called the *Discriminal* Line.

II. If the *Restricta* be double or treble, and extended in a right and continued tract, it shews a healthful Constitution of Body, and long Life.

III. That Line which is neareſt the Hand, continued without Incisure, and of a good colour, shews Riches.

IV. But if it be pale or crooked, or cut in the middle, it shews Weakness of Body and Poverty.

V. A Line drawn from the *Restricta* to *Mons Lunæ*, shews Poverty, Imprisonment and private Enemies.

VI. If that Line be crooked, it doubles all the Evil, and shews a perpetual Slavery or Misery.

VII. But such a Line being clear and straight, and extended to the *Mons Lunæ*, shews many Journeys and Peregrinations both by Sea and Land.

VIII. If it extend to the *Mons Jovis*, it foreshews Estimation and Ecclesiastick Dignity, but that the Man shall live in a strange Country.

IX. If to the *Epatica*, it shews Honesty, Truth and Sincerity, and one of a healthful and long Life.

X. If to the *Mons Solis*, a great and certain Good, and gives Honour and Command in the Commonwealth.

XI. And so from the same Reason, passing to the *Mons Mercurii*, it shews a learned and ingenious Soul; but if it reach not that Mount, but is broken about the middle, it shews a lying, prating, idle Person.

XII. If it ascends directly to the *Mons Saturni*, it shews an Inheritance in Land; but if it be crooked, it shews a covetous Person, and one of a very ill Nature.

XIII. A Line running from the *Restricta* through the *Mons Veneris*, shews Poverty, Adversity and Want, and that by means of some Women or Woman-kind.

XIV. A Cross or Star upon the *Restricta*, shews a happy and long Life.

XV. One or more Stars upon the *Restricta*, by the *Mons Veneris*, in Women, shews Lewdness, Dishonour and Infamy.

CHAP.

CHAP. X.

Other Observations on the Hand-Wrist.

I. IF four Lines be in the Hand-wrist, all alike and well coloured, they signify an Age of 80, 90 or 100 Years or more.

II. And if there is two little Branches, making a sharp Angle, it shews the Succession of an Heritage by the Death of some Relation, and in his old Age he shall attain to such Honours as he is capable of.

III. If there be many Lines upon the Hand-wrist, 30 Years is to be allowed to every Line; but whether they be few or many Lines, you are to comprehend therein all the Ages of the Givers of Years.

IV. The Ages of *Saturn* are 150, 57, 43 and 30 Years; of *Jupiter* 136, 80, 45 and 12 Years; of *Mars* 121, 66, 40 and 15 Years; of *Sol* 120, 90, 70 and 20 Years; of *Venus* 135, 82, 45 and 8 Years; of *Mercury* 144, 77, 59 and 20; of *Luna* 108, 90, 66 and 25.

V. If the Lines are many, strong, good, straight, and at large distances, they signify the greatest Years; but if fewer in number, the lesser Years; so also if they be but two Lines, and they pretty far asunder: otherwise, if but two Lines, and near together, they signify the mean Years; and if but one Line, the lesser number of Years.

VI. The Giver of Years is known by considering the Mounts or Places of the Planets; for that Planet is the Giver of Years whose Mount or Place is fullest or most adorned with Lines of what kind soever.

VII. If the Lines or Characters upon those Mounts or Places be strong, fair and good, they signify the greatest or greater Years, the *Restricta* concurring; but if they be weak or evil Characters, then the lesser and least Years.

VIII. If there be three Lines in the Hand-wrist, the Person may live to 90 Years of Age, and if they be deep, and the Spaces broad, then they may live to 100 Years; and it may be (if of a strong Constitution) live many Years beyond it.

IX. If there be but two Lines, the Perſon may live to be about 60 Years of Age; but if the Lines be ſtrong, deep and good, and the Space large or broad, they may live to 70 or 80 Years or more.

X. If there is but one Line, it ſignifies ſhort Life; if there is more than one, and the firſt is crooked, and the reſt ſtrait, with an Angle, and continued, it ſhews a weak Conſtitution.

XI. If Lines are ſcattered abroad in the Hand-wriſt, it ſhews about 40 Years of Age, one Couragious, but of little Wit.

XII. If the Lines upon the Hand-wriſt croſs one another, it is hazardous but the Perſon may Die by the Sentence of the Judge.

XIII. If the firſt Line of the Wriſt is groſs and thick; the ſecond fine and ſmall or ſlender; and the third again be thick and groſs, they ſhew that the firſt Age ſhall abound with Riches; the ſecond Age ſhall be filled with Poverty and Misfortune; but the third or laſt Age he ſhall recover his Riches and good Fortune again: and if there is a fourth Line, and it is ſmall, he ſhall meet with Misfortunes and Poverty again, and ſo end his Life.

XIV. If the Lines of the Hand-wriſt come to the flat of the Hand, they ſhew great Inconſtancy and Irreſolution.

XV. If a Line croſſes the Wriſt, and crookedly ſpreads it ſelf towards the Line of Life, it ſhews Sickneſs; if it is pale, it ſignifies Death to be near; if it is black, it ſhews the approach of ſome Diſeaſe, which will be long and Languiſhing.

XVI. If any Line of the Wriſt aſcends up to the Palm and Hollow of the Hand, thro' the Line of Life, and it be red, it ſhews Weakneſs of Body, Debility of Underſtanding, and one that poſſibly may be a Cuckold.

XVII. If many Lines ſpread themſelves abundantly on the Wriſt, and end towards the Mount of *Luna*, it ſhews Voyages by Sea and Land, long Expeditions, perpetual Travelling, and a Vagabond-kind of Life.

XVIII. If the Lines of the Wriſt lie ſcattering and ſpread abroad, ſo as they touch not one another, but crookedly paſs divers ways, they ſignify great Ingenuity, much

much Curioſity, great Thoughts, high Courage, and one aiming only at high things.

XIX. If among the Lines of the Wriſt there is one which thwarts or croſſes them, and aſcends thro' the Plain of *Mars*, even to the *Mons Solis*, it ſhews unexpected Honours and Riches, and which will come ſuddenly, as alſo the Favour of ſome King, Prince or great Man.

XX. If the Lines of the Wriſt are double towards the *Mons Lunæ*, and if one Line aſcends towards the Stomach Line, and be uneven, it ſhews Tribulations and great Adverſities, being Cheated, and danger of many Encounters or of Aſſaſſination.

XXI. If on a Womans Hand there be a Triangle near the Mount of *Luna*, and beginning at the Lines of the Wriſt, it ſhews Lewdneſs, one who is Corrupt even from her tender Years, and ſhall be given to all ſorts of unclean Actions in the flower of her Age, and be an infamous and common Whore.

XXII. If Croſſes be on the Wriſt of a Woman, it ſhews one Shame-fac'd and Chaſt; and if there is one in the middle, looking towards the Plain of *Mars*, ſhe will be a Widow either by or before 30 Years old, and be Religious withal.

XXIII. If a crooked Line (like a Bow) traverſes the Lines of the Wriſt, it ſhews a ſervile Perſon; if there be two ſuch crooked Lines, it ſhews untimely Death, or by the hand of Juſtice.

XXIV. If the Wriſt Lines be red and pure, they ſhew a Martial Perſon, and one who ſhall be fortunate and honourable in Wars.

XXV. If the Wriſt Lines be in manner of a Chain, eſpecially the firſt, it ſhews an Unfortunate and Laborious Life; yet at length, by much Labour, he ſhall get Wealth and Riches.

XXVI. A long Wriſt, without Interſections, ſignifies Strength of the Habit of the Body, and a Conſtancy of Mind.

XXVII. If the Wriſt is ſhort, cut and diſſected, it ſhews a weak Habit of Body, and Dejectedneſs of Mind.

XXVIII. If the Lines of the Wriſt look towards thoſe of *Saturnia*, they forethew one Vain-glorious and a Liar.

XXIX. If the Branches of the Wrist Lines ascend towards the Mount of *Jupiter*, they signify Honours, Dignities and Riches.

XXX. If those Branches ascend between the *Mons Jovis* and *Mons Saturni*, the Person shall be Wounded in the Head; and if a Woman, she will Die in Childbed: but if they ascend to the *Mons Saturni*, they shew Poverty and Discontent.

XXXI. If there be Crosses or Stars in these Lines, they demonstrate Tranquility of Life in old Age.

XXXII. If those Branches ascend to the *Mons Solis*, they signify Honour, Glory and Greatness.

XXXIII. If those Branches look towards the *Mons Veneris*, or make a Triangle, they shew Fornication, Incast and Adultery.

XXXIV. If those Branches look towards the Mount of *Mercury*, it signifies much Good by Trade, Arts and Sciences.

XXXV. If they look towards the Mount of *Luna*, they point out Peregrinations, Travelling about the World, much Business and Popularity.

XXXVI. If those Branches tend towards the *Hepatick* Line, they signify Integrity, Justice, good Nature, and long Life.

CHAP. XI.

Of the Saturnia, *or Line of* Saturn.

I. THis Line is that which ascends from the *Restricta* through the middle of the *Vola*, to the *Mons Saturni*; which Line, if it be cut or parted, is called *Via Combusta*.

II. This being full and extended to the *Mons Saturni*, shews a Man of profound Cogitations, of great Wisdom, and an admirable Counsellor in all great Actions.

III. If it be combust, it is an evil Sign, foreshewing many Misfortunes and Poverty in one part of Life.

IV. A Line drawn from the *Vital* through the *Epatica* to the *Mons Saturni*, making an Angle with the *Linea*

nea Saturnia, foreſhews Impriſonment and Captivity, and many Misfortunes.

V. The *Saturnia* bending backwards in *Cavea Martis*, towards the *Ferient*, the ſame.

VI. This Line filled with unuſual and inauſpicious Characters, ſhews Unhappineſs and Diſaſters.

VII. A groſs Line running from the Interval of the *Mons Jovis* to the *Menſal*, and breaking or cutting of it, ſhews Diſeaſes or Wounds in the Belly or parts adjacent.

VIII. The *Saturnia* begins at the bottom of the Palm, croſſes the Table Line, and ends upon or under the *Mons Saturni:* in ſome it is forked upon the Mount; others have it double in two parallel Lines; and in ſome it paſſes the *Mons Saturni*, reaching to the third Ligament of the Finger.

IX. If this Line is divided, and one part of it goes towards the Line of Life, it ſhews Aſſaſſination, or an unhappy or ſhameful Death, or Self-murther.

X. If the *Saturnia* goes with, or begins, or ſeparates the *Epatica*, it ſignifies Honeſty and Goodneſs, yet a great Subtilty of Spirit, one careful of his own Affairs, and Fortunate.

XI. If it comes to the Brawn of the Hand, and ſo goes to the *Mons Saturni*, it ſhews Afflictions, Impriſonment, Tribulation and Slavery.

XII. If it is fair and entire, it ſhews Health, with much Happineſs and Tranquility: and when it is ſo ſituated in the middle of the Finger, it ſhews Counſels, Prudence, Secrets, Felicity and good Fortune.

XIII. If it deſcends from the middle of the Finger to the Brawn of the Hand or *Hypothenar*, and divides it, ſignifies Priſons, Tribulations, Afflictions, Slavery, and particularly Gally Slavery.

XIV. If it is forked in the Extremities, and paſſes the *Hepatica* or Natural Line, it ſhews Candor and Sincerity, Prudence and Subtilty, good Fortune in Agriculture and Husbandry.

XV. If it goes towards the Line of Life, deſcending thro' the middle of the middle Finger, cutting the Mount of *Saturn*, it ſignifies Impriſonment, Grief, Affliction, Slavery, and an unhappy Death.

XVI. If this Line is wanting, or is winding, and that at one of the Angles thereof there is a Star, it signifies loss of Goods, Poverty, Shame, Contempt, Imprisonment and great Calamities.

CHAP. XII.

Of the Linea Solaris, *or* Stomachica.

I. THis Line takes its beginning out of the Line of Fortune, and ascends, dividing the *Mons Solis*, straight to the Ring Finger, which is *Digitus Solis*.

II. In some (arising from the bottom of the Line of Life, or near the *Restricta*) it ascends even to the third Ligament of the *Digitus Solis*, and is most commonly branched, as having Lines in an equal greatness.

III. If the *Linea Solaris* is entire and fair, it shews Favour, Respect, Greatness, Riches, Honours and Dignities.

IV. If it is dissected or cut, and unequal, it denotes loss of Goods and Estate, Poverty, Crosses, Contempt, Disgrace, Baseness, Envy, Slavery, and much ill Fortune.

V. If this Line is cut by the *Cingulum Veneris*, whether in the Right or Left Hand, it prenotes Crosses and Misfortunes to happen by the means of Women, Filthyness, Dishonesty, Wantonness, Fornication, Whoredom and Adultery.

VI. If it is apparent and double, it shews one attaining to high Offices and Dignities, (*quoad capax*) and that he shall meet with such as shall envy him; yet he shall attain the Favour of Kings, Princes and great Men, who shall raise him to the highest degree of Glory.

VII. If the *Linea Solaris* is crossed by any Lines, so many Lines as there are, so many shall there be which shall envy his Preferment and Dignities: and those Enemies or envious Persons shall do all that lies in them to prejudice him.

VIII. But if this Line is apparent and double, notwithstanding those many cross Lines, those Enemies and envious

envious People shall never hurt him, but he shall overcome them; and the greater the Envy of his Adversaries is, so much the more shall he advance in Honours, Dignities and Wealth.

IX. If it is clear and somewhat ruddy, till it comes to the Table Line, it signifies Offices of Judicature, acquired by Prudence, Knowledge, and a genteel Conversation; but if it is pale, it signifies the contrary, and weakness of Judgment.

X. When this Line is wholly wanting in one that takes not much Pains, it shews one who will be of no great Dignities or Honours, but continue in a low or mean Condition, unless other great Significations help and shew the contrary.

CHAP. XIII.

Of the Girdle of Venus.

I. *Cingulum Veneris*, or the Girdle of *Venus*, is a circular Line, or a Piece or Segment of a Circle, drawn from the Interval or Space between the *Mons Jovis & Saturni*, and ending in the Interval or Space between the *Mons Solis & Mercurii*.

II. Or, it is a piece of a Circle, which begins between the fore Finger and middle Finger, and goes to, and ends between the Ring Finger and little Finger, including in its Circuit the two Mounts of *Saturn* and *Sol*.

III. This *Cingulum Veneris* shews Intemperance and Lust in both Sexes, a base and bestial Life, a filthy *Sodomite*, who abuses himself both with Mankind and with Beasts.

IV. By reason that this Line is not often found in many Hands, scarcely one in twenty having it, therefore the ancient Masters of this Art have given us little Account of it: but some of the Moderns, as *Taisnerus* and *Tricassius*, have briefly spoken of it, and given us Rules well grounded, and such as have been found to be true.

V. Where

V. Where therefore this Girdle is found, it signifies Fornication, one extreamly given to the Sins of the Flesh, a monstrous Uncleanness, even to Bestiality, or Sins against Nature.

VI. If this *Cingulum* is on both Hands, it doubles all the former Significations, and shews a most impure Life, and *Sodomitical* Conversation.

VII. *Belot* (a learned Man) says, he found this true in two Men: *the one* received great Disgraces for this Vice, but the Umbrage of Religion has yet protected him. *The other* he fore-warned of some vehement and extraordinary Punishment for it; and he was Burned by the Sentence of the Judge at *Villepreux:* but this last had on this Girdle, on the right side of the middle Finger, a half Star, which signified a great Punishment.

VIII. If this *Cingulum* is dissected or cut on the part of the *Digitus Solaris,* it shews loss of Goods, by reason of some vile Filthiness, as Adultery.

IX. If these Cuttings are under the *Digitus Saturni,* or the middle Finger, it prenotes the Person shall be Assassinated for his Uncleanness, Whoredoms or Adultery.

X. If there are two Crosses upon this Line, one on the side of the fore Finger, the other on the side of the little Finger, or towards it; they signify that Virtue will overcome this Vice; and that Piety and the fear of God shall overcome these Vicious Inclinations.

XI. Says a Master in this Art, *Si igitur apparet in hominibus* Cingulum Veneris, *hominem salacem, libidinosum, & insigniter prurientem, sordidum præterea, & in Congressu* Venereo, *& abominabilem denotat.* This is to be understood of both Sexes, but chiefly of the Female.

XII. Indeed, whoever has this Line, will be no Enemy to the other Sex, but will certainly exceed the Limits of Honesty, and be given to Whoring, Incest, Sodomy, Beastiality, Chambering, and all other dishonest Actions.

CHAP.

CHAP. XIV.

Of the Via Lactea, *or Milky Way.*

I. FRom the *Linea Vitalis*, near the Wriſt, certain ſmall Diviſions or Lines do take their beginning, ſometimes to the number of five or ſix, which Lines advance towards *Mons Lunæ*, or Mount of the Moon; and theſe are they which we call *Via Lactea*, or the Milky Way.

II. If this *Via Lactea* appears not much in the Hand of a Man, it is a ſign of Sickneſs, Head-achs, Defluxions, Catarrhs, Gouts, *&c.*

III. If it is full, compleat, and the Lines well proportioned, it ſhews Ingenuity, Favour of Women, and happy Voyages.

IV. If the *Via Lactea* is cut or diſſected by other Lines, it ſhews Falſhood, Deceit, Meanneſs of Spirit, Unhappineſs, Poverty and Want.

V. If it is unequally cut, it ſhews weakneſs of Underſtanding, Dulneſs and Slowneſs in all Actions and Undertakings.

VI. But if therein there appears Croſſes in a good form, it ſignifies that the Perſon ſhall be Religious, and very much love Solitude, or be of a Melancholick Humor, or Lunatick and Craſed in his Brain, and ſo perſwade himſelf that he ſees Viſions, Angels, Phantaſms, and a thouſand other Chimera's, which form themſelves in his diſturbed Imagination.

VII. If this *Way* is entire, and many of its Lines parallel and proportioned, it ſhews good Fortune both by Land and Sea, in Trading and Commerce, that he ſhall have Prudence and Underſtanding, a good Mind, and a great Memory, and that almoſt all things ſhall fall out to his great Satisfaction.

VIII. If there be on the Lines of the *Via Lactea* certain Stars, looking towards *Mons Mercurii* or the Mount of *Mercury*, they give great Wealth and Riches: and he that has ſuch Marks and Stars, will be filled with Wiſdom, Underſtanding and Prudence, and be very Happy and

and Fortunate, ſo that almoſt all things ſhall ſucceed to his Contentment.

IX. If the Lines of the *Via Lactea* bend towards the *Mons Veneris* or Mount of *Venus*, it ſhews the Perſon ſhall be beloved of the contrary Sex; and he or ſhe ſhall be one of a gentle, kind, aimable Humour, Officious, Reſpectful, and full of Complaſiance; and by Obſequiouſneſs and Flattery, ſhall inſinuate themſelves into the others Favour.

X. If the *Via Lactea* tends towards *Mons Solis* or Mount of the Sun, it ſignifies Wealth, Riches, good Fortune, Preferments, Dignities, Honour, Glory and Renown.

XI. But if towards *Mons Saturni* or the Mount of *Saturn*, it ſhews Melancholy, a diſaffected Mind, Troubles, Afflictions, Croſſes, implacable Enemies, Poverty, Want and Contempt.

XII. If ſome of the Lines tend towards *Mons Saturni*, and ſome towards *Mons Solis*, it ſhews a mixture of Riches and Poverty, Honour and Contempt, and of good and evil Fortune.

XIII. If the Lines tend directly to *Mons Lunæ*, it ſhews Popularity, Wealth, Riches and Honour, to be obtained among vulgar People.

XIV. Some Authors deſcribe the *Via Lactea* or Milky Way, to be a Line running upwards from the *Reſtricta* thro' the *Feriens* or *Mons Lunæ*, beyond or on the outſide of the *Cephalica*.

XV. Which Line, ſay they, if it is whole, and extended to the little Finger, it ſhews good Fortune both by Sea and Land, the Favour and Love of Women and great Ladies, and a great Good beyond Expectation.

XVI. But if it is ſhort, or cut, or crooked, it ſhews Unhappineſs, Poverty, Shame, Diſhonour, Contempt, Troubles, Afflictions, Croſſes, and a poor and low Eſtate.

CHAP.

CHAP. XV.

Of the Mount of Saturn.

I. THE middle Finger is called *Digitus Saturni*, and from thence the Mount or Swelling which is under it, is called *Mons Saturni*; which Mount is oftentimes environed by many other Lines: from the Joynts of the said Finger, and from the Finger it self and the Lines we find on the said Mount, we draw the Judgments following.

II. The first Joynt of the middle Finger is represented by *Pisces* ♓, and signifies *February*; the second ♒ *Aquarius*, and shews *January*; the third ♑ *Capricorn*, and prenotes *December*; becaufe the Sun goes thro' those Signs, in those particular Months.

III. If from the Plain of *Mars*, or lower from the Wrist, there arises a Line half apparent, passing thro' the *Mons Saturni*, and ending in some one of the Joynts of the middle Finger, it shews some Imprisonment or great Affliction to happen in one of those Months signified by that Joynt in which it ends, according to the preceeding Rule.

IV. If on the upper side of this Finger, *viz.* on the Nail side, there be Stars or Crosses, whether on the Right or Left Hand, the Star or Stars signify Imprisonment for some Matters of State, or something of great Consequence: but a Cros or Crosses signify Death for Religion.

V. A Cros or Crosses does not signify Happiness in all places, for it is the Opinion of the Ancients; and some have told us, *Crux in omnibus locis non semper bonitatem naturæ significantis retinet, sed interdum malitiosam qualitatem inducit*, &c. and that is the Reason that a Cros or Crosses in the aforesaid places signify a publick Death or Execution, yet honourable, as being that to which Honour, Virtue and Piety oblige him.

VI. If from the second to the third Joynt there are three Lines, of which two are a Cros, it shews to a Woman much Infamy, as a reputed Whore, Imprisonment, Whipping, Banishment, and sometimes danger of

of Death: to a Man, it shews great Infamy, Imprisonment, Fetters and Banishment.

VII. Two cross Lines appearing on *Mons Saturni*, (after 30 Years of Age) if they be unequal, it prenotes a shameful Death in some publick place of Execution.

VIII. If an Ecclesiastical Person has those Lines, they shew to him perpetual Imprisonment, Forfeiture of his Benefices, with Shame and Infamy, because of Rapes, Incests, Whoredoms and Adulteries.

IX. Many Lines upon this Mount, shew Penury, Necessity, Beggary and many Fears; also sometimes Imprisonment for Debts of his own, or some others.

X. A Star upon the first Joynt of this Finger, shews the Person shall be Assassinated or Murthered. A *French* Author says, That he knew the Truth of this to his great Grief, this Event happening to a Gentleman, a good Friend of his, who having such a Mark or Star; he had fore-warned him of such a Danger, and he was afterwards Murthered in his own Wood, as he was one day Walking.

XI. If the *Mons Saturni* is full and manifest, without Wrinkles or Incisions, it shews one Simple and Weak, without Craft or Deceit, yet Industrious in his Domestick Affairs, according to his Capacity of Mind and Strength of Body.

XII If from the Table Line there comes forth a Line reaching to the *Mons Saturni*, it signifies great Anxiety, continual Cares and Disquiet in providing for this Life, and that he will hazzard the being always Poor, and in Want.

XIII. If on the *Mons Saturni* there is a Line, which begins at the first Joynt of the *Digitus Saturni*, and that the said Line is crossed by two other Lines, like the form of a double Cross, it denotes Imprisonment, Captivity, Slavery, Chains and Fetters: but if there is but one or a single Cross, it signifies the quite contrary.

XIV. A Woman having on the first Joynt of this Finger 5 or 6 Lines, ascending towards the second Joynt, yea if 7 or 8 Lines, it signifies so many Children, and for the most part Males, without any Females between; but they shall be generally Unfortunate and Poor, living miserably, as if they were the Dregs of the People.

XV. Many

XV. Many and various Rimulae, ſmall Lines or Clefts on *Mons Saturni*, ſhews one Wicked and Malicious, Fraudulent and Deceitful, but withal agitated with continual Miſeries, Inquietudes and Cares, Sorrowful, Timerous, and of an anxious and bitter Spirit, and very wilful in their Nature.

XVI. If a Line or Cleft paſs from the *Menſal* over the *Mons Saturni*, to the Root of the Finger, it ſhews one Anxious, and very much perplexed, unquiet, turmoiled and troubled with Cares, always ſtriving (as it were) againſt the Stream, and at long run is little the nearer.

XVII. Many croſs Lines on this Mount and Finger, ſhew Labours, Cares, Penury, Want and Impriſonment.

XVIII. Interſected Lines paſſing from *Mons Saturni* to *Mons Solis*, ſhews a Perſon ſlow, dull, lazy, careleſs, fooliſh, ſtupid, ſimple, timerous, doing nothing with Reaſon or Judgment: ſometimes, as it ſhews a fooliſh Mind, it ſignifies alſo Rudeneſs and Impudence.

XIX. In a Womans Hand, if more Lines and Sections paſs between the *Montes Saturni & Solis* than between the *Montes Solis & Mercurii*, if ſhe is not Barren, it ſhews ſhe will have more Males than Females.

XX. If any little Sections or Lines, coming from the principal Lines, be extended to the *Mons Saturni*, they ſhew the Perſon to be of evil Life and Converſation, Infamous, and not to be truſted.

CHAP. XVI.

Of the Mount of Jupiter.

I. THE Mount of *Jupiter* is the *Tuberculum* under the fore Finger.

II. If upon the Mount of *Jupiter* there be a Star or a double Croſs, it foreſhews Riches, Proſperity and Happineſs, one Born to noble and glorious Actions, one Honeſt, Affable, Courteous and Renowned, a generous Soul indeed, and faithful in all their Undertakings.

III. The

III. The ſame, if this Mount is adorned with a parallel Line, or a Line ſweetly drawn, between it and the *Vital*, it ſhews great Dignities, and Eſtimation with great Men.

IV. But if this Mount be vitiated, with a Character like a half Gridiron, it ſhews Unhappineſs, Calamities, Poverty, Diſgrace and Depoſition from Honours and Dignities, loſſes by Women-kind, and Diſeaſes in the Heart and Lungs.

V. The ſame, if a Line, cutting this Mount, tends to the Mount or Line of *Saturn*; this alſo threatens an Apoplexy.

VI. A Croſs, but eſpecially a clear red Star, on this Mount, is a Signal and ſure Demonſtration of a ſplendid Life, repleat with Honour and Glory, Riches and an eternal Name.

VII. The Character of ♃ *Jupiter* upon *Mons Jovis*, ſignifies great Honours and Dignities, *(quoad Capax)* according to the Degree or Rank of Extraction, and many times more.

VIII. The ſame Character upon the firſt or ſecond Joynt of the *Digitus Jovis*, ſhews great Riches and Poſſeſſions, alſo Inheritances by the Death of Kindred; but if it is in the third Joynt or Extremity of the Finger, it ſhews Law Suits, Diſpleaſure and Quarrels with his near Relations.

IX. Two equal Lines near the firſt Joynt of the *Digitus Jovis*, they ſignify one Virtuous, Generous, Noble, a Perſon of Goodneſs, Strength and Courage.

X. If in the ſame Joynt (in a Womans Hand) there be parallel Lines, they prenote many Children, but more Males than Females.

XI. A Woman having two or three Lines between the ſecond and third Joynts, being red and fair, they ſhew her to be Ingenious and Jovial, but in danger of Dying in Child-bed.

XII. A Star upon the firſt Joynt of a Womans fore Finger, ſhews her to be Baſhful, Shame-fac'd, Honeſt and Chaſt.

XIII. A Star on the ſecond Joynt of the ſame Finger, ſhews her to come to great Preferment and Riches after 30 Years of Age.

XIV. A

XIV. A Lozenge-like Figure on the *Mons Jovis*, with a Line passing thro' the middle of it, shews Happiness, an honest and virtuous Life, an honourable old Age, full of Honour and Wealth.

XV. A Cross or two on the *Mons Jovis*, shews Honour, Dignity, Authority, Favour of Kings and Princes, and a fortunate Marriage.

XVI. A Cross near the first Joynt of *Digitus Jovis*, and towards the outside, between it and the Extremity of the Life Line, shews Ecclesiastical Preferments, Honours and Dignities.

XVII. Four or five Lines between the first and second Joynts, in form of a Gridiron, denotes Displeasure or the Anger of great Ladies, or that there may be danger of loss of Life.

XVIII. A Star on *Mons Jovis*, shews Disgrace, Infamy, Deprivation of some Honour, Office or Dignity, thro' Folly, Carelessness, or some Error committed: but two Stars signify the quite contrary.

XIX. A Line arising out of the Table Line, and cutting the Mount of *Jupiter*, shews sudden and violent Death.

XX. If this Line ends in the first Joynt of *Jupiter*, it is signified by ♊ *Gemini*, and the said violent Death will happen in *May*; if in the second or middle Joynt, represented by ♉ *Taurus*, it will happen in *April*; if in the third or upper Joynt, in the Extremity of the Finger, represented by ♈ *Aries*, it will happen in *March*.

XXI. A Cross or Star on the outside of the *Digitus Jovis*, and a Line running from *Mons Jovis* shall stretch thro' the Hand, and extend to the Wrist, shews Weakness, Cowardise, Fearfulness, one Covetous and Envious.

XXII. If that Line so found in the Hand is cut or intersected, it foreshews Evil, Imprisonment or some great Punishment, or that he may Die in Prison.

XXIII. A Childing Woman having three fair apparent Lines or Sections on *Mons Jovis*, or running equally along the Finger, shews many Children.

XXIV. If the middle Line of those Lines is shorter than the other, and the other bigger at one end than another, and not even or well composed, it shews a Woman Immodest, Impudent, and without Shame.

XXV. The same also if a Semi-circle, is found there crossing those straight Lines.

XXVI. A Woman having many and small Transverse Lines at the Root of the Finger, towards the Finger of *Saturn*, and near the Mount, shews she shall have a large Possession or Inheritance left her by the Death of Friends.

XXVII. But if such cross or transverse Lines are found on, or near the second Joynt, it argues one Fraudulent, False, Unjust, Envious, and a Lyar.

XXVIII. The same also, if *Mons Jovis* is cleft, they are also Wrathful, Morose, Furious and Infamous.

XXIX. Crosses on the Mount of *Jupiter*, shew encrease of Honor, Glory, Dignities, Riches, Wealth, Happiness, and all other good Fortune; also Ecclesiastical Preferments and Honors.

XXX. And indeed such a Cros or Crosses upon this Mount, are to be most Happy and Fortunate in all things, for Fortune seems to drop her Favors into their Mouths; they are Pleasant and Easie, Magnanimous, and of an elevated Spirit, being superior in Figure to most Men of the same Character or Profession; they are Generous, Liberal, Free, slighting mean things, Honest, Noble, coveting Fame and Honor, and not without some Arrogance or Pride, as striving after Rule and high things, yet studious of Friendship, Loving, Gentle, Courteous, Peaceable, Wise, Prudent, not wanting Eloquence, excelling in Counsel, constant in Mind and Resolution, growing in Wealth and Riches, and simple, just and honest in all things.

XXXI. *Mons Jovis* plain, smooth, clear and well proportioned, shews Honesty of Life, and a good Nature; and by how much it is replenished with small obscure Rimulaes, or Lines like Clefts, a little asunder, at equal distances, so much the more Good, also Honors and Dignities from Princes and great Persons.

XXXII. A Line separating the *Index* or *Mons Jovis*, from the *Mons Saturni*, if it is conspicuous and red, it shews great Weakness in the Bowels, and Danger to a Woman in Child-bed.

XXXIII. A straight or right Section running from the Root of the *Index*, and carrying it self towards the Natural Line and the Supream Angle, denotes Greatness

and

and Magnanimity of Mind, the Care and Charge of great things; and shews one seeking after Wealth, Riches, Honor, Glory and Fame.

XXXIV. A small Line from the *Mensal*, running or pointing to *Mons Jovis*, has the same Significations with the former: and if these Sections be crossed or cut disorderly with other small Lines, they signify Wounds on the Head.

CHAP. XVII.

Of the Cavea Martis, *and the* Via Martis.

I. THE *Cavea Martis* is the Hollow in the middle of the *Palm*, commonly called the *Triangle* of *Mars*, made of the three principal Lines, to wit, the *Cardiaca*, *Cephalica & Epatica*.

II. The *Via* or *Linea Martis*, (called also the *Vital Sister* and *Soror Martis*) is a Parallel to the Line of Life on the *Mons Veneris*.

III. *Mars* is Fortunate so often as the *Soror Martis* appears red, clear and sweetly drawn, and when either Stars or Crosses are found in his *Cavea* or *Triangle*; and thereby is signified Courage, Boldness, Magnanimity, Fortitude and Strength: the Man is Imperious, Strong, and a great Eater.

IV. But if the *Triangle* be Infortunated by evil Lines from the *Mons Veneris* or *Lunæ*, the Person is Litigious, Scornful, Proud, Disdainful, Deceitful and Wicked; a Thief, Lecher, Robber, Murtherer, and shall have a Life wholly filled with Unhappiness.

V. The Character of ♄ *Saturn* in the *Triangle*, shews a danger of falling from some high place.

VI. A crooked Line ascending from the *Triangle* to the *Mons Saturni*, shews Imprisonment.

VII. A Line from the said *Triangle* towards the *Restricta*, terminating under the *Mons Lunæ*, shews many Peregrinations, Journeys and Travels.

VIII. The *Soror Martis* augments all the Good signified by the *Cardiaca* or Line of Life, but particularly it

Promiſes Succeſs in War, and the Love of Women.

IX. The *Cavea Martis*, or *Triangulum Martis* we have deſcribed at *Sect.* I. of this Chapter; but ſome Authors are not ſatisfied with thoſe Limitations: others ſay, That the *Plain* or *Triangle* of *Mars* is that Space only which is bounded with the *Cephalica, Epatica & Saturnia:* however, the *Plain* or *Cavea Martis*, taken as extended, is all that Space comprehended between the *Cardiaca, Cephalica & Epatica*; and this is truly the *Palm* or *Hollow of the Hand.*

X. The *Cardiaca* or Line of Life, with the *Epatica*, make the firſt, higheſt and ſupream Angle; the *Epatica* joined with the *Cephalica*, make the ſecond Angle, which in the Right Hand is called the Left Angle, and in the Left Hand the Right Angle: the *Cardiaca* towards the Wriſt, joined with the *Cephalica*, (or if that is wanting, with the *Stomachica* or *Linea Solaris*) make the third Angle, which we call the loweſt; and of theſe three Angles, with their three Sides, is the *Triangulum Martis* compoſed.

XI. If in the *Planum* or *Triangulum Martis*, the Siſter of the *Linea Vitalis* be clear, not too long nor too ſhort, it ſhews good Fortune in War, honorable Employments, Courage and Valor.

XII. If the Angles of the Triangle be equal, and the Lines well colored and ſtraight, it ſhews one of a good Nature, ſound Body and Healthy, Fortunate, of good Reputation, and a long and happy Life.

XIII. If the *Planum Martis* is hollow, and the Lines therein be oblique or crooked, it ſhews Death in Combats, Duels or Quarrels, a great Wound in the Head, Diſlocations or Fractures of Bones by falls from Horſes, Precipices, *&c.*

XIV. If the Lines in the Angles of the Triangle are obſcure and unequal, making the Triangle irregular or out of a good form, it ſhews one Dull, Clownish, Unmannerly, Dull as an Aſs, one uncapable of deep Thoughts.

XV. When there are Stars in this *Plain*, they ſignify Want, Poverty, Misfortunes, ſecret Enemies, danger of Aſſaſſination, by ſpeaking too freely, or dealing too plainly.

XVI. When

XVI. When the *Triangle* is ſpacious and large, it gives Riches, Magnificence, Courage, and makes one Liberal and Kind-hearted.

XVII. But if it is little and narrow, it ſhews Meanneſs and Poorneſs of Spirit, Fears, Suſpicions, Poverty, Want; and where there is a kind of fulneſs, makes one Niggardly and Avaricious.

XVIII. If in the Left Hand of a Man, at the Right Angle, looking towards the *Mons Mercurii*, if upon or near that Angle there be three little parallel Lines, they ſhew a great Vivacity of Spirit, one given to Chymiſtry, having Knowledge of profound Philoſophical Secrets, and acquainted with the great Hermetick Myſtery.

XIX. The Triangle fair and well proportioned, ſignifies all kinds of Good, a great Vivacity of Spirit, ſtrength of Underſtanding, and an unconquerable Soul.

XX. The Line of *Saturn* deſcending into this *Plain* or *Triangle*, ſhews Impriſonment, Captivity, Slavery, Misfortunes in War, falling into the Enemies hands, and great Afflictions one upon another.

XXI. The Triangle being of a good form, large, and very apparent, it ſhews Happineſs and abundance of Wealth, but with a Difficulty of preſerving it, being much ſubject to Envy.

XXII. One or more Croſſes in this *Plain*, ſhews a Warrior, and that in War he ſhall get Honor and Renown.

XXIII. But if thoſe Croſſes are towards the *Cephalica*, he will not be very Fortunate, neither in War nor otherwiſe.

XXIV. If a certain Redneſs poſſeſſes the Extremities of the Angles, it ſhews one Envious, given to evil Speaking, and a Paraſite, Sycophant or Flatterer.

XXV. When there are four Lines in the Triangle, in form of a Croſs, in the high or ſupream Angle, it ſignifies an Envious Perſon, a Detector, and one ſuſpected of Theft.

XXVI. If the Lines within the *Planum Martis* are long, beginning at the Wriſt, and going towards the Brawn of the Hand, *viz. ad Montem Lunæ*, it ſhews much Travel in a Military way, a reſtleſs Life, unſettled, and always in Dangers and Hazzards.

XXVII. If in the middle of the Triangle there are other little Triangles, or little Triangles towards the Wriſt, they ſignify Quarrels, Contentions, Strife, Duels, which may be with Danger, and ſometimes with Shame, Contempt, and loſs of Life.

XXVIII. Theſe ſmall Triangles being towards the *Menſal* or *Linea Solaris*, ſhew Victory and Honor.

XXIX. If the Right Angle made with the *Epatica & Cardiaca* is decent and well formed, it ſhews a good Underſtanding and a ſtrong Memory, one of an active and vigorous Spirit.

XXX. A Brawnineſs or Hardneſs in the middle of the Triangle, ſhews one Wrathful, Furious, Quarrelſome, Crafty and Violent.

XXXI. If in the *Planum Martis* the Siſter of the Line of Life is ſhort, it ſhews Misfortunes in War, Boldneſs, Deceit, Thieviſhneſs, one Unfaithful, Idle, Shameleſs, Seditious, Impatient, Vain-glorious, Fooliſh, Treacherous, a Murtherer, *&c.*

XXXII. A Star about the Right Angle of a Man's Hand, denotes him Perfidious, Deceitful, Thieviſh, Turbulent, a Detractor, given to Rapin and vile Courſes

XXXIII. If a Star is in the Triangle in a Womans Hand, it ſhews Impudence, a Proſtitute, an Adultereſs, whoſe End will be infamous and fatal, by way of Execution.

XXXIV. If this Star is hairy like a Comet, ſhe may poſſibly have three or four Husbands before ſhe Dies.

XXXV. If the Right Angle is little and ſharp, it ſhews one Provident, Sparing, and encreaſing Riches; but if it is obſcure and thick, or blunt, it ſhews Ignorance, Dulneſs, Stupidity, and a Slowneſs of Reſolution.

XXXVI. If the Left Angle is pointed or ſharp, it ſignifies one Loquacious, a Sophiſter, and maliciouſly Induſtrious, that takes great Pleaſure in Deceiving, and doing ſome ſmall Cheats, Villanies and Rogueries.

XXXVII. If this Triangle is quite wanting in a Man's Hand, ſo as there is no form of it, ſome of the Lines being abſent, it ſhews much Evil, one that is Deceitful and double Minded, Inconſtant, a Lyar, ſubject to much Sickneſs, and of a ſhort Life.

CHAP.

CHAP. XVIII.

Of the Mount of the Sun, *and* Via Solis.

I. THE Mount of the *Sun* is the *Tuberculum* under the Ring Finger.

II. The *Via Solis* is a right Line, running down from the Mount of *Sol* to the Triangle of *Mars*.

III. A Star or Stars upon the *Mons Solis*, shews one Faithful and Ingenious, and that he shall attain to great Honor, Glory and Dignity, be honored of Kings, Princes and great Men; one of a great and magnanimous Spirit, Wise, Just and Religious.

IV. But a Perpendicular thereon, cut or crossed with a Line from the *Mons Saturni*, shews Pride and Arrogancy, a Boaster, a poor base Spirit, and one that shall fall into irrecoverable Miseries.

V. The *Via Solis* clear, and not broken, or cut by any ill Line, shews Honor in the Common-wealth, and the Favors of Kings and great Princes.

VI. But it being cut or confused, or hurt by any Line from either the Mount or Line of *Saturn*, it shews the contrary, Poverty and the Hatred of great Men.

VII. The *Mons Solis* is limited at the one end by the first Joynt of the Ring Finger; at the other end by the *Mensal* or Table Line: and on the other side by the *Mons Saturni*; and on the other side by the *Mons Mercurii*.

VIII. One Line only coming from the *Mensal*, towards the first Joynt of the *Digitus Solaris*, shews Riches by Succession, and it shall happen in that Month signified by that Joynt in which the Line ends.

IX. The first Joynt is represented by ♍ *Virgo*, and signifies *August*; the second Joynt is represented by ♌ *Leo*, and signifies *July*; the third Joynt or Fingers end is represented by ♋ *Cancer*, and signifies *June*.

X. If above the third Joynt, towards the end of the Finger, there be certain Lines, they shew Business, Necessity, Poverty; and that the Person will apply himself to curious Arts and hidden Secrets, and will be apt to be Vain, Foolish and Unprofitable.

XI. If there be certain Lines between the first and second Joynts, if they are straight and parallel, they shew one of good Nature, and one that by several ways and means shall enrich himself, by Trading, Labor, and dealing in Cattel.

XII. If some small Lines begin at the Line of Fortune, and ascend towards the first Joynt of the *Digitus Solis*, being parallel and not joining, they denote imaginary Happiness and Satisfaction, and a vain assuming to some Offices and Dignities.

XIII. If some Lines, beginning at the first Joynt of this Finger, stretch towards the Table Line, without Intersections or Cuttings, they denote Goodness, Wisdom, Prudence and Subtilty of Spirit, great Wealth and Riches, also Knowledge of Arts and Sciences.

XIV. If there is a Cross or Crosses from the second to the third Joynt, they signify Honors, but without Riches; that the Person shall be esteemed for some good Parts, but will be Unfortunate.

XV. A Cross upon *Mons Solis*, shews one intollerably Covetous, and that will not enjoy the good of what he has, is afraid of Spending, but strives to grow Richer and Richer.

XVI. If on the third or upper and extream Joynt, there is a Star or Cross, it shews one that will be Rich by Inheritances or Legacies from his Relations; otherwise very Unfortunate, as if he was Born for Troubles, or to lie in Prison.

XVII. A Woman having a Cross upon *Mons Solis*, she will grow Rich by Lewdness; and if Beautiful, she will make her Fortunes by the Ruine of many young Men, and that she will be very Cautious and Covetous: if she is not Handsome, she will be a Bawd, yet counterfeit Holiness and Devotion.

XVIII. If between the first and second Joynts there is a Cross, on the Hand of a Woman, it shews her to become Rich by Marriage and Dowry, and shall come to Feminine Honors.

XIX. If there be small crooked Lines at the first Joynt of this Finger, having several Sections or Cuts, they shew Want, Poverty, ill Temper, Vileness, Dulness of Spirit and Infamy.

XX. Lines

XX. Lines running from the *Menſal* to the root or bottom of the Ring Finger, ſhew a prudent and provident Perſon, ſo much the more if they are fair, even and well colored.

XXI. Many ſlender Lines, red and well colored, ſpreading themſelves on *Mons Solis*, ſhew one Merry, Pleaſant and Prudent; but if crooked and red, Affliction and Vexation.

XXII. If two crooked Lines run parallel from the Wriſt, towards *Mons Solis*, ending near the ſame, they ſignify moſt happy Fortune, Honors, Dignities, Felicity, Prudence, Wiſdom, Arts, Sciences, and one Generous and Virtuous; and the ſame more effectually, if they run above the firſt Joynt.

XXIII. Theſe Lines running thus, in a Womans Hand, ſhews that ſhe ſhall attain Riches and Honors by means of a Husband.

XIV. If theſe parallel Lines are found in the ſecond Joynt, the Perſon ſhall always live in Honor, and poſſeſs much Riches.

XXV. Little parallel Lines or Branchings on *Mons Solis*, ſignify the ſame as on *Mons Mercurii*, one Ingenious, of a ſharp, quick and happy Wit, skilled in univerſal Learning, but a little Affected and Proud withal, and attaining to Preferments and Dignities Spiritual and Temporal.

XXVI. It is truly obſervable, that when Lines are doubled, as Parallels, that they double the Significations of Good, and ſhew Honeſty, Sobriety and Virtue, and a comely Grace in Speaking: but they ſignify otherwiſe, if others paſs over and cut them in a Chequer faſhion.

XXVII. But if they are equal, fair, well colored, and not interſected among themſelves, it ſhews one Auſpicious and Fortunate, and that ſhall conquer and ſubdue his Enemies under his Feet.

XXVIII. If no ſuch Lines touch the Finger, nor are equally extended from the *Menſal*, but ſtretch towards the *Digitus Saturni*, they ſignify a Mutation and change of Life, according to the Alteration of the Times.

CHAP.

CHAP. XIX.

Of the Mount of Venus.

I. THE Mount of *Venus* is the *Tuberculum* of the Thumb: it begins at the Wriſt, and is encloſed by the Line of Life, which ends between the Thumb and fore Finger: all this encloſed Space, called the *Ball of the Thumb*, is this *Mons Veneris*, or Mount of *Venus*.

II. A clear Star, or Furrows that be red and tranſverſly parallel upon the *Mons Veneris*, and is much elevated, ſhews one Merry, Cheerful and Amorous; it ſhews alſo one faithful, juſt and entire, one with whom an incorrupted Tye of Friendſhip (being once made) is durable for ever: it alſo ſignifies great Fortune or Eſtate, and Subſtance by a Sweet-heart or Lover.

III. But this Mount infortunated by evil Lines, or Lines from evil places, and irregular Figures, ſhews a Letcherous Perſon, an Adulterer, a poor, baſe, ſordid Wretch, who ſhall ſpend his Subſtance on Whores.

IV. The Character of the △ *Trine* Aſpect on this Mount, ſhews a great Fortune by Marriage.

V. The Mount of *Venus* void of Lines and Inciſures, ſhews a rude, effeminate and fooliſh Perſon, and one ridiculous and unfortunate in Wedlock.

VI. If it be broken or diſſected, it ſhews Infamy and Diſgrace by Luſt and Letchery.

VII. If Inciſions, Lines or Stars are near the upper Joynt of the Thumb, they ſignify to a Woman, that ſhe ſhall be Married young, but ſhall not be very happy, but be in danger of being Killed or Murthered by her Husband.

VIII. If there is a Star near the Nail, it ſhews that a Woman will be very Jealous and Furious, and be in danger of Killing or Murthering her Husband.

IX. If Hair is upon the *Mons Veneris*, or upon the Thumb, or many Cuttings, it ſhews one Ruſtick, Uncivil, Slovenly, and of little Underſtanding.

X. A Woman having Inciſions or croſs Lines on the outſide of the Thumb, near the Nail, ſhews that ſhe is Miſchie-

Miſchievious, Subtil, Crafty, Deceitful, and one whoſe Company ought to be avoided.

XI. If the *Mons Veneris* is fair, pretty ruddy, having few Inciſions or Cuts; or if there be, and they be clear and diſtinct, they denote the Man or Woman very Amorous, Letcherous, deſirous of Coition, and given to Plays, Dancing, Muſick, and all kinds of Pleaſure.

XII. If two or three Croſſes are on the firſt Joynt of the Thumb, near the Mount of *Venus*, it ſignifies (in Women eſpecially) ſuch as are Quarrelſome and hard to pleaſe, Contentious, Diſloyal, Scoffers, great Talkers, Perfidious, and evil Speakers.

XIII. But if theſe Croſſes are near the ſecond Joynt, they denote Wiſdom, Humility, Devotion, Piety, exemplary Virtue, and an Ardent Religious Zeal.

XIV. If there are three or four Interſections or Cuttings under the firſt Joynt of the Thumb, if they are broad, they ſignify Riches in Youth, which will be by Marriage.

XV. But if theſe Interſections or Lines are above the ſaid Joynt, the ſaid Riches and Honors will happen when the Perſon is older, or in middle Age, or upon a ſecond Marriage.

XVI. And if theſe Inciſions or Cuts are nearer the ſecond Joynt than the firſt, all the ſaid Good will happen in old Age, and upon a third Marriage, which has been obſerved in many.

XVII. If in the middle of this Mount there is a Star, clear and apparent, and regularly or well formed, it ſignifies that he or ſhe ſhall be very happy and fortunate in Love, and receive the full Effects and Anſwers of all their Amours.

XVIII. If a Woman has a O Circle or *O* Oval, in the middle of the *Mons Veneris*, it ſhews her to be a Strumpet or Whore, proſtituting her Body to any one, yet never ſatisfied.

XIX. If a Woman has a Line in the upper Part or Ligament, which ſhall croſs the firſt Joynt, and come towards the Line of Life, ſhe will Periſh by or in ſome Inceſtuous, Adulterous or Whoriſh Act: this Line, it is true, denotes Riches, but they will be attended with Diſhonor and Shame, and ſhe will have a ſad and woful End.

XX. A

XX. A Man having such a Line, it shews a violent Death by means of Women and Lewd Company; and some about the day of Marriage, or not long after.

XXI. If a Cross is near the first Joynt of the Thumb, it shews Lust, Letchery, Uncleanness, Fornication, Adultery, Incest, and all manner of lewd and abominable Actions.

XXII. If four Lines appear on *Mons Veneris*, under the first Joynt, running down towards the outward part, they shew Riches, Wealth and Honor in the first Age.

XXIII. Several small, bright and plain Lines upon *Mons Veneris*, and reaching to the Root of the Thumb, shew great and long Travels thro' many and strange Countries.

XXIV. Women who have a O Circle on the Mount of *Venus*, are Luxurious, Letcherous, Libidinous, Intemperate, and Insatiable in Lust, committing Whoredoms, Incest, Adultery and Sodomy.

XXV. One, two, three or more Stars being found clear, strong and well proportioned upon the Mount of *Venus*, shews a happy and pleasant Person, one of a free, generous and genteel Conversation, delighting in Mirth, Gallantry, and the Recreations of *Venus*, of a chearful Aspect, but Modest, and much affecting *Venereal* Sports; also Musick, Singing, Dancing and Jollity, loving good Company, with Liberality, Freedom and great Faithfulness, true in Friendship, just in Promising, kind and affectionate in Treating, hating base and mean Actions, delighting in doing Good, and rejoycing in their Friends Prosperity. These, as they live comfortably and pleasantly, without Anxiety, Trouble, Care or Vexation, so they Die in Peace and Satisfaction, leaving a sweet Savor of Sincerity and Generosity behind them.

CHAP. XX.

Of the Mount of Mercury.

I. THE Mount of *Mercury* is the *Tuberculum* under the little Finger, or *Digitus Mercury*, which has on

on the one side the Line or Mount of *Sol*; and on the other side the outward part of the Hand; it is bounded above by the first Joynt of the Finger of *Mercury*; and below by the *Mensal* Line, and the *Mons Lunæ*, or Mount of the Moon.

II. This Mount happy and fortunate with a Star or parallel Cross, or the Character of the △ *Trine* Aspect, shews Wit and Ingenuity, and makes the Person a great Orator, gives him Substance by Arts and Sciences, and the Understanding of secret Mysteries in Alchymy, Musick, Painting, Astrology and Philology, and raises the Person to Dignity by means of his own Wit, Prudence and Industry.

III. But this Mount afflicted, or without Lines, or hurt by a Line from the Mount of *Saturn*, (cutting the Mount of *Sol*) or from the Triangle of *Mars*, shews a poor, low and dull Wit, a Person of no Audacity or Courage, a meer Coward, a Lyer, Pratler, Thief, Cheat, Traitor, and one Faithless, and sometimes Melancholy, Mad or Frantick.

IV. These Judgements are the more firm where the Lines and Signatures are fair, firm and clear: but if they be dull or obscure, these Judgements are more dubious and intricate.

V. A Line from the *Mons Lunæ* to the *Mons Mercurii*, not cut or broken, shews a Man Eminent and Famous in his Trade or Profession, (among the common People) let it be what it will.

VI. Lines going from the *Mensal* to the *Mons Mercurii*, are said to signify Children; but they truly signify Subtilty of Spirit, a deep Understanding, Wisdom and Prudence; one searching into Arts and Sciences, and given to Travel.

VII. Lines coming from the Root of the little Finger upon this Mount, if they be crooked, they shew the Person shall never attain to those Arts and Sciences he seeks after, but will be inclinable to Craft, Deceit, Falsehood, Thieving, and other vile things.

VIII. If in the second Joynt there is a C, or X, or X, it shews one very Inconstant, Credulous, subject to Passions, Learned and yet a Fool, or no wise Man.

IX. The Mount of a decent height, well colored and proportioned, signifies Constancy and Perseverance, and

one

one who has baniſhed fooliſh Love from him, Chaſt, Virtuous, and a Lover of Sciences.

X. If in the third Joynt of this Finger there is a Star or Croſs, it ſhews Poverty infallibly, tho' the Perſon has Learning, Arts and Sciences; that he will be in danger of being Deceived and Robbed, and himſelf ſhall be ſubject to Theft and Deceit.

XI. If in the firſt Joynt of this Finger there is the Character of ♃ *Jupiter*, it ſhews one Vain and Arrogant, from the little Knowledge he has, which conſiſts more in Pretence than Reality; and he may think himſelf Eloquent or a great Rhetoritian.

XII. If this Mount is half filled with Lines, which are unlike and unequal, but ſtraight, it ſhews one of a docible Nature, Faithful, not given to Lying, a Hater of Superſtitious and External Ceremonies, as believing nothing in them; one Fortunate, but not deeply Learned in Arts and Sciences.

XIII. If in either of the Joynts there is a Croſs, it ſignifies one without Religion, or one of all Religions, without any great Affection to any, yet one that will not give any Worſhip to any Creature, tho' never ſo goodly or excellent.

XIV. If on this Mount there is ♈ *Aries*, it ſhews Riches acquired by Learning: if ♒ *Aquarius*, it ſhews the contrary, thro' Ignorance: if ♑ *Capricorn*, vain Knowledge and a ſhameful Death.

XV. If on this Mount there be certain Lines, which come from without the Hand, and reach directly to the *Linea Solaris*, it ſignifies one without true Knowledge, a Lyar, abuſing every Body with vain Promiſes.

XVI. If thoſe Lines are crooked, they ſhew one vile and wicked, given to Deceit and Cheating, a Thief, and ſometimes worſe.

XVII. The firſt Joynt of this Finger is repreſented by ♐ *Sagitary*, and ſignifies the Month of *November*: the ſecond Joynt is ſignified by ♏ *Scorpio*, and ſignifies the Month of *October*: the third Joynt is repreſented by ♎ *Libra*, and ſignifies the Month of *September*: and theſe Months anſwer to ſeveral times, in which things ſignified by the Signatures of thoſe ſeveral Joynts ſhall happen.

XVIII If

XVIII. If this Mount is covered with many ſtraight Lines, of divers forms and colors, it ſhews one Docible, but a Lover of Sects, Bold, Impudent, a Whoremaſter, a Lyar, yet Hater of Superſtition, no Lover of Temples, and diſregarding Oracles, apt to all Arts, chiefly to the Mathematicks, Poetry, Philology, Philoſophy, and a Searcher into Natures Secrets; alſo learning Mechanical Arts, as Limning, Painting, Sculpture, Varniſhing, *&c.*

XIX. If the ſame Lines are found on the firſt Joynt of the Finger, they ſhew one Rhetorical, Arrogant, Superſtitious, Proud and Wanton.

XX. If they are found on the ſecond Joynt, they ſignify a good Orator and Preacher; but if they be reverſe, it ſhews one ſubject to various Paſſions.

XXI. A ſmall graceful Line, even and well colored, ariſing from the *Menſal* Line, and extending to the Root of the little Finger, well formed, and Diametrically paſſing the Mount, denotes Freeneſs of Mind, Generoſity and Liberality.

XXII. Retorted Lines from the ſuperior part of the little Finger, in a Womans Hand, ſhews one Talkative, Inſolent and Inconſtant.

XXIII. Certain parallel Lines, more or fewer, ariſing at the *Menſal*, and reaching to the Root of the little Finger, ſo many Lines as there be, ſo many Marriages: if they are pale, they ſignify Marriages paſt; if long, well colored, fair and ſtrong, they ſignify Marriages to come.

XXIV. If any Line is recurvated or circular, and tends from the Root of the Finger to the middle of the Mount, it ſhews a Perſon of a good Wit and Capacity, a Perſon of great Hopes, and who it is poſſible may reach the height of good Fortune.

XXV. Parallel Lines ariſing from the *Menſal*, tending to the Root of the little Finger, (as at *Sect.* 23. aforegoing) if they are groſs, ſquallid and red, they ſhew one addicted to Theft, Robbing, Rape and Ruine of Mankind, and contumated with all kinds of Vices whatſoever.

CHAP.

CHAP. XXI.

Of the Mons Lunæ, *or Mount of* Luna.

I. THE *Mons Lunæ* (called also *Feriens à Feriendo*, the smiting part) is the Mount comprehended under the *Tuberculum* of *Mercury*, between the *Mensal* and *Restricta*.

II. The *Mons Lunæ* filled with happy Characters, (as we have before hinted) shews one Honest, Just and Honorable, and makes a Man Famous through a Kingdom, gives him the Praise of the common People, and the acquaintance of great and noble Ladies, and makes him happy in Navigation.

III. But being infortunated by evil Characters, or a *Trapezia*, or evil Lines from the Triangle of *Mars*, or Lines broken, or cut with oblique Angles, it shews one of a various, poor and inconstant Life, a Beggar, a Person envied by almost all People, one Wicked, Treacherous and Deceitful, a Person subject to Travel, Captivity or Banishment.

IV. If the good Lines on the *Ferient* be fair and comely, they premonstrate so much the more Happiness, and in Women Fruitfulness: but the evil Lines pale, so much the more Evil.

V. *Mons Lunæ*, or the Mount of the Moon, which is called also *Locus Lunæ*, the Place of the Moon, and the *Hypothenar* or *Subvola*, (*pars ea manûs est quæ opponitur Volæ*) the Brawn or outward side of the Hand or Fist; it is that part which below is bounded by the *Restricta*: above is bounded by the *Mensal*; and on the one side by the *Cephalica*, or that part of the Triangle of *Mars*; and on the other side by the outward part of the Hand or Fist. As the Ball of the Thumb or *Mons Veneris* (*carnosa pars manûs inter Pollicem & Lineam Vitalem*) is called *Thenar*; so the Brawn of the Fist or *Mons Lunæ* is called *Hypothenar*.

VI. If there be Stars on *Mons Lunæ*, it shews one Deceitful, Crafty, Treacherous, and a great Lyar: Stars in this place signify one Wicked, Infamous, Perfidious, Contu-

Contumelious, a Dissembler, and one not fit to be Conversed withal.

VII. But if there are Crosses instead of Stars, the quite contrary is signified, one truly Religious and Devout; if there be five of them, the Person is always Sickly, and does not live to see the 30th Year.

VIII. If any one of the five Crosses be vanished, the Party is near Death, or at farthest is in the Year in which he shall Die.

IX. Lines being pale or enclining to blackness on *Mons Lunæ*, shew one Unfortunate in Travelling, Trading, Business, and almost in all things he undertakes or meddles withal.

X. If there is a O Circle or *O* Oval upon this Mount, it signifies, according to *Indagine*, the loss of an Eye; or else it signifies some great Sickness, as the Epilepsie, Apoplexy, Palsie, Gout, Lameness, Convulsions, *&c.*

XI. If on the lower part of *Mons Lunæ*, near the *Restricta*, there is a △ Triangle, in a Womans Hand, it shews her given to Lewdness; but she will be Rich in her latter Years, and abound with Wealth; for a △ is one of the happy and fortunate Characters.

XII. Fair, bold, distinct, well colored and well proportioned Lines upon this Mount, signify Happiness and Prosperity, Riches and Pleasures, and much Wealth, which shall be acquired by the common sort of People: he shall also be fortunate in Travelling, whether at home or abroad, and have Success in all things he puts his Hands to.

CHAP. XXII.

Of the Mensa, *Quadrangle or Table.*

I. THE *Mensa* or *Quadrangle* is the Interval or Space betwixt the *Mensal* and *Epatica*; the which is given or attributed to *Fortune*, from whence the Table is called the Place of *Fortune*.

II. The *Mensa* being large and broad, and repleat

with good Figures, shews Riches and Treasure, one of a liberal magnanimous Spirit, and of long Life.

III. But small and narrow shews Poverty or a slender and mean Fortune, a Niggard, a Coward, a pitiful, poor, fearful and mean Soul.

IV. A little Circle in the *Mensa*, shews a great Wit, and a profound Person in Arts and Sciences.

V. The *Mensa* terminating in an Angle under *Mons Jovis*, by the Concourse of the *Mensal* and *Cardiaca*, or Vital Line, shews Falshood and Treachery, and one of short Life.

VI. A Cross or Star within it, clear and of good proportion, especially under the Mount of *Sol*, shews Honor and Dignity by means of great and noble Men, and encrease by noble Men: if it be the Character of ♃ *Jupiter*, it shews Ecclesiastical Preferment.

VII. The same Cross or Star, being doubled or tripled, wonderfully encreaseth the aforesaid good Fortune; but cut or confused by other little Lines, the said Good is much diverted, and Anxieties and Troubles threatned.

VIII. Good and equal Lines in the *Mensa*, shew good Fortune; evil and distorted, or crooked, the contrary.

IX. A Cross or Star in the *Mensa*, over *Mons Lunæ*, shews Fortunacy in Travelling.

X. If there be no *Mensa*, it shews a cloudy and obscure Life and Fortune.

XI. What and where the *Mensa* or *Quadrangle* is, we have already declared at *Sect.* 1. of this *Chapter*, but some Artists will confine it in a narrower Compass, making it indeed to be the Space between the *Mensal* and *Epatica*, but will have it to stretch in length, only from the *Linea Saturnia* to the *Linea Solaris*; which in my Opinion is too great a Strictness: I rather adhere to that Limitation in the *first Sect.* of this *Chapter* aforegoing, at least when those Lines appear not.

XII. It is to be noted, that upon every Line which makes the *Quadrangle* or *Mensa*, there may happen Incisions or Cuts, from one, two, three, to seven, (which larger number happens but seldom.) In these cases, the Good signified by those Lines, shall be so many ways, and it may be so many Months or Years, hindred, prejudiced or interrupted.

XIII. If

XIII. If the Lines be small, short, shallow or faint, or difficult to be seen, they signify only Months; but if large, long, deep, bold and perspicuous or red, they signify so many Years.

XIV. If on the Table Line, or upper side of the Quadrangle, there is a Star, it shews Courage, Faith, Truth, Justice, a good Conscience, and a free Conversation: but thro' his too great Liberality and Goodness may fall into Poverty; but he shall rise again, recover his former Wealth, and have Favor of great Men.

XV. A Star in the middle of the *Mensa* or *Quadrangle*, shews one Just, Virtuous, Merciful, and that he shall arrive to much Wealth, Honors and Dignities, *quoad Capax*.

XVI. If the Incisions or Lines which make the Quadrangle, are lively and well colored, as it were ruddy, they shew one Wise, Understanding and Rational, Prudent, Impartial and of good Reputation, Honest and Just to all Men.

XVII. If in the *Mensa* or *Quadrangle* a Star appears upon the Line of *Saturn*, and looks towards the Mount of *Venus*, it shews a Man much given to Women, so as to become Scandalous, and to diminish his Fortune or Estate.

XVIII. If this Star is on the *Linea Solaris* or *Stomachica*, it signifies Diseases, but that he shall thrive in his Trade or Business, and get much Wealth.

XIX. If the *Mensa* or *Quadrangle* is broad and well proportioned in its Quadrature, it shews one of Courage, Free, Generous and Liberal, aspiring to and attaining to high Honors and Dignities, and great Wealth.

XX. If in the *Mensa* or *Quadrangle* there is one or more Crosses, and that they are very apparent, they shew one Devout, Pious and Religious, and that he shall change his Habitation or Dwelling for Profit and Advantage.

XXI. But if these Crosses are crooked or ill shaped, or crossed by other Lines, they signify the contrary to what is said in the former *Section*.

XXII. If the *Mensa* or *Quadrangle* is little and narrow, it signifies one of a poor Spirit, extreamly Covetous, Cruel, Furious and Unmerciful, False, Deceitful, Mis-

chievious and Quarrelsome, and in a word, one of a very evil Life and Converſation.

CHAP. XXIII.

Of the Fingers.

I. OVerthwart Lines in the uppermoſt Joynt of the *Index* or fore Finger, ſhew Inheritances; but ſuch in the middle Joynt, ſhew a Subtil Perſon.

II. Right Lines running between thoſe Joynts in the *Index*, ſhew in Women a plentiful Iſſue; in Men a nimble Tongue.

III. If they be in the firſt Joynt near *Mons Jovis*, they ſhew a pleaſant and courteous Diſpoſition, and a Man of a generous Soul.

IV. But a Woman who hath a Star in the ſame place, is Laſcivious and Whoriſh.

V. Little Gridirons in the firſt Joynt of the *Medius* or middle Finger, an unfortunate and melancholy Perſon: but equal and parallel Lines ſhew Fortune by dealing in Metals: and that a Woman ſhall have a Son, bleſt with Church Preferment.

VI. A Star there ſhews a violent Death by Drowning or Witchcraft, or the like: but a Star or Stars in the firſt Joynt of this Finger of *Saturn*, in a Womans Hand, ſhews Barrenneſs: ſo alſo if a Croſs or Croſſes be found there.

VII. A groſs Line riſing from the *Mons Saturni*, through the whole Finger to the end thereof, ſhews a meer Fool or Mad Perſon.

VIII. If the Finger of *Saturn* is plain and ſmooth, without Sections or Wrinkles, it ſhews a plain, ſimple, honeſt Man, Laborious, Diligent, and without Fraud or Deceit.

IX. In the *Annular* or Ring Finger, a Line riſing from the *Mons Solis*, ſtraight through the Joynts thereof, ſhews Honor and Glory.

X. In the firſt Joynt of the *Annular*, equal Lines ſhew Treaſure and Honor; overthwart Lines, the Ha-

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tred of Kings and great Men; but if interfected, their Envy shall be abated.

XI. In the *Auricularis* or little Finger, a Star in its first Joynt, near the Mount thereof, shews one of Ingenuity, and a good Orator.

XII. Evil Characters and obtuse Angles, the contrary: those unfortunate Signs in the first and second Joynts, shew a Thief: in the last Joynt, one perpetually Inconstant.

XIII. Some Authors predict the number of Wives or Husbands, by the number of little Lines in the outmost part of the *Mons Mercurii*; but in my Opinion those things ought rather to be sought out in the Mount of *Venus*.

XIV. And as in the Mounts good or evil Characters are Omens of good or evil Fortunes, so also on the Fingers they signify the same.

XV. The first Joynt near the Mount shews the first Age; the second Joynt, middle Age; and the last Joynt, old Age: but it is our Opinion, that the Directions of the principal Significators in every Geniture, more properly demonstrate the times in which the Good or Evil signified by those Marks or Lines, may probably happen.

CHAP. XXIV.

Of the Thumb.

I. A Line surrounding the *Pollex* or Thumb, in the middle Joynt, shews the Person shall be Hanged.

II. A Line passing from the upper Joynt of the *Pollex* to the *Cardiaca* or Life Line, shews a violent Death, or danger by means of some Married Woman.

III. The first and second Joynts free from Incisures, shew a careless, slothful, idle and vain Person.

IV. Equal Furrows drawn under the lower Joynt, shew Riches, Wealth, Possessions and Inheritances.

V. Overthwart or croſs Lines, clear and long, underneath the Nail and Joynt of the Thumb, ſhew Riches and Honor.

VI. If a Line paſſes parallel to the Root of the Thumb, below it, or upon the *Mons Veneris*, it denotes the Perſon to be *Venereal* and Luſtful, and to abound in Riches; and the nearer it comes to the *Linea Vitalis*, the better and the more Good.

VII. If in the laſt Joynt of the Thumb, a little under the Nail, or near the Joynt, Lines appear bright, clear and well compoſed, they preſage Riches and Honors, good Fortune falling even as it were into their Mouths.

VIII. A Line going from the top or upper Joynt of the Thumb, running down towards the Line of Life, but cut or broken into ſeveral parts, ſhews violent Death by ſome Weapon, Duels, Quarrels, *&c.*

IX. Certain croſs Lines, broken and imperfect, and irregular Marks at the Root of the Thumb, ſhews an Ambitious, Prodigal, Boaſting, Libidinous Perſon.

X. If a Woman has in the firſt Joynt of her Thumb, under the Nail, three or four Lines, interſecting and croſſing one another, ſhe will be Wounded, and be in danger of Death by her Husband.

XI. They who under the ſecond Joynt of the Thumb have many and little Croſſes, will lead Virtuous, Good, Holy, Pious and Religious Lives.

XII. Two Lines under the ſecond Joynt, prenote a Perſon Quarrelſome, Croſs, Vexatious, Litigious, Unfaithful, Petulant, Fooliſh, Wanton and Shameleſs: the ſame alſo if Branches are found in the ſame place.

XIII. Rimulaes, Chinks, Clefts or Lines, more or leſs, circumſcribing the Thumb, near the firſt Joynt thereof, ſhews (for the moſt part) Death by Hanging.

XIV. Three or four Lines appearing equally, or croſſing under the firſt Joynt of the Thumb, ſhew Riches and Honor in Youth; but if they are above the Joynt, they give the ſame in riper Age or middle Age: but if they be found near the ſecond Joynt, in old Age.

XV. In a Woman thoſe Lines ſo appearing, ſhew her to be Falſe and Deceitful, and one Ill-conditioned.

XVI. One, two or more Stars on the firſt Joynt of the Thumb, ſhews one of a ſweet and gentle Nature, of good Conditions and Manners, Facetious, Pleaſant and Merry,

Merry, affecting and delighting in *Venus* and all sorts of *Venereal* Sports, Pastimes and Pleasures.

CHAP. XXV.

The Good and Evil Lines, Marks or Characters.

I. THE good Lines, Marks or Characters, are Parallels, as = or || double or treble, and the like: Crosses, as ⊹ or ✕ double, and the like: Stars, as the *Sextile* Aspect ⚹ or the like: Ladders-steps and Quadrangles, as □ or ▭: the *Trine* Aspect, as △: Angles, as the right or acute, or a Mult-angle, *&c.* the Characters of *Jupiter* and *Venus*, as ♃, ♀, and other the like a kin to these.

II. The unfortunate and evil Characters are deformed, irregular and uncouth Figures, broken Lines, crooked Lines, Gridirons, the Characters of ♄ *Saturn* and ♂ *Mars*: the *Opposition* ☍: irregular Circles, obtuse Angles, and such-like.

III. *Lastly*, As the quantity of Lines considered in their length and depth; their *Quality*, in their Shape and Complexion; their *Action*, in touching or cutting other Lines; their *Passion*, in being touched or cut of others; and their *Place* in which they are posited or located, ought to be observed; so also their time of appearing or disappearing ought not to pass our Cognizance.

IV. *For it is most certain, that some Lines are prolonged to certain Years of our Age, others some shortned; sometimes they wax pale, sometimes grow red; some of one shape quite vanish, while others of another shape rise: now the Cause without doubt is the various Progressions of the Aphetical places in the Geniture, to their various and contingent Promissors, to the Influence of which, the whole Man it self is subjugated.*

V. *And therefore it behoves the Industrious and Studious Artist, not to determine all things at first sight, for no Man can attain the knowledge of all Particulars at one Inspection; but yearly to make new Observations, as the Person encreases in Age.*

VI. *Moreover it is to be observed, that these Judgments be not delivered simply alone, but by being compared with the Rules delivered in* Chap. I. *aforegoing, from whence many other Prognosticks more than what we have here mentioned will arise, to the infinite Pleasure of the Artist, and Satisfaction of the curious Inquisitor.*

CHAP. XXVI.

Containing certain Chiromantical Aphorisms.

I. INcisures and Crosses upon the Mount of *Saturn*, shew some light Adversities and Diseases.

II. Two, three or more little Lines on the first Joynt of the little Finger, shew the Dominion of *Mercury*, and an acute Wit.

III. The *Mons Veneris* notably furrowed, shews Wantonness, and one that shall obtain many Loves.

IV. A large and broad *Mensa*, shews a free and liberal Soul: and if it be adorned with good Figures, an Accumulation of much Treasures and Riches.

V. The *Saturnia* only touching the *Epatica*, shews one Ingenious, and of long Life.

VI. *Mons Jovis*, well adorned with good Figures, demonstrate the height of Honor.

VII. A Cross near or upon the *Ferient*, shews auspicious and profitable Journies, and Honorable.

VIII. A Cross in the *Mensa*, under the *Annular*, shews Honor, Glory and Treasure: but if any of its Lines be cut by the *Epatica*, it shews loss of Substance in old Age.

IX. Two, three or more parallel Lines upon the *Ferient*, shews many profitable and pleasant Journies.

X. Two or three parallel Lines upon the *Mons Mercurii*, enclines to all manner of Arts and Sciences, and gives a profound Wit.

XI. The *Via Solis* not hurt, shews Honors, but if it be cut or touched by other Lines, some Impediment therein; if the obstructive Line arises from the *Mons Mercurii*, by some *Mercurial* Man or Thing, or the like;

if

if from the *Mons Lunæ*, from some Woman-kind, the common People, or some vulgar Business: if from the *Mons Saturni*, from some old Man or Men, some worn-out Priest or Prophet, or Informer, or other *Saturnian* Matter: the like judge if it arises from other parts.

XII. Parallel Lines upon the *Mons Saturni*, falling upon and cutting the *Mensal* Line, shews Sickness, Poverty and Want in old Age.

XIII. The cutting of the *Vital*, shews Diseases about those Years which the parts of the Line cut signify.

XIV. If the Line cutting the *Vital* comes from the Triangle of *Mars*, it shews Wounds, or a burning Fever, or the *French*-Pox: if it comes from the *Saturnia*, it shews Melancholy, a Consumption, or a Fall, *&c.*

XV. The *Soror Martis* very conspicuous and eminent, shews Boldness and Courage, and one that will be fortunate and formidable in War.

XVI. An excellent good *Cephalica*, shews an incomparable Ingenuity.

XVII. A Cross upon *Mons Lunæ* declares Fruitfulness and many Children; as also safe Delivery in Child-bearing.

XVIII. The *Saturnia* rising obliquely from the *Rasicta* to the *Mons Saturni*, shews Labor and Sorrow, and one of a covetous Disposition.

XIX. A Line arising from the middle of the Hand, cutting the *Epatica*, and ascending to the Extremity of the *Mensal*, under the *Mons Mercurii*, shews in the declining Age, an unfaithful Friend or Friends, from whom shall come Loss and Detriment.

XX. A Cross or Star near or upon the *Epatica*, shews some eminent Good.

XXI. As the *Mons Saturni* afflicted foreshews Diseases, so those Diseases are chiefly the Gout or a Consumption: if the Line afflicting the *Mons Saturni* arises from the Triangle of *Mars*, it declares either an Hectick or the Stone.

XXII. The *Cingulum Veneris* generally shews Intemperance; but if it be intersected or cut, it is a positive Sign of Sensuality and Lasciviousness; and that the Person shall suffer in Reputation and good Name, and not without cause; and oftentimes foreshews want of Issue.

XXIII. The

XXIII. The Triangle of *Mars* being perfect, the *Saturnia* extended only to the touching of the *Epatica*, the *Cephalica* continued to the *Mons Mercurii*, and the *Via Lactea* very fair, are firm Arguments of one exceeding Fortunate.

XXIV. Parallel Lines drawn from the Mounts of *Saturn* and *Sol*, to the *Mons Lunæ*, shews encrease of Fortune and Substance in Foreign Countries, and in Travelling; as also from some eminent Lady or Ladies, Women-kind, the common People, and things *Lunar*.

XXV. The *Mensal* cutting the *Mons Jovis*, shews one Passionate, and full of Wrath: if the same be cut under the *Mons Saturni*, by a short and thick Line, it shews some grievous Distemper in the Bowels and lower part of the Belly.

XXVI. The *Via Lactea*, arising from the *Restricta* and *Vital*, shews an old Age full of Tranquility; and so much the more, if the end thereof upon the *Mons Lunæ* be adorned with a Cross or Star, or parallel Line.

XXVII. The *Epatica* enclined towards the *Restricta*, (thereby making a narrow Triangle) makes one not over-Wise, yet Covetous.

XXVIII. A Line coming from the *Vital* into the *Triangulum Martis*, making a Cross with the *Saturnia*, shews Wounds and danger of Life by Thieves, and such-like: the same Cross shews Fevers also.

XXIX. The same is signified if the *Mensal* be conjoined with the *Epatica* by any intervening Line.

XXX. A Cross or Star on the upper part of the *Mons Veneris*, shews unlawful Loves and a Letcher: this is the more confirmed if the said Mount be well adorned with Furrows.

XXXI. A Sister joined unto the *Saturnia*, confirms its Significations double.

XXXII. The *Cephalica* extended even to the *Mons Mercurii*, shews Eloquence, a ready Wit, and much Ingenuity.

XXXIII. If the *Via Solis* appears not in the Hand, the Favors of Princes and great Men will not be easily attained.

XXXIV. A Line running from the *Vital* to the *Mons Jovis*, (but especially passing through the *Vital*) shews Great-

Greatness and Honor, and that sometimes to come by Women-kind, or by Marriage.

XXXV. The *Mensal* projecting little Branches towards the *Ferient*, under the *Tuberculum Mercurii*, presages Poverty.

XXXVI. A Line falling from the Intervals of the *Mons Saturni & Jovis*, threatens a dangerous Wound in the lower part of the Belly.

XXXVII. The *Vital* dissected by a Line from the *Mons Saturni*, shews a dangerous *Saturnian* Disease; from the *Mons Jovis*, a Disease of his Nature; from the *Mons Solis*, a *Solar* Disease; from the *Mons Mercurii*, one Whimsical, or afflicted with a *Mercurial* Distemper; from the *Triangulum Martis*, a *Martial* Disease, as some Wound or burning Fever; from the *Mons Lunæ*, Madness, Dropsie, or some other *Lunar* Disaffection.

XXXVIII. The *Mensal* or Line of Fortune cut by a Line from the *Mons Jovis*, shews Loss or Damages by things or Persons *Jovial*; by a Line from the *Mons Saturni* or *Linea Saturnia*, by things or Persons *Saturnine*; by a Line from the *Mons Mercurii*, by Scriveners, Petty-Foggers, and things or Persons *Mercurial*.

XXXIX. A Line running from the *Mons Saturni* to the *Mons Lunæ*, parallel to the *Vital*, shews wonderful Preferment and Dignities, and a Person Formidable, but not without great Envy.

XL. The *Soror Martis* running through the *Vital* to the *Mons Jovis*, shews the ☌ or other Aspect of ♃ and ♂ in the Geniture.

XLI. The *Restricta* not broken or cut, but continued, and of a good color, argues Riches and a healthful Constitution of Body.

XLII. The *Cephalica* having a Sister, confirms the Significations thereof, let them be what they will; and if the said Sister reaches to the *Epatica*, it shews one Crafty and Subtil, and excellent in managing of Affairs.

XLIII. Good Lines upon the *Mons Solis* being cut, shews Honors, but full of Troubles.

XLIV. Parallel Incisures on the *Mons Lunæ*, tending to the place of *Mars*, shew long Journies.

XLV. The *Epatica* extreamly produced, argues a very long Life.

XLVI. A

XLVI. A Croſs in the utmoſt part of the *Menſa* near the *Ferient*, and another in the *Cephalica* near the *Reſtricta*, denotes a plentiful Life in old Age, and many ſucceſsful Journies.

XLVII. A Croſs in the *Cavea Martis* ſhews an Inclination to Arms and Martial Diſcipline, and ſometimes Wounds.

XLVIII. The *Saturnia* whole, and extended through the *Epatica* and *Menſal*, ſhews a happy Succeſs and Event of Actions, and one of profound Cogitations.

XLIX. A Line coming from the *Mons Jovis* to the *Mons Veneris*, (not cut by any evil Line) preſages a great Fortune by Marriage.

L. A Croſs juſt above the *Reſtricta*, between the *Mons Veneris* and the *Mons Lunæ*, ſhews Tranquility and Happineſs in old Age.

LI. The *Menſal* full of Branches, (almoſt like a Herring Bone) and they pointing towards the *Mons Jovis*, eminently declares an increaſe of Riches.

LII. The Character of ♃ *Jupiter* in the *Menſa*, under *Mons Solis*, ſhews Preferment Eccleſiaſtical.

LIII. Parallel Lines in *Triangulum Martis*, pointing towards the *Ferient*, argue Felicity and much Good.

LIV. A Croſs or Star upon the end of the *Saturnia*, near the *Reſtricta*, ſhews Uprightneſs of Mind, one Courteous and Peaceable, and obtaining a happy and pleaſant old Age.

LV. A Line from the *Vital* falling upon and cutting the *Epatica*, ſhews Shortneſs of Life, and an hot Liver.

LVI. The *Saturnia* falling upon the *Mons Saturni* to the *Mons Lunæ*, ſhews Adverſities and ſecret Enemies, and if it then turns back like a Hook towards the *Mons Mercurii*, it ſignifies Captivity or Impriſonment.

LVII. The *Cingulum Veneris* cut by Lines from the *Mons Saturni* or *Mons Solis*, denotes Diſeaſes and Hurts by Laſciviouſneſs.

LVIII. The *Via Solis* cut by the *Cingulum Veneris*, brings a Stain upon the Honor by ſome Woman-kind.

LIX. Parallel Lines from the *Mons Veneris* to the *Mons Mercurii*, ſhews a Conjunction or other Aſpect of *Venus* and *Mercury* in the Geniture, and ſignifie great Eloquence.

LX. A

LX. A crooked Line falling from the *Mons Saturni* into the *Cavea Martis*, threatens a Fall from an high place or Drowning; and this so much the more eminently as the Line is more crooked.

Qui in manu omnium hominum signa posuit, ut cognoscerent opera ejus singuli, Job 37. 7.

Libri Noni Finis.

POLY-

POLYGRAPHICES

LIBER DECIMUS.

Of Painting and Coloring, or Staining *Glaſs*, *Enamel* and *Gems*.

SECT. I. *Of* GLASS.

CHAP. I.

Of Salts for Glaſs Works.

I. THE Art of making Glaſs we ſhall not propoſe in this Work; but in regard ſome of the Ingredients, which go towards its Compoſition, may be of Uſe in ſome parts of the following Diſcourſe, we ſhall do our Endeavor to ſhew you the Production of ſeveral of them in this place: of which the firſt thing which is neceſſary to be known, is the proper SALT, which is uſeful for the making of Glaſs, Cryſtal, Enamel and Gems.

II. This Salt is nothing elſe but a *Sal Alkali* or Pot-Aſhes. *Alkali* is an *Arabick* word, as the Particle *Al* diſcovers; and *Kal* in that Language is *Salt*: but now, Artiſts call it by many other Names, as *Polverine* or *Pulverine*, *Rochetta* and *Soda*.

III. Theſe are all the ſame thing, and made of the ſame Matter, but do each differ in Goodneſs according to the Place the Matter comes from, and the Order or Method of making it.

IV. The

IV. The Matter of which this Salt is made, is the Herb *Kali*, called also *Soda*, *Salicornia* and *Salsola*, from its yielding a vast quantity of Salt: as also from *Alga* or *Kelp*, which is *Sea-wrack* or *Sea-weed*, called also *Sea-thongs* or *Sea-laces*.

V. The Goodness of this Herb is according to the Places of Growth it is taken from; that which grows on the Coasts and Banks of *Syria*, *Ægypt*, the *Levant*, &c. is the best: that which grows on the Coasts of *Spain*, *Italy* and *Venice* is the next best: that which grows on the Coasts of *France* is worse: but that which grows about the Mouth of the *Thames*, and other Maritime places of *England*, is of little or no worth at all.

VI. Of this *Kali* there are several sorts, most of which are good for nothing, but fly away in smoak, one of which is the *Kali Spinosum*, which is nothing fit for this Purpose at all.

VII. All sorts of Ashes which come from the *Levant* or *East* are called *Pulverine*, because it is in Pouder: but that which is brought in hard Lumps, like Stone, is called *Rochetta*; and this is better than the Ashes; for these Lumps, when they are great and hard, yield a whiter and sharper Salt than the Pouder and little bits which are less.

VIII. This *Rochetta* which is made in *Syria*, *Ægypt* and the *Levant* has a great deal of care taken in its Preparation; they first of all make a *Lixivium* of the Ashes they first make, with which they sprinkle the Herbs they are to Burn, after their having dryed them; and thus they continue sprinkling them each time with new Lye, by which means they coagulate into great Lumps, and very hard, like Stones, making very sharp Ashes, from the abundance of Salt wherewith they are impreguated, by the continual Addition of the *Lixivium*.

IX. *Soda* which comes from *Ægypt* and *Spain* is made of the same Herb *Kali*: it is cut down in the midst of Summer, when it is in its full Vigor, and being dryed in the heat of the Sun, it is gathered on heaps, and burnt on Grates made of Iron, the Ashes falling thro' them into a Pit underneath, where they grow into a hard Mass, and are thence taken and laid up for Use, and called *Soda*.

X. That

X. That *Soda* which comes from *Spain* and the *Levant* is good; where, by reason of the heat of the Climate, *Kali* grows in great quantities, and is green all the Winter: But that *Soda* which comes from *Ægypt*, where there is never any Rain, is the strongest, and makes the strongest and sharpest Salt.

XI. *Polverine* on the contrary has no such Preparation, but the Herb is only Burnt on Iron Grates, and afterwards when they are cooled, they are gathered up, and kept in proper Vessels for Use: these Ashes have indeed less Salt than *Rochetta*; but for the quantity, it has not any the less Virtue and Goodness.

XII. To make the Salt out of *Rochetta*, *Soda* or *Polverine*; you must reduce them all to a fine Pouder, by beating in a Mortar: then take of these poudred Ashes ℔x. Tartar calcined to whiteness ℔j. Water a sufficient quantity: mix them, and boil with a moderate Fire, till the Salt is all extracted, and a third part of the Water is boiled away, often stirring it with a Wooden Ladle: fill the Vessel again with Water, and continue to stir and boil again, till one half is consumed.

XIII. All being cooled, put it out (Liquor and Ashes together) into several well Glaz'd Earthen Pans, which let stand six days, that the Ashes may settle, and the Lye become clear: decant this Lye clear, leaving the Ashes behind; and letting it stand two days longer, it will become very clear: decant the clear Liquor again; and this continue till it is perfectly fine: otherwise it will become purely clear at once, if you will be at the Trouble to filter it thro' brown Paper.

XIV. This pure clear Lye, put into a proper Vessel, and boil over a gentle Fire, to evaporate the Water, till it begins to thicken, and shoot into Salt, which will be in about 24 hours time, when the Salt will begin to appear white on the Surface of the Vessel: then take a Skimmer full of holes, and take out the Salt, letting the Lye drop away from it into the Vessel: put this Salt into the former Earthen glaz'd Pans, the better to drain the Lye from it; which put again into the former Lye, and boil it again in like manner, till you have gotten all the Salt: but as soon as you see the Salt begin to shoot, let the Fire be gentle; for a great Fire will cause it to stick to the bottom, and so burn it, which it ought not

to

to do. If this Work be done in a Copper, it ought to be well lin'd with Lead or Tin, because the sharp Lye will otherwise eat away the Brass or Copper, and besides spoil the color of the Salt.

XV. This Salt thus drained, put them into little Wooden Fats, the better to clear it of all its moisture; and beating of it grosly, dry it perfectly in a Furnace gently heated: being dryed, beat it to a gross Pouder in a Mortar, and keep it in a dry Vessel and place, free from Dust, to make Crystal Frit of.

XVI. We mix such a proportion of the Calx of Tartar with the *Polverine*, &c. to make the greater quantity of Salt, because it makes a stronger Attraction of the Salt out of the *Polverine* Ashes, and also makes the Salt whiter too: and by this means we get 8 or 9, and sometimes 10 pounds of Salt out of 30 pounds weight of *Polverine Levant*, without which such a quantity could not be extracted; and besides, it makes finer Crystal and more transparent. Where note, That the Tartar ought to have 5 or 6 hours Calcination, for so it becomes whiter and more easily dissolvable in Water.

XVII. *A Salt also for this Purpose is made of Fern, which will make a very fair Crystal:* It grows in most Kingdoms of *Europe*, *Asia* and *America*, and that in a vast Plenty. They use it in *Spain*, and the Ashes or Salt they make of it, they call *Barilla* or *Barillia*.

XVIII. It is to be cut down when in its prime; *viz.* from the end of *May* to the middle of *June*, and in the encrease of the Moon, because then it yields more, better and whiter Salt. It must not be used when it is withred and dryed as it stands, for then it will yield but very little Salt, and that not good neither: but being cut down at its full growth, and dryed as *Kali*, and so in like-manner burnt, it yields very good Ashes; and by the same Method, a very fine and good Salt.

XIX. And indeed any Herb or Plant which abounds with a good quantity of *Alcalious* Salt, will serve for this Purpose, as *Alga* or *Sea-weed*, which is one of the most excellent things next to *Kali*; also all Rushes, Reeds and Sedge, which grow in Marshes, Pools and Ditches of Water, and Banks of Rivers; to which add bitter Herbs, as *Carduus Ben. Centory, Gentian, Hops, Southern-wood, Worm-wood* Marsh and Common; as also *Tobacco*, the

Body of the Plant and its Stalks; with all sorts of Milky Plants, as *Dandelyon*, *Celandine*, *Sow-thistles*, *Spurges* or *Tithymals* of all sorts, the *Fig-tree*, *Vine-branches*, &c.

XX. But *Leguminous* Plants abound with this Salt more than any other, as *Bean Stalks* and *Cods*, *Peaſe Straw*, &c. to which add the Fruit or Seeds, as *Beans*, *Peaſe*, *Tares*, *Lentils*, *Lupins*, &c. but the Salt from the *Stalks and Cods of Beans*, is an admirable thing for the making of *Cryſtal*.

CHAP. II.

Of making of Frit for Cryſtal.

I. TO make this *Frit*, you muſt have a great quantity of *Tarſo*, which is a Matter fuſible, and capable of being rendred white and tranſparent by force of Fire: and this Matter is either white and tranſparent Sand, or ſome ſorts of Stones: *Agricola lib.* 12. ſays white Stones when melted, are the beſt for this Purpoſe: and *Pliny* ſays, That of ſuch-like Stones they make Glaſs in *India* moſt admirably tranſparent, that nothing elſe is comparable to it.

II. The *Venetians* and *Italians* make Glaſs in the Iſle of *Muran* of a white *Flint*, which they have out of the River *Ticinus*, where there is a vaſt quantity of them: and they are found alſo in the River *Arnus*, both above and below *Florence*.

III. In *Tuſcany* they uſe a rich Sand full of Salt, which is found in the Vale of *Arnus*: alſo a hard white *Marble*, which almoſt every Body knows there, found at the foot of the Mountains of *Piſa*, *Sarravezza*, *Maſſa* and *Carrara*; of all which they make very white *Tarſo*.

IV. *Ferrandus Imperatus lib.* 24. *cap.* 16. ſpeaks of the *Glaſs Stone* called *Quocoli*, which is almoſt like *white Marble*, but ſomething tranſparent and hard as a *Flint*, of a light green color like the *Serpentine Stone*, and having Veins like *Venice Talck*: this being put into the Fire, looſes its Tranſparency, and becomes more white and light,

light, will not turn into Lime, but in length of time be converted into Glaſs.

V. And it is true, that all white and tranſparent Stones, which will not become Lime, are fit for making Glaſs: theſe, and all Fire Stones, and thoſe which will ſtrike Fire, when they are calcined and reduced to an impalpable Pouder, and ſifted thro' a very fine Sieve, will make a moſt admirable fine and pure *Cryſtal*.

VI. But the Art is, to reduce the *Tarſo* to ſuch a fine and impalpable Pouder, the Trouble of which has cauſed the Glaſs-men to give it off, and to uſe, in the place of it, pure white fine Sand, becauſe there is little or no Expence in its Preparation, it needing only waſhing clean, drying and ſifting.

VII. However, Flints have been found better and more fine, and indeed, being prepared into *Tarſo*, make a more pure ſort of *Cryſtal*; and are indeed to be choſen, if you would make counterfeit *Gems* in Perfection.

VIII. To make the *Frit*, you muſt do thus. ℞ *Tarſo* prepared, or fine white *Cryſtaline* Sand ℔xx. Salt of *Pulverine* as before prepared ℔xiii. mix well together, put them into a Furnace to be calcined, making the Fire gentle the firſt hour, and continually ſtirring it with an Iron Rake, that the Ingredients may the better incorporate.

IX. The next five hours encreaſe the Fire to a very ſtrong heat, always ſtirring the Matter with a Rake; after that time is over, (if the Fire has been hot enough) the Frit may be reduced to Lumps of the bigneſs of a Nutmeg, which in breaking will be light and white, (if it is enough) without any yellow in it.

X. If you find it yellow or yellowiſh, you muſt put it into the Furnace again, till it looſes that yellow color: now, by how much the more the Maſs is ſtirred and calcined in the Furnace, by ſo much the more will it be refined, and alſo melt the more eaſily in the Pots.

XI. This done, take it out of the Furnace, and let it cool; then lay it on Boards in a dry place, for otherwiſe the leaſt wet will diſſolve the Salts into Water, and leave nothing but the *Tarſo* behind, which of it ſelf can never be made into Glaſs; and then cover it from Duſt, for it is as white as Snow.

XII. During the time it is making, you must see whether the Proportions of the Materials are right or not: put some of the Frit into a Crucible, and afterwards on a clean piece of Glass, so will you see whether it is well made or not, by its joining together and being clear.

XIII. If it is too hard or too soft, you must either encrease or diminish the quantity of the Salt, which a little Experience and some Tryals will soon make you so expert, as to do it at first sight.

XIV. If it is well prepared and kept in a dry place, it will keep good three or four Months, and may possibly grow better, and be more fit to unite together.

XV. If you make the Salt of *Pulverine* simple, without any Addition of calcined Tartar, it is true, that it will yield less Salt; but it will make a very noble Crystal, and full as fine as the truly natural, fit for the most exquisite Uses, as counterfeiting Gems, *&c.*

XVI. From green *Fern*, Ashes or *Pulverine* may be made, and from thence a Salt, as before is directed, which being purified and mixed with *Tarso* or very fine Sand, it makes a very fine *Frit*, which produces a very fair *Crystal*, much better than the ordinary, which will be strong, and bend more than the Nature of *Crystal* will mit, so that it may be drawn into fine Threads.

XVII. With this *Frit* may be made a fine Gold color, (if it be without any mixture of Salt of Tartar) which will be incomparably fine; of which all sorts of Vessels may be made.

XVIII. *Frit* made also of fine Salt of *Pulverine*, (without mixture of any sort of *Tartar*) will make *Crystal* of a glorious Golden color; but the Salt must be prepared and purified as is before directed: if it should be made of Salt of *Pulverine* with *Tartar*, the color would be imperfect, and be wanting of its true Splendor and Beauty.

XIX. *Frit* made of *Pulverine*, makes ordinary white Glass: that which is made of *Levant Rochetta*, makes a very fair *Crystal*; and that which is made of *Barillia* of *Spain*, (being somewhat unctuous) makes a Glass not so white and fair, but enclining to an azure or bluish color.

XX. To make ordinary *Frit* of *Pulverine*, *Rochetta* and *Barillia*. ℞ *Barillia*, &c. ℔xx. *fine* Tarso ℔xvij. *or* xviij.

making

making the Proportion according to the goodneſs and fatneſs of the Barillia: *add to theſe of fine pure Sand* iiij. *or* iijſs. *ſo will you have a Frit which will yield a very white and fair Glaſs.* This *Frit* being calcined in the Furnace, pour upon it a Pail of cold Water, and ſo put it in a cold and moiſt place; after which, from time to time, ſprinkle it with a ſmall or weak Lye for two or three Months, ſo will it be as hard as a Stone, and not to be broken without a Hammer.

XXI. This *Frit* will eaſily melt, and make a very white Glaſs, almoſt like *Cryſtal*, but eaſier to work, which is cauſed from the Salt communicated to it by the Lye: if you have none of this Lye, common Water might do, altho' not ſo well.

XXII. This ſmall Lye is made from the Fœces of the ſtrong *Lixivium*, of which the Salt of *Pulverine* is made, as we have taught in *Chap.* 1. *Sect.* 12, 13, 14, *&c.* aforegoing, thus: *Fill the ſame Veſſels with fair Water boiling hot, mix them well, and let them ſtand ſo long as to extract all the remaining Salt; after which, either decant, or elſe with a Ladle take out the Water, without diſturbing the Fœces at bottom: let it ſtand to ſettle, then decant the clear and filter it, and keep it for the aforeſaid Uſe, it being pretty ſharp and full of Salt.*

CHAP. III.

Of Artificial Cryſtal.

I. *THE Preparation of* Manganeſe. Take *Manganeſe* or *Magneſia* in little pieces, put them into an Iron Ladle or Crucible, which put into a Reverberatory Fire, and when it begins to whiten, ſprinkle it with good Vinegar; afterwards beat it, and waſh it whilſt it is hot, (as you will be taught hereafter to do *Zaffer*) then dry it, reduce it into Powder, ſift it, and keep it in a Glaſs cloſe ſtopt for Uſe. Thus is *Manganeſe* prepared.

II. This Mineral is called *Manganeſe* or *Magneſia* from its Reſemblance in color and weight to the *Mag-*

nes or *Load-ſtone:* the beſt is eaſy to break, and very ſhining: both greater and leſſer pieces of it are very full of a Rocky Matter.

III. *Virgil* ſays it gives both a blew and a green color: his Commentator ſays it may be called the *Soap* of *Glaſs*, and that it will tinge Glaſs red, purple and black; but we uſe it alſo to make *Glaſs* or *Cryſtal* purely white or colorleſs: however, it is the moſt univerſal Ingredient in all ſorts of Colors for Glaſs-works.

IV. This *Magneſia* is a kind of Load-ſtone, as *Albertus* and *Caſalpinus* will have it; and it is thought to be the ſame kind of *Load-ſtone* of which both *Agricola* and *Pliny* treat, who ſay, That it attracts the Liquor or Tinctures of Glaſs into it ſelf, that purifies it, and of green or yellow, makes it white; and that afterwards the Fire conſumes it.

V. *Magnes* was a Name given to the *Load-ſtone* from the place where is was firſt found; it was in the Hills of *Magneſia*, a Country of *Lydia* near *Macedonia*, as *Lucretius* has it.

Quem Magneta *Vocant patrio de Nomine Graii,*
Magnetum *quia ſit Patriis in Montibus ortus.*

The *Grecians* from the Place did give it Name,
Becauſe from the *Magneſian* Hills it came.

And ſo this our Matter or Stone, being ſaid to be a Species of the *Load-ſtone*, might poſſibly obtain the Name *Magneſia*, ſince the Country called by that Name alſo produces it.

VI. *Pliny*, it is true, mentions ſeveral ſorts of *Load-ſtones*, and gives us their Differences and the Places where they grow: but this our *Magneſia*, which ſerves to tinge Glaſs, comes to us from nearer home. It is found in great abundance in *Germany*; in *Cantabria* in a ſcattred Rock; in *Italy*, and in the Mountains of *Viterba*, and in the State of *Genoa*, (which contains much Iron, and gives a black color:) but that of *Piedmont* is beſt known, and the *Venetians* hold it in ſuch eſteem, that they uſe no other, for that it gives a very fine color, takes away all Greenneſs, and in a due Proportion makes the Glaſs or *Cryſtal* white. And ſome Years ſince it has been found

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in *England*, at *Mendip-hills* in *Somerſetſhire*, as good as any uſed at *Moran*: and wherever the *Lead Oar* Men find it, they conclude that *Lead Oar* lies under it. This being ſaid,

VII. *To make very fine* Cryſtal, *which ſhall be very white, bright, clean, diaphanous and beautiful.* Take Cryſtal *Frit*, (in *cap.* 2. *ſect.* 8. *ad* 15.) put it into a Pot in a great Furnace, putting into it by little and little, at ſome little diſtance of time, as much *Piedmont Manganeſe*, prepared as above-ſaid, as ſhall be ſufficient: all being throughly melted together, take out the Pot, and put it into a large Earthen or Wooden Veſſel full of cold Water; ſo will the Frit be ſeparated from the Sandiver, which otherwiſe will ſpoil the Cryſtal.

VIII. Put it again into a clean Pot, melt it, and caſt it again into Water; this Work repeat till the Cryſtal be ſeparated from all this kind of Salt: then let it ſtand 5 or 6 days in the Pot in the Furnace, to boil, ſtirring it as little as may be with the Iron, becauſe it is apt to diſcolor it, and make it blackiſh.

IX. Being well boiled and clear, ſee whether it has *Manganeſe* enough, which you may know by viewing it: if it is purely white, it is well; for it is the Property of *Manganeſe*, being added in a due Proportion, to take away the foul and dull green color of the Cryſtal; and to give it a bright and ſhining Whiteneſs, and to perfect it: but if it is ſtill greeniſh, you muſt add more *Manganeſe* to it, and boil it, till it is of a bright and ſhining color.

X. But you muſt add the *Manganeſe*, but by little and little, leſt in perfecting your Cryſtal you ſpoil it, by making it blackiſh, and taking away its Luſtre: there is no exact Rule for this, but you muſt perfect your Knowledge by manifold Obſervations and Tryals.

XI. Few Work-men clear the Materials by caſting the Maſs into Water; but for Eaſineſs ſake, only skim it off when it ſwims on the top, with an Iron Ladle; for which reaſon it many times does not all ſeparate, and ſo the Cryſtal or Glaſs becomes the leſs clear, diaphanous or fine.

XII. When you ſee your Cryſtal is fine and ſhining, then uſe it without delay, to make what Veſſels you deſigned it for: in this Operation your Fire muſt be very

clear, and without Smoak, that it may not foul the Mass; but it ought to be more gentle than for common Glass.

XIII. The Iron Rods also must be clean and well polished, and the Necks or Collets of the Glasses where the Irons touch, must always be kept out of the Pots of Crystal; because Iron always discolors the Mass.

XIV. *To make common Glass white and crystaline.*

Take Frit of *Pulverine*, so will you have therefrom a common white Glass: if to this Frit you add Salt of *Rochetta*, you will have a fair Crystal Glass, which is between ordinary Glass and Crystal: if again to this you had a due Proportion of *Piedmont Manganese* prepared as for Crystal, it will be very fine and crystaline.

XV. But if you would have your Glass very fine, you must always cast the Mass into Water, to bring it to Perfection; which casting into Water must be very exactly observed; for, besides its whitening, it is thereby purified, and has fewer Blisters or Bubbles: after put the Matter into the Pot, and melt it again, and then put it into Water again, repeating this Work so long, till the Mass is made very pure and fine.

XVI. Now, if you mix common Glass ℔xx. with crystaline Glass ℔xx. and with purified Salt of Tartar ℔ij. your Glass and Crystal will be extreamly fine: but you must always beware not to put the Collets of the Glass which have touched the Iron Rod into it, for thereby it will be spoiled: And this note, That the Addition of the Salt of Tartar ℔ij. ought to be when the Frit is in making, that it may the better mix with the other Ingredients.

CHAP. IV.

Colors for tinging Glass and Crystal in general.

I. THere are two principal Minerals used for the tinging of Glass, *&c. viz.* 1. *Manganese* or *Magnesia*, which gives Glass, *&c.* a whitish color, also a dark red or blackish color, according to the Proportion of it, which

which is added to the Maſs, of which and its Preparation we have largely diſcourſed in the former *Chapter*. 2. *Zaffera*, a Mineral coming from *Germany*, which is ſaid to tinge Glaſs, *&c.* blew.

II. What *Zaffer* is, Authors have hardly determined; ſome will have it to be *an Earth*, to tinge Glaſs blew: others will have it to be *a Stone:* others *a mixture* of ſeveral Minerals.

III. There are but few Authors who have treated of it, or ſo much as named it: and thoſe who do ſpeak of it, tell us not what it is, but ſpeak only by gueſs, leaving the ſubject Matter undetermined.

IV. *Cardanus de Subtilitate lib.* 5. calls it a Stone: *There is* (ſays he) *another Stone which colors Glaſs blew, which ſome call* Zaffer. And *Julius Cæſar Scaliger*, who animadverted upon that Book, and alſo wrote a Treatiſe of Glaſs, no ways reproves him for calling it ſo.

V. After the former Authors, *Cæſalpinus lib.* 2. *cap.* 55. accounts it among Stones: *There is* (ſays he) *another Stone, coloring Glaſs blew, called* Zaffer: *of which, if too much be added, it turns it from an Aſh to a Purple color: it is heavy and brittle, and melts not of it ſelf, but with Glaſs, runs like Water.*

VI. *Ferrantus Imperatus lib.* 28. *cap.* 8. ſays, that this Stone is very like the *Load-ſtone* and *Manganeſe*; but *Agricola* makes no mention of it, becauſe it is very probable it was unknown to him.

VII. *Anſelmus Boetius*, tho' he has given us a large Hiſtory of all ſorts of Stones and Gems, yet has not enumerated *Zaffer* among them, notwithſtanding it is brought from *Germany*. *Pometus* in his general Hiſtory of Drugs, makes mention of a Mineral brought from *Surat*, of a blewiſh color, which he calls *Zafer*, *Safre* or *Sapher*, which probably may be the ſame, or of the ſame kind, *for that* (ſays he) *it will tinge Glaſs blew.*

VIII. *Merret* ſays *Zaffer* is a Compound, but neither of Earth nor Stone; not mixing at all with Water, nor breaking by ſqueezing it between the Fingers; and that it is a Secret whoſe Compoſition was found out by a *German.*

IX. But ſince that Minerals can only tinge Glaſs, and no other Materials, except Metaline ones, are yet found for that Purpoſe, his Conjecture is, *that it is compoſed of Copper.*

Copper or Braſs, to which he thinks there may be ſome Addition of Sand, with a Proportion of Lapis Calaminaris: and that the blew color it gives is owing to the Braſs, as that of *Manganeſe* is to Iron.

X. The Preparation of *Zaffer*.

Merret *orders it only to be ground to a very ſmall Pouder, and to be ſifted thro' a very fine Sieve or Serce. Neri* has a better Preparation, which makes Glaſs much finer. ℞ Zaffer *in the largeſt pieces, put it into Earthen Pans or Pots, and let it ſtand one day in a Furnace, then put it into an Iron Ladle, to be heat red hot in the Furnace; take it out, ſprinkle it with ſtrong Wine-Vinegar: cool it, grind it fine on a Marble Stone, waſh it with warm Water in Earthen Pans or Veſſels, letting the* Zaffer *ſettle to the bottom, and gently decanting off the Water: ſo will the Foulneſs and Impurity be ſeparated, the* Zaffer *remaining pure at the bottom, which dry and grind again, and keep it in a Veſſel cloſe ſtopt for Uſe.*

XI. The are ſeveral ways of giving Glaſs, *Golden*, *Amethiſt* and *Saphirine* colors, but ſome one way is more particular and finer than the reſt: as alſo to make Frit of Natural or Rock Cryſtal, which is an admirable thing: to do all theſe things, you ought to be very nice in the Proportion, Time, Circumſtances and Accidents of the Materials; for erring in any one of theſe, the whole will be ſpoiled and undone, and different colors than you propoſed will reſult.

XII. *A Milk-white Color.*

℞ good Cryſtal Frit ℔ij. Calces of Lead and Tin *ana* ℔j. *Manganeſe* prepared ʒſs. all being poudred and mixed together, put the Maſs into a Pot heated in the Furnace, and let it ſtand 12 hours: mix it well, and make an Aſſay: if the color is not good, add more of the Calces of Lead and Tin, and mix well, after 8 hours it will be as white as Milk, and fit to work.

XIII. *Another fairer White.*

℞ Pure Cryſtal Frit ℔xx. Calx of Tin ℔iij. *Manganeſe* prepared ʒij. all being poudred, mix them, and put them into a Pot heated in the Furnace for 8 days: then caſt the Maſs into Water, dry it, and melt it again in the ſame Pot: if it is tranſparent, you muſt add to it more Calx of Tin ʒxij. mixing it well with the melted Metal: after 24 hours it will be as white as Snow, and fit to work.

XIV. *A*

XIV. *A noble Black.*

℞ Pieces of Glaſs of ſeveral colors ℔xx. to which add a little leſs than half the quantity of *Manganeſe* as *Zaffer:* put the whole into a Pot in the Furnace: let it ſtand till it is purified, and 'twill be as black as Velvet.

XV. *Another fairer Velvet Black.*

℞ Cryſtal Frit in pouder ℔xx. Calces of Lead and Tin *ana* ℔ij. mix all well together, and put them into a Pot heated in the Furnace: when the Maſs is well melted and purified, add Steel calcined and poudred ℥iij. Scales of Iron from the Smiths Forge poudred ℥iij. which mix well with the Steel, and caſt them in, that the Glaſs may not riſe, but may be the better incorporated: let all reſt 12 hours; during which time, ſtir them ſometimes, and ſo it will be fit to work, and of a moſt excellent color.

XVI. *Another Black fairer than the former.*

℞ Of *Rochetta* Frit ℔xx. Tartar ℥vj ſs. *Manganeſe* prepared ℥x. mix all together, put them into a Pot leiſurely heat in the Furnace, that the Matter may not riſe too much: let it melt, and purify for about 4 days: mix all well, caſt them into Water, the better to purify them; then melt again: ſo will you have a Black of extraordinary Beauty, and much ſurpaſſing the former, fit to be wrought.

XVII. *A Marble Color.*

℞ Cryſtal Frit and work it as ſoon as it is melted, before it is purified, ſo will you have a very fair Marble color.

XVIII. *A Gold Yellow.*

℞ Cryſtal Frit made with Tartar, and not with Sand, parts ij. Frit made two thirds of *Tarſo*, and one third of fine *Pulverine* Salt, part *j.* mix them well. ℞ of this Mixture of Frit ℔xxv. Tartar purified and ſearced fine, *Piedmont Manganeſe* prepared, of each ℥iv. mix all together very well, (for you are not to caſt them on melted Glaſs, as in other Colors:) put this Mixture by little and little into a Pot, put them into a Furnace, letting them ſtand 4 days, but in an ordinary Fire, for fear of riſing and running over: when the Maſs is well purified, it is fit for working into Veſſels, which will be of a fair color.

XIX. *A*

XIX. *A fairer Gold Yellow.*

If you would have it fairer, you muſt put to the former Mixture more of the Pouder, and it will be a delicate Golden color. If you would have the color yet finer, ℞ Cryſtal Frit made of *Pulverine* of *Rochetta*, and the Gold color will yet be more excellent.

XX. *A Granat Color.*

℞ Cryſtal Frit, *Rochetta* Frit *ana* ℔xij ſs. *Piedmont Manganeſe* prepared ʒiv. *Zaffer* prepared ʒij. mix all well together, put them by little and little into a Pot made red hot in the Furnace, becauſe the Glaſs is apt to riſe and run over: after 4 days the Glaſs will be well tinged and purified, and fit to be wrought. You may make the color deeper or paler as you pleaſe, according to the Proportion of Pouder you put in.

XXI. *A Peach Color.*

℞ Glaſs prepared and tinged of a Milk white, melt it well, and add to it ſome *Manganeſe* prepared by little and little, ſtirring it well in, each time, till the color is as fine and perfect as you deſire it. Note, you muſt work the Glaſs in time, otherwiſe the color will be loſt.

XXII. *A Saphir Color.*

℞ Frit of *Rochetta* ℔xxv. *Zaffer* prepared ʒiv. *Manganeſe* prepared ʒij. mix all well together, put the whole into a Pot in the Furnace, letting it ſtand till it is melted and purified: the longer it remains on the Fire, the finer it becomes, having a care to take it out from time to time. Try the color, and either encreaſe or diminiſh it as you think fit.

XXIII. *A finer Saphir Color.*

℞ Choice Cryſtal Frit ℔xxv. *Zaffer* prepared ʒiv. *Manganeſe* prepared ʒij. mix and do as in the former, and it will be far more glorious.

XXIV. *Lapis Lazuli Color.*

You muſt uſe the Matter in *Sect.* 13. aforegoing, and when it is in fuſion in the Pot, add to it by little and little blew Enamel in Pouder, which Painters uſe, mixing it well each time; try it, to ſee if it is right; when it is ſo, let it ſtand 2 hours; ſtir it well, and make another Tryal: if the color is perfect, let it ſtand 10 hours, and mix it again: if it changes not color, it is perfect, and then you may work it: in working of it, caſt in a little Leaf Gold, and it will immediately ſtop the riſing of the Metals,

Metal, (as Sugar will do in boiling Oil) and make it look very like the Natural Stone.

XXV. *An Amethiſt Color.*

℞ *Piedmont Manganeſe* prepared ℔ij. *Zaffer* prepared ʒiij. mix them well together. ℞ Cryſtal Frit well made with *Tarſo* (not Sand) ℔xx. of the foregoing Pouder ʒxx. mix them well together before you put them into the Pot: put the Pot into the Furnace, and put in your Matter by little and little, leſt the Violence of the Pouder break the Pot: let it ſtand and purify 4 days, ſo will it be of a beautiful and glorious Amethiſt or Violet color, proceeding from red and blew. You may either encreaſe or diminiſh the color, according as you make the Proportions of the Frit and Pouder.

XXVI. *A Pearl Color.*

℞ Frit of Natural Cryſtal well purified *q. ſ.* caſt into it at ſeveral times Tartar calcined purely white, mixing all well each time: continue this, and make Tryals, till the Glaſs or Cryſtal becomes of a Pearl color: there is no ſet Rule in this caſe, but Experience by Tryals muſt guide you. When the color is perfect, you muſt preſently work it, and it will be extreamly beautiful; otherwiſe it will ſoon be loſt.

XXVII. *A deep Red.*

℞ Cryſtal Frit ℔xx. calcined Tin ℔ij. pieces of white Glaſs ℔j. mix all well together, and put it into a Pot in a Furnace, that it may purify: being well melted, caſt in calcined Steel in fine Pouder, Scales of Iron from the Anvil in fine Pouder, of each ʒj. mixed together: ſtir well the Glaſs with an Iron Stirrer as you are putting in the Pouder, to hinder it from riſing too much. Put not in too much of the Pouder, leſt you make the Glaſs black, which ought to be clear and ſhining, and an obſcure yellow: then take Copper calcined and prepared (as hereafter in *chap.* 7.) ʒvj. caſt it into the melted Maſs, often ſtirring it for 3 or 4 times, and it will be as red as Blood. The color being perfect, preſently work it, for fear it ſhould become black. If your color ſhould chance to be loſt, you muſt add more Scales of Iron, and it will return. This Work will be tedious and tireſome, but that you muſt bear withal, if you intend this color.

XXVIII. *A Viperine Color.*

℞ Rock Cryſtal of a good Water, crude *Antimony*, *Orpiment*,

Orpiment, *ana* ʒij. *Sal Armoniack* ʒj. make the three laſt into Pouder: put the bits of Cryſtal into a good Crucible, and ſtratify with the Pouder, laying them *ſtratum ſuper ſtratum*: this done, cover the Crucible with another Crucible, having a hole bored thro' its bottom; lute them well together: and when dry, put them into the middle of the Coals in a Furnace, gradually kindle them, that the Crucibles may grow hot by degrees: avoid the Smoak, becauſe it is dangerous, and you ought to go out of the Laboratory, unleſs the Furnace is in a Chimney which has a good Draught: let the Fire kindle of it ſelf, and at length let the Crucible grow cold; then take out the pieces of Cryſtal which lye on the top, and they will have a Ruby color, marked with fine Spots; and thoſe at bottom will have a green Viper color. Separate the other pieces from them which will be of other colors, and poliſh them at the Wheel like other Stones: theſe being ſet with Foils in Gold, will be of a very agreeable color.

XXIX. *To Calcine Rock Cryſtal for an extraordinary Frit.*

℞ Rock Cryſtal, heat it red hot in a Crucible covered cloſe, then quench it in Water, and reiterate this 8 times: dry it well, and on a *Porphyry* Stone grind it to an impalpable Pouder: ℞ of this Pouder p. ij. Salt of *Rochetta* p. *j.* make a Frit as is taught in *cap.* 2. *ſect.* 8. *&c.* then put this Frit into a Pot well heated in the Furnace, and when melted, add to it a fit Proportion of *Manganeſe* prepared by *cap.* 3. *ſect.* 1. afterwards caſt it into Water to purify, by *cap.* 3. *ſect.* 7, 8, 11. and purify it very well at the Fire before you work it. This will ſurpaſs in Beauty all that we have yet ſpoken of.

XXX. *To make Rock Cryſtal of the Color of a* Ruby, Topaz, Opal, *and other Gems.*

Take ſmall bits of Rock Cryſtal, which put into a Crucible, laying them *S. S. S. ſtratum ſuper ſtratum*, with this following Pouder. ℞ Gold colored *Orpiment*, white *Arſenick*, *ana* ʒiv. crude *Antimony*, *Sal Armoniack*, *ana* ʒij. reduce each apart into Pouder, (the 3 firſt by Levigation with Water, the Salt by beating in a Mortar) dry the former, and mix all well together. The ſmall bits of Cryſtal put at bottom of the Crucible, the greater at top, cover it with another Crucible, having a hole bored

bored in its bottom, lute them together, and do in all reſpects as at *ſect.* 28. aforegoing: be ſure that no Air gets in at the Juncture of the Crucibles, for then the Cryſtal will break or flaw, and be good for nothing: when cold take the bits out, and Poliſh them at the Wheel, ſo will they be fair, hard, and like Oriental Stones.

XXXI. *To Work Glaſs.*

Your Metal being in Fuſion in the Pots, take your hollow blowing Iron, dip it in, and take out what you pleaſe, (which will be viſcous and clammy) roul it too and fro upon a Marble, the more firmly to unite the parts: blow gently thro' the hollow Iron, which will raiſe the Metal as blowing does a Bladder: but when you take in Breath, as you muſt often do when the Veſſel is large, take care to take the Iron out of your Mouth, for fear of drawing in the heat, and apply the end thereof to your Cheek: after this you muſt take the Iron and whirl it ſeveral times about your Head, to lengthen and cool the Glaſs; and if needful, you muſt flat the bottom, by preſſing it on a Marble: then giving it to another Work-man, he muſt gently break the Collet, or that part of the Glaſs which ſticks to the blowing Iron, and caſt it by among common Glaſs: then this Glaſs muſt be taken up, by ſticking it to another Iron Rod, to heat or ſcald it at the mouth of the working hole: after which, with a *Ponteglo*, you muſt make it into ſome form of Glaſs: with the *Paſſago* you muſt make the Bowl of the Glaſs; and with the *Procello* you muſt widen it, and make it more hollow and capacious.

XXXII. Then making it plain and even with Shears, cut off what is ſuperfluous; and with blowing, preſſing, ſcalding, amplifying and cutting, form it into what ſhape you pleaſe, putting on Feet or Bottoms when need requires; and with the *Spiei* put on Marblings or Ornaments: this don, a Servant takes them away with an Iron Fork, and puts them into a ſuperior Furnace or Oven, to Anneal them, taking ſpecial care not to break them, being now very brittle.

XXXIII. And as you may thus make all ſorts of Veſſels and Figures whatſoever of Glaſs or Cryſtal, ſo being very tractable or pliable whilſt it is hot, you may mold it, poliſh it, adorn it, and joyn it together piece by

by piece, and indeed make all sorts of Embossed Works, as if it were in Wax, and Paint upon it, and Ting it with any sort of Color, insomuch that you may imitate all sorts of Gems and precious Stones, as in the following Chapters of this Book, we shall shew at large.

See more Colorings of Glass and Crystal in cap. 7. sect. 18, 19, 20, 21, 22, 23, 24, 25, 26 *and* 27 *following.*

CHAP. V.

Of Colors from Lead.

I. *Calcined Lead.*

Put the Lead into a broad Vessel upon a Fire hot enough to melt Glass, and not hotter, for if it is hotter it will not calcine: when it is melted, a yellowish Scum will be on the top, which scrape together with an Iron for that purpose, always stirring and spreading that which is not reduced to Scum: this Scum gather together, and put it into a Furnace moderately hot, to reverberate it, spreading it with the Iron, and continually stirring it, till it becomes yellow; then search it thro' a fine Sieve. That which does not go thro', put with other Lead, to calcine afresh, and be sure the Furnace has a just heat, and be not too hot. This Method will dispatch a great quantity in a short time.

II. *To make* Vitrum Saturni, *or Glass of Lead.*

℞ Calcined Lead ℔xx. Crystal or *Rochetta* Frit (according to the color you intend) ℔xvj. mix well, put them into a Pot in a Furnace, and in 10 hours time they will be well melted: which done, cast all into Water; after which take it out and dry it: if there is any grains of Lead at bottom, cast them away, for if they be mixt with the rest, they will infallibly break the next Pot. The Matter being dryed, put it into the same Pot again; let it be in Fusion 6 hours, then you may work it.

III. *To make* Vitrum Saturni, *another way.*

℞ Calcined Lead iij. parts, fine Sand j part; make them into Glass in a Furnace: also ℞ calcined Litharge

tharge iij. parts, calcined Flint *j.* part; melt and vitrify.

IV. *Another way to make* Vitrum Saturni.

℞ Red Lead ℔xv. Cryſtal Frit or common Frit ℔xij. mix well, and put them into a ſtrong Crucible with a ſtrong bottom, which put into two other Crucibles of like ſtrength; and with a Fire of Suppreſſion melt them together, the Matter will paſs thro' the firſt and ſecond Crucible, and in the third you will find the Glaſs of Lead deſired.

V. *Another way.*

℞ *Minium* ℔xx. fine Sand, Salt of *Pulverine*, *ana* ℔x. mix well, and put them into a ſtrong ſingle Crucible, in a Fire of Suppreſſion; ſo will you have good *Vitrum Saturni*. It is ſaid, that Glaſs of Lead, being infuſed in Wine, will work 4, 5 or 6 times excellently *per ſe-ſeſſum*.

VI. *To Work Glaſs of Lead.*

Take the Work-man's hollow Iron he uſes to take the Metal out of the Pots with, and the *Vitrum Saturni* being in Fuſion, let it cool a little: then put in the end of the hollow Iron, and take out what quantity of the Metal you pleaſe, (which will be clammy or viſcous:) this you muſt roul too and fro upon a Marble, the more firmly to unite the parts; and work it as we have directed in *cap.* 4. *ſect.* 31, 32. But you are to note, that the Marble ought to be a very hard one, and made very clean when you uſe it, and while the Glaſs is cooling, you muſt wet the Marble with cool Water, otherwiſe the Glaſs would ſcale it, and the Marble would ſtick to it; but if the Marble is hard, this is much leſs to be feared.

VII. *To make* præcipitatus Saturni.

℞ Litharge in fine Pouder impalpable *q. ſ.* put in a glazed Earthen Veſſel over a ſtill Fire: add to it diſtilled Vinegar, ſo much as to over-top it 4 inches: mix well, and let them ſettle, till the Vinegar becomes of a Milk color: decant it gently, and affuſe freſh diſtilled Vinegar, continuing this work till it yields no more Whiteneſs: put all theſe Decantings together into a glazed Earthen Veſſel, and let it ſtand till the Lead præcipitates to the bottom: decant off the clear Vinegar; and the Milk-colored Sediment is that which is *Præcipitatus Saturni*. If it does not præcipitate

well, so as to leave the Vinegar very clear, put into it some cold Water: if that does not do, but the Vinegar is still muddy, set all the Water and Vinegar over a gentle Fire, and evaporate to dryness: so will the spiritous parts of the Vinegar be left in the Sediment, which keep with the rest of the *Præcipitatus Saturni* for use.

VIII. This is said to be a noble Preparation of *Saturn*, and tho' it is not properly the Spirit, yet it is that which contains the Spirit, and is exceeding useful for Glass Works: but it is there proposed as a thing proper for making red Enamel, and is that which does very nobly heighten and improve that kind of Work.

IX. *As for Glaß of Lead*, it is without doubt the fairest and noblest Glass of any other; for that thereby you may imitate all the colors of Oriental precious Stones: but if you work it not with care, no Pots nor Crucibles will hold it, for that it will crack them, and let it run out. In making it, you must always drop the Glass into Water when it is melted, for the least live Lead remaining in it, eats out the bottoms of your Pots, and so makes you loose your Matter.

X. *To make Glaß of Lead, of a fair Emerald Color.*

℞ Cryftal Frit poudred and fearced ℔xx. Calx of Lead sifted ℔xv j. mix well; put them into a Pot heated in the Furnace, and in 8 or 10 hours it will be melted: cast it into Water, and carefully take the remaining Lead from it: the Matter dry, and put into the same Pot again, and in 7 or 8 hours it will be melted; reiterate this casting of the melted Mass into Water, and separating the Lead, that the Glass may be cleansed from all Foulness, and become very resplendent. Put it again into the Pot, and let it melt and purify again: when melted, put to it thrice calcined Scales of Copper in fine Pouder ℥vj. *Crocus Martis* made with Vinegar in Pouder gr. xxiv. mixt together. Put in this Pouder at 6 times, always mixing well, letting almost a minutes space be between each time: let it rest an hour, and stir it again, and see if the color pleases; if so, let it stand 8 hours in Fusion, that all may be well incorporated: stir again well, and let it rest a while, that the Fæces (if any) may præcipitate, and so work it. It is scarcely to be distinguished from a true Emerald.

XI. *A*

XI. *A more glorious Emerald Color.*

To do this, you must change one Ingredient of the former Section; and instead of thrice calcined Scales of Copper, you must put the same quantity of the *Caput Mortuum Vitrioli Veneris*; and then proceed exactly as in the former; so will it be an exquisite Emerald Green.

XII. *A Golden Color.*

℞ Good Crystal Frit in Pouder, Calx *Saturni* in Pouder, *ana* ℔xvj. Copper Scales thrice calcined in Pouder ℥vj. *Crocus Martis* made with Vinegar gr. xlviii. mix well, and put all into a Pot heated in a Furnace: after 12 hours cast the Mass into Water; separate the Lead, and put the Mass again into the same Pot, and purify it for 12 hours more; then stir it well, and see if the color pleases: if it chances to be greenish, add to it more *Crocus Martis*, and the Greenness will vanish; so will you have a noble Gold color, which will be as fine here, as it will be in Crystal.

XIII. *A Granat Color in* Vitro Saturni.

℞ Crystal Frit ℔xx. Calx of Lead ℔xvj. *Piedmont Manganese* prepared ℥iij. *Zaffer* prepared ℥ß. mix all well, and put it into a Pot heated in the Furnace: after 12 hours cast the melted Mass into fair Water, and separate the Lead: put the Matter again into the same Pot, and let it purify for 10 hours: mix well with the Iron, and let the Fæces præcipitate; if the color pleases, then work it.

XIV. *A Saphir Color in Glass of Lead.*

℞ Crystal Frit in Pouder ℔xv. Calx of Lead searced ℔xij. *Zaffer* prepared ℥ij. *Manganese* prepared gr. xxiv. mix well, and perform the Operation exactly as the former, and the color will be like the true Oriental Saphir; then work it.

XV. *A Topaz Color in Glass of Lead.*

℞ Crystal Frit in Pouder ℔xv. Calx *Saturni* in Pouder ℔x. searce fine, mix them well, and put them into a Pot hot in the Furnace; melt and keep them in Fusion 8 hours: cast the Mass into Water, separate the Lead, if any, and put the Matter again into the Pot to be melted, and cast it by Intervals into the Water: add to this Mass half its weight of Golden-colored Glass at *sect.* 12. above, incorporate, purify well, and you will have Glass of an Oriental Topaz color fit to be wrought. Now,

a *Topaz* is a lighter color than an Emerald, which casts Rays of a Golden color.

XVI. *A Sky or Sea Green in Glass of Lead.*

℞ Crystal Frit ℔xvj. Calx *Saturni* ℔x. mix well, and put them into a Pot gently heated in a Furnace, and in 12 hours they will be in good Fusion: cast the Mass into Water, separate the Lead, and put it again into the Pot to melt: after 8 hours cast it again into Water; separate the Lead again, and it will be well purified: put it again to melt in the same Pot, and when it is well melted, cast in at four distinct times, ℥iv. of small Copper Leaves prepared as in *cap.* 7. *Zaffer* prepared ℥ij. these two being first mixed together, stirring the Mass each time: 2 hours after stir all well again with an Iron Rod, and try if the color is good: then let it stand 10 hours to purify, and to incorporate, that the colors may be perfect: let it rest a while to settle, and it will be fit to work.

XVII. *To make* Sulphur Saturni.

℞ *Ceruse* or white Lead ground impalpable, affuse thereon distilled Vinegar enough to make it supernate 4 inches; but affuse it gently till all the Violence is gone: digest it on a Sand Furnace, to evaporate an eighth part away: let it cool, decant the remainder, which will be well colored and full of Salt: on the remaining *Ceruse* affuse fresh distilled Vinegar, digest, evaporate and decant as before: and reiterate this Work with fresh Vinegar, till no more Tincture or Sweetness arise. Put all these tinged Vinegars together, filter, and then over a gentle Fire evaporate to dryness; so will you have at bottom a white *Saccharum Saturni.* Take a Glass Matrass well luted to the middle of the Body, put into it your *Saccharum*, and digest it in a gentle Sand heat for 24 hours, covering it with Sand up to the Neck, digest till it is as red as Cinnabar, and grind it on a fine Marble: if it is only yellow, you must digest it 24 hours longer, but with such a heat as it may not melt, for then it is spoiled: being perfectly Red, and Levigated, put it again into a Glass Cucurbit; affuse thereon distilled Vinegar, as before; and when deeply tinged, decant and affuse fresh Vinegar, and continue this Work till all the Salt is dissolved, and the Fæces separated. Put all these Tinctures into Glass Vessels, and let them stand to settle; decant

decant the clear and filter. Put this filtred Liquor into a Glaſs body, evaporate, and you will have at bottom a very white *Saccharum*. This *Saccharum* being very dry, diſſolve in common fair Water, let it ſtand 6 days, that the Fæces may præcipitate. This Water filter, and evaporate in a Glaſs body to dryneſs over a gentle heat; ſo will you have a Salt as white as Snow, and ſweet as Sugar. Repeat this Work of diſſolving in Water, filtering and evaporating for three times; after which take the *Saccharum Saturni*, put it into a Glaſs body in a Sand Furnace over a gentle heat, where digeſt for ſeveral days, ſo will it become red as the fineſt Cinnabar, and give a Calx finer than white Starch, which is *Sulphur Saturni*. *Iſaac Hollandus*.

XVIII. This *Sulphur* (which is perfectly fine) is to be uſed inſtead of *Minium*, for making Paſts for *Chryſolites*, *Emeralds*, *Granats*, *Saphirs*, *Topazes*, *Blews*, and other colors; and it is to be uſed in the ſame Proportion as we ſhall hereafter limit, obſerving what is ſaid concerning Baking in *cap.* 13. *ſect.* 1. following. The Paſts made with this *Sulphur*, will not have that Greaſe and Yellowneſs, nor be ſo apt to be affected by the Breath as others: but you will have Stones of differing colors, fair as the Natural ones, and not eaſy to be diſtinguiſhed from them.

XIX. *To make very hard Paſts with* Sulphur Saturni.

℞ Rock Cryſtal prepared ℔x. Salt of *Rochetta* purified and ſearced ℔vj. *Sulphur Saturni* ℔ij. mix all well, put them into an Earthen glazed Pan; put on them a little fair Water, to make all into a Maſs ſomething hard: divide the whole into Lumps of three ounces, making a hole in the middle, the better to dry them in the Sun: being dryed, put them into an Earthen Pot well luted, and calcine in a Potters Furnace: then beat and grind the Matter well on a Marble, and ſearce thro' a fine Sieve. Put this Pouder into a Glaſs Furnace to melt, purify it for 3 days, then caſt the Maſs into Water, dry it, and put it into the Furnace again to melt, and purify for 15 days, that it may be without Spot, and it becomes of the color of fine Cryſtal.

XX. This cryſtaline Matter may be tinged of ſeveral colors, as of an *Emerald* with treble calcined Copper: of a *Topaz*, with prepared *Zaffer*, &c. as we hereafter

teach. In this case, you must put into the Furnace as many Pots as you design to make different colors, with the former crystaline Matter, adding to it in due proportion the tinging Materials; so will you have Stones of finer and more glorious colors than those which are truly Natural, and coming nearly to their hardness, but especially in that of the Emerald.

XXI. *To make* Saturnus Depuratus.

℞ Good Lytharge or *Venice* Ceruse *q. v.* levigate it, and put it into a great Glass Cucurbit, affuse thereon distilled Vinegar, to over-top it 4 inches: digest on a gentle Ash or Sand heat, till the Vinegar is well colored and impregnated; decant, and continue this Work till the Matter will yield no more Tincture. Take all this tinged Vinegar and rectify it 4 times on Tartar calcined to whiteness: filter it, put it into a Glass Cucurbit, and on an Ash or Sand heat gently evaporate to dryness, till it is just skin'd over: then putting the Vessel into a cold place, covering it, let it shoot into Crystals, which will be pure and fusible: take them out of the Vessel with a Skimmer full of holes: the remaining Liquor evaporate again till it is skinn'd over, and crystalize as before: these Crystals dry well, reduce them into subtil Pouder, and keep them in a Glass close stopt for use: of this you ought to make 10 or 12 pounds at a time, for it is of no less esteem for making Pasts for Gems, than the *Sulphur Saturni*.

XXII. *To make Paste of* Saturnus Depuratus.

℞ Transparent Flints calcined, or Rock Crystal prepared, *Saturnus Depuratus*, *ana* ℔x. each in fine Pouder mixt well together: put the Mass into a Pot in a Glass-house Furnace, to melt and purify 3 days: then cast it into a Wooden Vessel full of cold Water: dry it, put it into the same Pot in the Furnace, to melt and purify again: take out the Pot, and when cold, make it into an impalpable Pouder on a Marble, and keep it in a Glass well stopt, to serve for a Basis, of which to make all sorts of Artificial Gems, as we shall hereafter teach.

XXIII. *To make Yellow* Rocaille.

℞ *Alsinium* ℔j. fine white Sand ℔iij. mix and beat them together very well in a Mortar; put all into a strong Crucible covered and luted: being dry, put it into a Wind or Glass House Furnace, where the Fire is violent,

lent, to reduce the Matter into Glaſs, which make up into Grains or Beads as you pleaſe.

XXIV. *To make Green* Rocaille.

℞ *Minium* ℔j. fine white Sand ℔iij. in melting, it will be very firm, will alter its color, and become a pale red, and ſo change again. Of theſe *Rocailles* they make the Beads and Bracelets which they carry to *America*, and ſell to the *Indians*, and may be made into all ſorts of colors: it cannot be prepared without red Lead, but it is full of Impurity. We frequently uſe it in Painting on Enamel and Glaſs, tho' it is ill qualified and full of impure Lead, yea, even that which is moſt clear and tranſparent. But to ſuch as work in Enamel, I think the cryſtaline Matter made of *Saturnus Depuratus*, is much better than this.

CHAP. VI.

Of Colors from Iron.

I. *Natural Ferretto.*

The Name comes from the *Italians* and *Spaniards*, as *Caſalpinus lib. 3. cap. 5.* ſaith: and it is ſo called becauſe it is found in Iron Mines: ſome of it is black like Iron: but the beſt is red, being beaten, and almoſt like Cinnabar when well calcined: *Pometus in Hiſt. lib. 2. cap. 18.* ſays it is the *Lapis Hæmatites*, and that this Stone is that which we call *Ferretto* of *Spain*: it is of a reddiſh color, hard, weighty, and pointed with long ſharp Points. *Pliny lib. 26. cap. 20.* makes mention of five kinds of *Hæmatites* or Blood-ſtones, and that they have a Magnetick Virtue in attracting ſeveral ſorts of Metals to them. There are indeed no Iron Mines in which it is not found.

II. *To make* Ferretto *of* Spain.

℞ Clean Filings of Iron and Sulphur in Pouder, lay them *S. S. S. ſtratum ſuper ſtratum* in a Crucible, beginning and ending with the Sulphur; after which cover the Crucible with another, or with a Tile: lute it cloſe, and ſet it (being dry) in a Furnace with Coals round it,

for 6 hours, encreasing the Fire every 2 hours: let the Fire or Coals be 6 inches from the Crucible the first 2 hours; 3 inches the second 2 hours, and let them be covered all over the last 2 hours: then the Matter being cold, beat it into fine Pouder, and keep it for use. It is called *Ferretto* of *Spain*, because the most we use comes from thence: formerly it came from *Memphis* in *Egypt* and *Cyprus*, now not. *Neri* and *Merret* use only Copper or Brass to make it of, but true *Ferretto* cannot be made without Iron, and that from Iron is finer, redder, and more pure.

III. *Another way to make* Ferretto *of* Spain.

℞ Fine Steel, (for in that consists the Perfection of the Work) make it into thin Plates, or file it: do the same also with Copper or Brass: ℞ of Steel Filings p. ii. Copper or Brass Filings p. j. put them into a Crucible *S.S.S.* lute them, and put them on a gentle Fire for 8 hours; then take it out, and melt the whole in a Wind Furnace; after cast it into an Ingot, or make it into Plates, and it is done. To use this in Glass, you must calcine these Plates, beat them into fine Pouder, and search it, and so keep it for Use. All these *Ferretto's* are of wonderful Use for tinging and coloring Pastes, Gems, Enamel and Glass.

IV. *Another* Ferretto.

℞ Copper or Brass Plates in bits, put them into a Crucible upon a bed of Sulphur, and lay them and Sulphur *S.S.S.* till the Pot is full; cover it with another, or with a Tile, lute it well, dry it, and put it into a brisk Fire for 2 hours, to calcine: being cold, it will be black and crumble; beat it into fine Pouder, search it, and keep it for Use. It is of vast Use to give fine colors in Glass of Lead; but mixt with convenient quantities of *Ferretto* made of Iron only, it causes a vast variety of beautiful Appearances.

V. *Another* Ferretto.

℞ Bits of thin Plates of Copper or Brass, Copperas or Vitriol in Pouder, *ana q. s.* put them in a Crucible, laying them *S.S.S.* and a bed of Copperas at bottom and on the top; and perform the Calcination exactly, as in the last Section, in 3 days times: take out the Crucible and the bits that are in it; and with fresh Copperas put them in again *S.S.S.* and reverberate as before:

this

this do for 6 times; so will you have an excellent *Ferretto*, which beat into Pouder will tinge Glass and Gems into extraordinary beautiful colors.

VI. *To make* Crocus Martis.

℞ Pure fine Filings of Iron or Steel, which are better, p.j. Sulphur in Pouder p.iij. put them into a Crucible upon a bed of Sulphur, *S.S.S.* calcine with a very strong Fire, for 4 hours: take out the Crucible, let the Matter cool, grind and search it thro' a fine Sieve: put the Pouder into a Crucible, lute it well, and put it into a Reverberatory for 15 days or more; and from a reddish color, it will become a very deep red, almost purple; keep it in a close Vessel for Use. It gives a red color more or less bright, and may be mixed with Tinctures of other Metals.

VII. *Another* Crocus Martis.

℞ Filings of Iron or Steel, put them into Earthen Pans; sprinkle them with strong Vinegar, so as to make them throughly wet; set them in the Sun or open Air to dry: pouder them, and sprinkle in like manner again, drying as before. This Work of sprinkling, drying and poudering repeat 8 times; then pouder, grind, search, and keep it for Use. This tinges Glass, *&c.* of a true Blood red color, and complies very much with Greens and the Emerald Glass of Lead; and is used in Pastes for the same color with Verdigrise, and in Blacks.

VIII. *Another* Crocus Martis.

℞ A Bar of Iron or Steel, give it as red hot a heat as you can; and having a long large Stick of Brimstone, put the end of the one to the end of the other, over a great Pan full of Water, so will the Metal fall down in *granuli* or little drops, melting like Wax: take these Grains dry, and with Pouder of Sulphur, put them in a Crucible S.S.S. put them into a Reverberatory to be calcined to a red Pouder; which grind, search, and keep for Use.

IX. *Another* Crocus Martis.

℞ Filings of Iron or Steel, put them into glazed Earthen Pans; sprinkle them with *Aqua fortis*, set them to dry in the Sun, and reduce them into Pouder: repeat this Work several times, as before, in the Vinegar: when you see the color very good and red, pouder, search it,

it, and keep it for Uſe. This makes the red color of the Iron yet more manifeſt in Glaſs, even ſo reſplendent and bright as ſeems almoſt incredible.

X. *Another* Crocus Martis.

℞ Filings of Iron or Steel, put them into a Glaſs Body well luted; affuſe thereon *Aqua Regalis*, and diſſolve: keep them ſo 3 days, ſtirring them every day well; during which, add freſh Filings by little and little; in doing which, be very cautious, for the Fermentation will make it riſe ſo much as to endanger breaking the Glaſs or running over: digeſt 3 days, then putting the Cucurbit on a gentle Fire, evaporate to dryneſs. This is admirable for tinging Glaſs, and is the beſt of all, it yielding more Diverſity of Colors than all the others.

XI. *Another* Crocus Martis.

℞ Filings of Iron or Steel, reverberate them with a very ſtrong Fire of the 4th degree, till the color becomes purple: then take it out, and being cold, put it into a Veſſel full of Water, ſtir it ſtrongly about, and then preſently decant the Water into another Veſſel, and reiterate the waſhing; ſo will the Iron not yet calcined, remain in the firſt Veſſel; this reverberate again, to a purple color, and waſh as before, preſently decanting the troubled Water. Theſe Waters mix all together, and evaporate to dryneſs; ſo will you have a very red and very fine Pouder, of no leſs Virtue and Beauty than the former, which keep for Uſe.

CHAP. VII.

Of Colors from Copper or Braſs.

I. *To Calcine Copper to make Vitriol of* Venus.

℞ Thin Leaves of pure *Venus*, put them into Crucibles with common Sulphur in Pouder S.S.S. cover and lute well the Crucibles, and being dry, put them into a Reverberatory Furnace with a good Charcoal Fire for 2 hours: let them ſtand and cool, and you'll find the *Venus* blackiſh, enclining to a deep purple: pouder and ſearce it. ℞ of this Pouder ℔ij. Sulphur in Pouder

der ʒxij. mix, and put them into a flat-bottom'd Earthen Pot, strong enough to endure the Fire: lay upon the Furnace a strong Earthen Dish, fill it with throughly kindled Charcoal, and place the Pot, having the Pouder in it, thereon: as it grows hot, and the Sulphur takes Fire, stir it with a long Iron Hook, that it may not stick to the Pot: continue this till all the Sulphur is consumed and smoaks no more. Take the Pot off the Fire, and take the Copper out with an Iron Ladle: beat it well in a Brass Mortar, and searce it finely, so have you a blackish Pouder: reiterate this Calcination thrice with like Proportions of Sulphur, and the third time let the Copper remain till it becomes red and yellow: take it off, beat it in a Brass Mortar to Pouder, and searce it, beating and searcing until all is gone thro' the Sieve; so have you a well-colored Calx of *Venus*, which keep for Use.

II. *To make the Tincture of* Venus.

Take Glass Cucurbits as many as you please, put into them your Calx; and to ℔j. of Calx of *Venus* put Water ℔vj. digest in a gentle Sand heat for 4 hours, evaporating a third of the Water: let it cool, and decant the clear Water into another Vessel: dry the Sediment in a Crucible on the Furnace; and let the Water settle for 2 days, and very small Grains of Copper, of a blackish color, will fall to the bottom: filtrate the Water, and gather the Grains to add to the former Sediment. Take all these Sediments, and to every pound add Pouder of Sulphur ʒvj. and calcine it thrice, as exactly as we have taught in the former Section. To ℔j. of this Pouder put Water ℔vj. and extract the Tincture exactly as is just now before declared; which decant and reserve with the former. Gather the Sediments and Grains which remain, and repeat the Calcination thrice in the same manner, and with the same quantity of Sulphur: which done, extract the Tincture in the same manner before declared, with fair Water, adding it to the former Extractions: all this whole Work repeat 6 times, so will the Copper or Sediments remaining in the bottom, become a soft impure Earth, deprived of all its Blewness or Tincture, and fit for no Use in our way, the chief Virtue of the Copper being now contained in the Water or Tincture.

III. *To*

III. *To make the Vitriol of* Venus.

Put all your former Tincture into a low Glass Cucurbit, which put into a gentle Ash or Sand heat; let the Gourd hold about 2 quarts, and put into it about 3 pints of your Tincture, to evaporate gently: the rest of the Tincture put into Glass Bottles, which set round the Furnace, to warm the Tincture; and at set times, as you see the Humidity to evaporate out of the Gourd, fill it again out of the Bottles: evaporate ℔x of this Tincture to ℔ijss. or ℔iij. at most: then decant it into 2 or 3 glazed Earthen Pots, and set it into a cold moist place to crystalize; so will the Crystals or Vitriol shoot to the bottom and sides, and stick there like little long Icecicles, having the true color of an Oriental Emerald: pour the remaining Water or Tincture into the Cucurbit, and evaporate again to one half, and crystalize as before: and thus continue to evaporate and crystalize, till you have obtained all the Vitriol: these Crystals or Vitriol gather and dry, that it may not stick, and keep it in a Vessel close stopt. Its Excellencies are admirable, not only in the Art of Glass, and in Metalick Works, but in Physick also.

IV. *To Extract the Spirit of this Vitriol.*

℞ Of the former Vitriol ℔j. put it into a Glass Retort well luted, which being dry, set it in a Sand Furnace, with a very large Receiver: kindle the Fire, let it be gentle for 4 hours, lest by the Impetuosity of the Spirits coming forth, the Receiver should break, when the Spirits ascend in white Clouds, encrease the Fire gradually, till the Receiver clears again and cools, and all the Spirit comes together. Then let the Fire go out of it self, and after 24 hours unlute the Joynts, take away the Receiver, and put the Liquor into Glass Bottles, which stop close with Glass Stopples. This subtil Spirit contains a noble Blew, and affords wonderful Tinctures, having inestimable Operations, as well as surprizing Effects in Physick, whose excellent Qualities ought not to be exposed to the Ravage of prophane Hands.

V. *To separate the* Caput Mortuum.

Take what is left in the bottom of the Retort after the Distillation of the former Spirit, by breaking the Retort: then reduce it to a fine Pouder, with a mixture of *Zaffer* prepared, (to ℔ijss. of it add ʒiv. of *Zaffer*) and keep it

for

for Uſe, *viz.* to tinge Cryſtal Frit of an admirable Sea green color. This is an admirable Mixture beyond Compariſon, and is what is made uſe of to give this fine Water color, or Egmarine on Glaſs and Cryſtal, not to be equalled by any other Compoſition whatſoever.

VI. *A Sea-Green far finer than any other.*

℞ Of the former *Caput Mortuum* ℔iij. *Zaffer* prepared ℥viij. mix them, and put it into a Pot filled with Cryſtal Metal very fine, and well purified from its Salt: ſtir the whole well with the Glaſs for the ſpace of 2 hours, after which try the color; if too pale, put in more of the Mixture: when it is well, let it ſtand or reſt 24 hours: ſtir the whole again, that the color may be well incorporated, and then it may be wrought. It will be an extraordinary and beautiful Sea-green.

VII. *Another way to Calcine Copper or Braſs.*

℞ That kind of Braſs made into thin Leaves, which is almoſt of the color of Gold, and may be clipt with a ſmall fine pair of Siſſars; which Braſs Leaves are called *Feſtoons:* cut them into little pieces, put them into a Crucible, which cover and lute over; and being dry, put it into the mouth of a Reverberatory to calcine for 4 or 5 days, ſo that the Leaves may not melt, for then they would be ſpoiled: beat them on a Porphyry, and ſearce them thro' a fine Sieve; ſo will you have a blackiſh Pouder: ſpread it on Tiles, and put them into the ſame Furnace for 4 days longer: take it out, blow off the Aſhes, pouder and ſearce it again, and keep it for Uſe. If it is well calcined, and as it ought to be, it will, when put into the Glaſs, make it ſwell; if it does not, you muſt calcine other Leaves, this being worth nothing. This gives a fine Blew.

VIII. *Another way.*

℞ The ſame Leaves as the former cut ſmall, put them into a Crucible with Sulphur in Pouder S. S. S. put it on live Coals (being firſt covered and luted) at the mouth of the Furnace, to calcine for 24 hours: then take out, and put it into an Earthen Pan in a Reverberatory for 12 hours: take it out, pouder, and keep it for Uſe. This makes a tranſparent Red, Yellow and Chalcedony.

IX. *A fourth way to Calcine Copper.*

℞ Copper in thin Plates, and in bits, put it into a great Crucible, and keep it in the Furnace till it is calcined,

cined, without melting: reduce it to Pouder, which will be very red; ſcarce it, and keep it for Uſe. It is an admirable thing for coloring Glaſs.

X. *The treble Calcination of Copper.*

℞ Of the red Pouder in the former Section, put it on Tiles, and calcine again for 4 days; ſo will it be black, and coagulated into a Maſs: pouder and ſcarce it, and in the ſame Furnace calcine again for 5 or 6 days, and it will become grey without coagulating. With this Pouder you may make Sky-colored blew, Turcois color, a green Emerald, and divers other colors: if it be calcined above thrice, it will not color Glaſs; and you may know when it is well calcined, by putting ſome of it into a Pot of boiling Glaſs; if it makes the Glaſs ſwell, it is right; if not, it muſt be calcined 24 hours longer; otherwiſe you muſt begin a new Proceſs.

XI. *Another treble Calcination of Copper.*

℞ Scales of Braſs, waſh them clean and dry them, put them into one or more Crucibles, ſet them juſt in the mouth of the Reverberatory for 4 days, then grind and ſcarce: put this Pouder into the Furnace to reverberate for 4 days longer, and it will be in little Balls of a black color: pouder and ſcarce again. Then put this Pouder once more into the Reverberatory for 4 days more: pouder, ſcarce, and keep it for Uſe. You may know if it is well done, by making Tryal.

XII. *Another Calcination called* Æs Uſtum.

℞ Bits or thin Leaves of Copper ʒxv. Sulphur in Pouder ʒx. Sea Salt in fine Pouder ʒv. fill the Crucible S.S.S. put it in a Furnace of live Coals, and leave it till the Sulphur is wholly conſumed: take it out, and it will be of an Iron grey, but reddiſh within; it gives a noble fine Tincture.

XIII. *Another* Æs Uſtum.

℞ Thin Plates of the reddeſt Copper, (the Roſe Copper) make it red hot, and extinguiſh it in Urine, in which common Salt has been diſſolved: reiterate this Work till it becomes of the color of Gold both within and without: after which cement thoſe places with this Pouder. ℞ Sulphur ℔ij. Saltpetre ℔ij. Vitriol calcined to redneſs ℔j. make all into a Pouder. Put the Plates with the Pouder into a Crucible S.S.S. cover it with another Crucible, having a hole in its bottom; lute them together,

together, and being dry, put them into a circulatory Fire (having hot Embers underneath) for 6 hours: the firſt 2 hours, let the Fire be a foot diſtant from the Crucible; the ſecond 2 hours, let it be but half a foot from the Crucible; and the laſt 2 hours, let it be cloſe to, covering the Crucible. Have a care that the Fire is not too great, that the Matter may not melt, for then it is ſpoiled. Being cold, beat it into fine Pouder, waſh it, dry it, and keep it for Uſe.

XIV. *To make* Crocus Veneris.

℞ Of the former *Æs Uſtum*, choice Verdigriſe, fixt fuſil Sal Armoniack, *ana q. v.* beat all well together, dry them over the Fire in a Frying-pan, add Urine, and make all boil till the Urine is conſumed, which repeat to the third time: pouder the Matter, calcine well in a Reverberatory: make it into an impalpable Pouder, put it into an Earthen glaz'd Pot, affuſe thereon Urine, adding to each pound of Urine fixed fuſil Sal Armoniack ℥iv. boil on a gentle Fire for a quarter of an hour, then decant the Urine into ſome Glaſs Veſſel: put more of the ſame *Menſtruum* upon the Matter, boil a quarter of an hour, and decant as before: repeat this Work ſo long as it will extract any Tincture. Mix all theſe Tinctures, filter, then evaporate 3 quarters over a gentle Fire: put the remainder into an Alembick, and diſtil to dryneſs. At bottom you have *Crocus Veneris*, of admirable Uſe for coloring Glaſs.

XV. *Another* Crocus Veneris.

℞ Thin Copper Plates, and lay them in an Earthen Pan with common Salt S. S. S. put it on the Furnace, letting it ſtand till the Matter is very red: extinguiſh and waſh away the Blackneſs in cold Water: reiterate this Work with common Salt as before, doing it as oft as you pleaſe. At laſt affuſe warm Water on that where the Plates have been extinguiſhed: let it ſtand ſome time, then empty it, and at bottom you will find a *Crocus Veneris* red as Blood. Waſh it ſeveral times to cleanſe it, then dry it, and keep it for Uſe.

XVI. *Another* Crocus Veneris.

℞ *Æs Uſtum* prepared with Sulphur and Salt, heat it red hot 9 times, quench it as often in Linſeed Oil, then dry and pouder it. Some are contented with this Preparation.

XVII. *Another*

XVII. *Another* Crocus Veneris.

℞ Copper calcined *per ſe* ℔j. Sulphur *Vive* ℔viij. all being well poudred, mix, and put them into a large Crucible, which ſet on live Coals in a little Furnace, ſtirring it continually with an Iron Rod, till the Sulphur is conſumed: reiterate this Work 6 times, then caſt it into an Earthen Pan of boiling Water, ſtir it often with a Stick, whilſt the Calx is deſcending to the bottom: the Water being ſettled and clear, evaporate 3 quarters of it, and ſet it to cryſtalize, or evaporate the whole; and at bottom you will have the *Crocus Veneris* of a delicate fine red color.

XVIII. *A Beryl Color, or Green Blew*, viz. *a Sea Green for Glaſs.*

℞ Cryſtal Frit without *Manganeſe q. v.* melt it very thin, and skim off the Salt (which ſwims on the top like Oil) with an Iron Ladle, otherwiſe the color would be foul and oily: the Matter being purified, to ℔xx. of it, put of the calcined Copper in *ſect.* 7. above ℥vj. *Zaffer* prepared ℥ſs. well mixed together: put this Mixture into the Pot of Metal by little and little, for fear the Cryſtal ſhould riſe or ſwell, and run over: ſtir it well all the while: this done, let the Metal ſtand and ſettle for 3 hours, that the color may incorporate, and then ſtir it again. Make a Proof of it, and after 24 hours mixing the Pouders, and well ſtirring or mixing it, it may be wrought, becauſe the color is very apt to fall to the bottom.

XIX. *Another Sky-Color, or Sea-Green.*

To ℔xx. of well purified Cryſtal Frit made with *Rochetta*, put calcined Copper (at *ſect.* 7. above) ℥vj. obſerving the Rules in the former *ſection*; ſo will it be an admirable color, which you muſt make lighter or deeper as you pleaſe. Two hours after ſtir it well again: after which let it ſtand ſtill 24 hours without ſtirring, and then work it.

XX. *Another Sea-Green.*

℞ Cryſtal Frit without *Manganeſe*, well boiled, skimmed and purified ℔xx. Pouder of Copper thrice calcined at *ſect.* 7. aforegoing ℥vj. *Zaffer* prepared in Pouder ℥ſs. mix theſe Pouders together, and put them in at 4 times, ſtirring it each time well, for fear of running over: 2 hours after it is mixed, incorporated and ſettled, make

a

a Tryal; to see if it is deep enough. It will seem greenish at first, but be not concerned for that, for the Salt will wash away all that Greenness, and change it into blew: the color will be lighter or deeper, according to the quantity of the Pouder you put in: there is no Rule in this case, but the Reason and Discretion of the Artist. After it has stood 24 hours still, without stirring, you may work it.

XXI. *A Sea-Green or Sky-Color in Crystal.*

℞ Crystal Frit well purified from its Salt, and which has not been put into Water, ℔xx. treble calcined Scales of Brass at *sect.* 11. above in Pouder ℔ss. *Zaffer* prepared ʒj. ℥ij. ȝij. mix the Pouders together, and then mix them *gradatim* in the Pot, stirring the Mass well for 2 hours: if the color is good, let it stand still 24 hours; stir well again, that the color may be well incorporated, then you may work it. It will be a delicate Blew, and may be heightned as you please, but beware of making it too high. If you mix Crystal Frit with *Rochetta* Frit in equal quantities, you will have as admirable a Blew as can be desired.

XXII. *Another Sky-Color or Sea-Green, (but something inferior to the last.)*

℞ Crystal Frit made of *Rochetta* of the *Levant*, and *Barillia* of *Spain*, without any *Manganese*, and not cast into Water, ℔xx. mix with it the same Pouder, and in the same Proportions mentioned in the last *section*, (it being first throughly purified from its Salts) and observing the Directions in *sect.* 18, 20, and 21. above, you will have a fine Sea-green or Sky-color, fit for almost any Use.

XXIII. *A wonderful Green.*

℞ Common Glass Metal made with *Pulverine* without *Manganese*: being well melted and purified, put in a fit quantity of the following Pouder, as we direct in Emerald colors, and which by Tryal you may easily find out; so will you have an admirable yellowish Green, very fair and beautiful. Take the Pouder of the treble Calcination of the Scales of Copper at *sect.* 11. above: Pouder of Scales of Iron, only washed, dryed, beaten and searced, without any other Preparation, of each equal quantities: mix them for the Purpose afore-

ſaid. The Scales of Iron drive away all the dull natural Green of the Glaſs.

XXIV. *A Green Emerald Color in Glaſs.*

℞ Common Glaſs well purified from its Salt, without *Manganeſe*, being well melted and purified, ℔xx. *Crocus Martis* made as directed with Vinegar in *cap. 6. ſect. 7.* aforegoing ℥v. mix and incorporate it well with the Glaſs, and let it reſt an hour, that it may throughly take the color; ſo will the Metal looſe its natural ill color, and become green: then add Pouder of treble calcined Scales of Braſs at *ſect.* 11. above ℥vjſs. which put in at 6 times, mixing and ſtirring it well every time: let it ſtand 2 hours to be impregnated with the Tincture, then ſtir it again, and ſee if it is right: if it is too blew, add more *Crocus Martis* to it, and it will be a fine Emerald color: after 24 hours ſtanding, ſtir it again well, and then work it.

XXV. *An Emerald Green, fairer than the former.*

℞ Cryſtal Frit without *Manganeſe*, twice waſhed in Water to free it from the Salt, ℔xx. common white Metal without *Manganeſe* ℔x. melt, mix and purify them well: add to the Maſs the Pouder of thrice calcined Copper at *ſect.* 10. above ℔ij. *Crocus Martis* made as directed in *cap. 6. ſect. 6.* aforegoing ℥iij. mix them well together, and put it in at 6 times, ſtirring the Maſs well each time, obſerving the Directions in *ſect.* 18, 20, 21, and 24. above: if too blew, add more *Crocus Martis*; if not blew enough, more Pouder of calcined Venus.

XXVI. *An Oriental Emerald Green, finer than all the reſt.*

℞ Cryſtal Frit well waſhed ℔vijſs. common Frit of *Pulverine* ℔vj. common white Glaſs in Pouder ℔vijſs. *Minium* or red Lead ℔ijſs. mix all together, and in a ſhort time they will be pretty well purified: caſt all into Water to purify it more, ſeparating the Lead, (if any be.) The Maſs thus waſhed and dryed, melt it again, and purify it for 24 hours: then add of the *Caput Mortuum* of Venus at *ſect.* 5. aforegoing, and *Crocus Martis*, of each a little, and finiſh the Maſs as in the former Operations. The *Minium* beat again, calcine at a good Fire, and reduce it to a Pouder for this Work.

XXVII. *To make a Turcois Blew.*

℞ Cryſtal Frit of a full fair blew color, melt it well; put

put into it by little and little well decripitated Salt, reduced to a white Pouder, mix it well and gradually, as you do metaline Colors: so will the clear transparent Blew become thick, for the Salt penetrating the Glass, takes away its Transparency and causes a Paleness, and gives it the Turcois color. When the color is perfect, it must be presently wrought, for the Salt will evaporate and be consumed, and then the Glass will be as transparent as formerly. If in working you find the color to go away, or the Metal to be transparent, you must revive it by adding a little more decripitated Salt. The Salt is to be well decripitated, otherwise it will be apt to fly in the Work-man's Eyes: also it is to be put in by little and little, till the color is perfect and right. The Frit for this Purpose you may make thus: ℞ *Crystal Frit, good* Rochetta *Frit, of each equal parts; melt and mix them, and it will be a very fair Blew.*

SECT. II. *Of* GEMS.

CHAP. VIII.

Of Cements, Mineral Colors, and Gems.

I. *TO Melt Crystal for a strong Cement.*
Beat Crystal to bits, and put them into an Iron Spoon, cover it and lute it well, and heat it in the Fire till it is red hot, which quench in Oil of Tartar: this do so often, till they will easily beat to pouder in a Mortar, which will then easily melt. This is of use to make strong Cements, and to counterfeit Jewels with.

II. *To make a Cement for broken Glasses.*
Glair of Eggs mixed with Quick-lime will join broken pieces of Glass together, and all Earthen Pots, so as that they shall never be broken in the same place again.

III. *Or thus,* Take old liquid Varnish, and join the pieces therewith; bind them together, and dry them well in the Sun, or in an Oven, and they will never

unglew again: but then put no hot Liquor into them.

IV. *Or thus*, Take White Lead, Red Lead, Quick-Lime, Gum-Sandrack, of each ℥j. mix all with Glair of 8 Eggs.

V. *Or thus*, Take White Lead, Bole, liquid Varnish as much as sufficeth.

VI. *Or thus*, Take White Lead, Lime, Glair of Eggs, as much as sufficeth.

VII. *Or thus*, Take fine Pouder of Glass, Quick-Lime, liquid Varnish, of each a sufficient quantity.

VIII. *Or thus*, Take Quick-Lime poudered, liquid Varnish, Glair of Eggs, of each alike; grind them upon a Stone: this is a strong Glew, even for Stones.

IX. *Or thus*, Take calcined Flints, and Egg-shells, of each alike, and with Whites of Eggs and Gum-Tragacanth, or Dissolution of Gum-Sandrack, make Glew: this in few days will be as hard as Stone.

X. *Or thus*, Take calcined Flints ℥ij. Quick-Lime ℥iv. Linseed Oil so much as may temper the Mixture: this is wonderful strong; but with liquid Varnish it would be stronger.

XI. *Or thus*, Take Fish Glew and beat it thin, then soak it in Water till it is like Paste, make rouls thereof, which draw out thin: when you use it, dissolve it in fair Water over the Fire, letting it seeth a while, and scumming of it, and whilst it is hot, use it. This not only cements Glass, but Tortoise-shell, and all other things.

XII. *To make Glass Green.*

Green Glass is made of Fern Ashes, because it hath much of an Alkali Salt. Crystal or Venice Glass is tinged green with Ore of Copper, or with the Calx of Copper, 5 or 6 grains to an ounce.

XIII. *To Counterfeit a Diamond.*

Take a Saphire of a faint color, put it into the middle of a Crucible in Quick-Lime, and put it into a gentle Fire, and heat it by degrees till it is red hot, keep it so for 6 or 7 hours; let it stand in the Crucible till it is cold, (lest taking it out hot it should break) so will it lose all its color, and be perfectly like a Diamond, so that no File will touch it: if the color is not all vanished at the first heating, you must heat it again till it is perfect.

XIV. *To*

XIV. *To prepare the Salts for Counterfeit Gems.*

The Salts used in making counterfeit Gems, are chiefly two, the first is made of the Herb *Kaly*, the second of Tartar; their Preparations are according to the usual way, (but in Glass Vessels.)

XV. *To prepare the Matter of which Gems are made.*

The Matter is either Crystal or Flint that is clear and white: put them into a Crucible in a Reverberatory heat, (the Crucible being covered) then take them out, and cast them into cold Water, so will they crack and easily reduce to Pouder: of which Pouder take an equal quantity, with Salt of Tartar (or *Sal Alkali*;) to which Mixture add what color you please, which must be either Metaline or Mineral: put them into a very strong Crucible, (filling it about half full) cover it close, and melt all in a strong Fire till it becomes like Glass.

XVI. *Where note, in melting you must put an Iron Rod into it, and take up some of it; and if it is free from Bubles, Grains or Specks, it is fused enough; if not, you must fuse it till it is free.*

XVII. *To make a Counterfeit Diamond of Crystal.*

Put Crystal in a Crucible, and set it in a Glass Furnace all night, and then bring it to fine Pouder, mix it with equal parts of *Sal Tartari*, digest all night in a vehement heat, but yet not to melt, then take them out, and put them into another Vessel which will stoutly endure the Fire; let them stand melted 2 days, and take out the Mass.

XVIII. *To make a Chalcedon.*

Mingle with the Pouder of Crystal a little calcined Silver, and let it stand in Fusion 24 hours.

XIX. *To make Counterfeit Pearls.*

Mix Calx of Luna and Egg-shells with Leaf Silver ground with our best Varnish, of which make Paste; and having bored them with a Hogs Bristle, dry them in the Sun or an Oven.

XX. *To Counterfeit a Ruby.*

Take *Sal Alkali* ʒiv. Crystal ʒiij. Scales of Brass ʒs. Leaf Gold gr. vj. mix all, and melt them in a Reverberatory.

XXI. *To Counterfeit a Carbuncle.*

Mix Crystal with a little red Lead, putting it into a Furnace for 24 hours, then take it out, pouder and searce

it, to which add a little calcined Brafs; melt all again, and add a fmall quantity of Leaf Gold, ſtirring it well 3 or 4 hours, and in a day and night it will be done.

XXII. *An Artificial Amethyſt.*

Take Cryſtal ℔j. *Manganeſe* ℥j. mix them together, and melt them.

XXIII. *Or thus*, Take *Sal Alkali* ʒiij. Pouder of Cryſtal ʒiv. Filings of Braſs half an ounce, melt all in a ſtrong Fire.

XXIV. *An Artificial Jacynth.*

Put Lead into a ſtrong Crucible, and ſet it into a Furnace, let it ſtand there about 6 Weeks, till it is like Glaſs, and it will have the natural color of a Jacynth, not eaſily to be diſcerned.

XXV. *An Artificial Chryſolite.*

Mix with melted Cryſtal a fixth part of Scales of Iron, letting it ſtand in a vehement Fire for 3 days.

XXVI. *Or thus*, To the Mixture of the *Topaze* add a little Copper.

XXVII. *An Artificial Topaze.*

To Cryſtal ℔j. add *Crocus Martis* ℥ij. red Lead ʒiij. firſt putting in the Lead, then the *Crocus*.

XXVIII. *Artificial Corals.*

Take the Scrapings of Goats Horns, beat them together, and infuſe them in a ſtrong *Lixivium* made of *Sal Fraxini* for 5 days: then take it out and mingle it with Cinnabar diſſolved in Water; ſet it to a gentle Fire that it may grow thick; make it into what form you pleaſe, dry and poliſh it.

XXIX. *Or thus*, Take *Minii* ʒj. Vermilion ground fine ʒſs. Quick-Lime and Pouder of calcined Flints, of each ʒvj. a *Lixivium* of Quick-Lime and Wine, enough to make it thick: add a little Salt, then make it into what form you pleaſe, and boil it in Linſeed Oil.

XXX. *An Artificial Emerald.*

Take Braſs calcined in Pouder ʒiij. which put again into the Furnace with Oil, and a weaker Fire; let it ſtay there 4 days, adding a double quantity of fine Sand, or Pouder of Cryſtal: after it is ſomething hard, keep it at a more gentle Fire for 12 hours, and it will be a lovely, pleaſant and glorious Green.

XXXI. *Another Emerald.*

Take fine Cryſtal ʒijſs. *Sal Alkali* ʒij. *Flos Æris* infuſed

fused in Vinegar and strained ℥i. *Sal Tartari* ℥iss. mix and lute them into a Crucible, and put all into a Glass-makers Furnace for 24 hours, and it will be glorious indeed.

XXXII. *Another Emerald.*

Take Crystal ℥x. *Crocus Martis* and Brass twice calcined, of each ℔j. mix and melt them, stirring them well with an Iron Rod.

XXXIII. *An Artificial Saphire.*

To melt Crystal, put a little *Zaphora*, (℥ij. to ℔j. of Crystal) then stir it continually from top to bottom with an Iron Hook, till it is well mixed, keep it in the Furnace 3 days, and it is done; yet when it is well colored, unless it be presently removed from the Fire, it will loose its Tincture again.

XXXIV. *Artificial Amber.*

Boil Turpentine in an Earthen Pot, with a little Cotton, (some add a little Oil) stirring it till it is as thick as Paste, then put it into what you please, and set it in the Sun 8 days, and it will be clear and hard; of which you may make Beads, Hafts for Knives, and the like.

XXXV. *Another way to Counterfeit Amber.*

Take 16 Yolks of Eggs, beat them well with a Spoon; Gum Arabick ℥ij. Cherry-tree Gum ℥j. make the Gums into Pouder, and mix them well with the Yolks of Eggs; let the Gums melt well, and put them into a Pot well leaded, then set them 6 days in the Sun, and they will be hard and shine like Glass; and when you rub them, they will take up a Wheat Straw as other Amber doth.

XXXVI. *To make yellow Amber soft.*

Put yellow Amber into hot melted Wax well scum'd, and it will be soft, so that you may make things thereof in what form and fashion you please.

XXXVII. *Another Artificial Amber.*

Take Whites of Eggs well beaten, put them into a Vessel with strong White-wine Vinegar, stop it close, let it stand 14 days, then dry it in the Shade, and it will be like to Amber.

XXXVIII. *Another Artificial Amber.*

Break Whites of Eggs with a Spunge, take off the Froth, to the rest put Saffron, put all into a Glass close stopt, or into a Copper or Brazen Vessel, let it boil in a Kettle of Water till it be hard; then take it out and

ſhape it to your liking, lay it in the Sun, and anoint it often with Linſeed Oil mixed with a little Saffron; or elſe being taken out of the Kettle, boil it in Linſeed Oil.

XXXIX. *To make White Enamel.*

Take Calx of Lead ʒii. Calx of Tin ʒiv. make it into a body with Cryſtal ʒxij. roll it into round Balls, and ſet it on a gentle Fire for a night, ſtirring it about with an Iron Rod till it is melted, and it is done.

XL. *The general Preparations and Proportions of Mineral Colors.*

Plates of *Copper* muſt be made red hot, and then quenched in cold Water; of which gr. v. or vj. mixed with Cryſtal and *Sal Tartari*, of each ʒſs. and melted, will color a Sea-green.

XLI. *Iron* muſt be made into a *Crocus* in a reverberatory Fire; of which gr. viij. or x. will tinge the ſaid ʒj. of mixture in a Yellow or Hyacinth color.

XLII. *Silver* is to be diſſolved in *Aqua Fortis*, and præcipitated with Oil of Flints, then dulcified with Water and dryed; of this gr. v. or vj. to ʒj. gives a mixed color.

XLIII. *Gold* muſt be diſſolved in *Aqua Regis*, and præcipitated with Liquor of Flints, then ſweetned and dryed; of which gr. v. or vj. to ʒj. gives a glorious Saphirine color. *Gold* melted with *Regulus Martis nitroſus* gr. v. or vj. to ʒj. gives an incomparable Rubine color.

XLIV. *Magneſia* in Pouder only gr. x. or xij. to ʒj. makes an Amethyſt color.

XLV. *Granata* in Pouder only gr. x. or xv. to ʒj. will tinge the Maſs into a glorious Smaragdine color, not unlike to the natural.

XLVI. Common Copper makes a *Sea-green:* Copper of Iron, a *Graſs-green:* Granats, a *Smaragdine:* Iron, *Yellow* or *Hyacinth:* Silver, *White*, *Yellow*, *Green* and *Granat:* Gold, a fair *Sky-color:* Wiſmut, a common *Blew:* Magneſia, an *Amethyſt color:* Copper and Silver, an *Amethyſt color:* Copper and Iron, a *pale Green:* Wiſmut and Magneſia, a *Purple color:* Silver and Magneſia, an *Opal*, and the like.

XVII. *To make Azure.*

Take *Sal Armoniack* ʒiij. Verdigriſe ʒvj. make them into Pouder, and put them into a Glaſs with Water of Tartar,

Tartar, so that it may be somewhat thick, stop the Glass and digest in Sand in Horse-dung for 8 or 10 days, and it will be good Azure.

XLVIII. *Another way to make good beyond Sea Azure.*

Beat common Azure with Vinegar, and anoint therewith thin Plates of Silver, and put the same over a Vessel full of Urine, which set over hot Ashes and Coals, moving and stirring it till it looks like good Azure.

XLIX. *To Foliate Looking-Glasses.*

Take Jupiter and Saturn, of each p. j. melt them; and forthwith add of good Tin Glass p. ij. carefully skim off the Dross, take it from the Fire, and before it is cold put to it good Quick-silver p. x. stir all together, and keep this foliating Liquor in a clean new Glass for use. When you use it, strain it from its Dross through a Cloth.

L. *To reduce Talck, &c. into fine Pouder.*

First heat great lumps of Talck red hot, and then cast them into cold Water 8, 10 or 12 times, and they will be immediately reduced into a mealy Calx, Snow white. Where note, 1. You must take *English* Talck, not *Venetian*, for that will not do. 2. After the same manner may Crystals and Flints be brought in a trice into a very subtil Pouder.

LI. *To reduce Glass into its first Principles.*

Take Bits or Pouder of Glass *q. v.* with an equal quantity of the Salt which Glass-men use in making of Glass: melt them together in a strong Fire: then dissolve all the melted Glass in warm Water: pour off the Water, and you shall see no Glass, but Sand in the bottom. Thus you may see, that the Fusion of Glass, is not the last Fusion, nor beyond any Reduction.

LII. *To make a cold Cement for Bricks.*

℞ Old *Cheshire* Cheese freed from its outside, and grated small ℔j. Cows Milk ℔ij. mix and let them stand all night. Then take of the best unslacked Lime in very fine Pouder ℔j. put it to the former, and stir them well together: to this add the Whites of 26 or 28 Eggs, and mix them perfectly well; so will you have a white Cement for cementing Bricks together, to make a Block or Mass for Mouldings, Capitals, Carvings, *&c.* If you would have it of the color of Brick, add very fine Brick-dust *q. s.*

LIII. *To*

LIII. *To make a hot Cement for Bricks.*

℞ Rosin ℔iv. Bees-wax ℔j. Chalk, Brick-dust, both in subtil Pouder, *ana* ℥ij. mix and boil all together a quarter of an hour, stirring it all the while, then let it stand 4 or 5 minutes, and keep it for Use. First make the Bricks hot by the Fire, then spread on this Cement, and rub them too and fro, till they sit as close as you would have them.

CHAP. IX.

Of Artificial Gems in general.

I. IT is our Endeavour in this Work, to make Art imitate Nature: and that is here done to such a degree, as *that the Artificial Gems seem to surpass the natural Oriental ones in Beauty and Color*, and want nothing of their Perfection but that of Hardness; which, whether it will ever be attained to by Art, is a Point we leave to the future Series of Time to determine.

II. The Basis of Artificial Gems, is Natural or Rock Crystal, being a *Substratum* made only of a congealed Water and a pure subtil Earth, as other precious Stones are.

III. But they differ from Crystal in this, that they are tinged with a proper Sulphur or unctuous Substance, which has insinuated it self into the Pores of their Composition, which not only tinges them, but also fixes them, and gives to them that admirable Beauty and Hardness which they possess.

IV. This Sulphur is thought to be an Exhalation of Metaline and Mineral Spirits, ascending up by force of a Terrene Centural Fire, containing a vast number and variety of Colors undetermined, till brought into Act, and fixt in their proper Subjects.

V. *Now, the Art of making these counterfeit Gems, is the Imitation of Nature*, by giving to a proper Matter or Body, such as is that of Rock Crystal, such Metaline and Mineral Tinctures, as shall be extracted from Metals and Minerals, perfectly fine and subtil in themselves, and able

ble to resist the Fire: and these Tinctures, tho' Volatile, are fixed in Crystal without altering their color.

VI. *Verbigratiâ.* Verdigrise, when put on the Fire, tho' it changes its color, yet being mixed with Crystal in Fusion, it is fixt, and unchangeable in its Tincture; for Metaline and Mineral Colors always return to their Principle, and tho' they be Volatile, yet they are retained by the great quantity of the fixed which Chains or over-powers them.

VII. You must therefore chuse unalterable Colors, which have a Fixity in the midst of Fire, being mixed one with another. *Ex. gr. Blew* and *Yellow* make a *Green*; you must therefore take such a *Blew* as cannot be altered by Fire, nor be totally overcome by the *Yellow* you mix with it; as also a *Yellow*, which the Fire cannot change, nor yet be totally overcome by the *Blew*: the same understand of other Colors.

VIII. He who first wrote on this Subject was *Isaac Hollandus:* he it was that first discovered this admirable Art of making Gems, and performed many other things almost incredible: here we shall give you some of his Preparations, amongst the heap of Modern Curiosities of this kind, in respect of *Pastes*, *Tinctures* and *Operations*, or Modes of Working, which every Artist may consider of at Leisure.

IX. *To Prepare Rock Crystal for this Purpose.*

℞ A good quantity of pieces or bits of Rock Crystal, put them into a large Crucible, which cover, that no Ashes may fall into it: put it into a Furnace in the midst of a good Fire, till the Crucible and Crystal are throughly red hot: then quench the Crystal in a large Vessel full of cold Water: take out the Crystal and dry it, put it into the Crucible again and heat it red hot, and quench it again; this Work repeat 12 times, so will the Crystal easily break and crumble; if any thing is black in it as a black Vein, or the like, be sure to pick it out: then beat it to Pouder in a Brass (not Iron) Mortar, and grind it impalpable, not on a Porphyry, but in the same Mortar, and pass it thro' a Search; which Pouder keep for making Artificial Gems of. You must not use Crystal Frit, nor *Chalcedony*, nor *Tarso*, nor any other Stones, how good and fair soever they be; for that which is made of them will be far less fair and resplen-

reſplendent, than that which is made of this Pouder of Natural Cryſtal, which the neareſt approaches to the Subſtance of Gems or precious Stones. See another Preparation in *cap.* 4. *ſect.* 29. aforegoing.

X. *To make very pure Sal of Tartar.*

Be Rheniſh Tartar, put it in a Crucible or Pan, and calcine to greyneſs: extract the Salt in warm Water, filter, and evaporate to dryneſs: diſſolve this white Salt again in fair warm Water, and evaporate again over a gentle Fire: take it off the Fire, and caſt it into cold Water, and you will find a thick Froth on the Surface thereof, which skim off with an Ivory Skimmer, having holes in it, no bigger than a ſmall Pin: put it on the Fire again, and evaporate, and caſt it upon freſh cold Water, and skim it as before: repeat this Work ſo long till you find no more Froth aſcend; then evaporate over a gentle Fire to dryneſs, and keep this Salt in a Glaſs cloſe ſtopt for Uſe, freed from all its Foulneſs and Unctuoſity, which cauſes its eaſy Fuſion. It is uſed in Cryſtal with your Colors when they are put to be melted.

XI. Tho' the making of Paſtes is an eſſential Point, becauſe the Beauty of the Gem depends upon it; yet the baking or boiling is alſo of material conſequence, becauſe, if that is ill done, the whole is ſpoiled: you muſt not only well regulate the Fire whilſt the Matter is in the Furnace, but you muſt be careful that your Crucibles do not break before the Maſs is well boiled and purified: if it breaks, and you put the Maſs into another Crucible, it will be full of Puſtules and Bliſters, and indeed be ſpoiled.

XII. *In this caſe, it is better to let the Crucible cool, if it is not quite broken*, and then lute it well, putting it into the Furnace again, to finiſh the boiling.

XIII. But, to avoid the danger of breaking your Crucibles, you ought to get them made of ſuch Earth as the Pots for making Glaſs are made of, which will endure the Fire longer than here we ſhall have any occaſion for: otherwiſe you may make uſe of the blew *German* Crucibles, becauſe they will endure the Fire much better than our ordinary ones.

XIV. *Or thus*, Take our ordinary Crucibles, or the *German* Crucibles, heat them in the Fire, and quench them in Oil Olive, letting it ſoak a little in: then take

Glaſs

Glass reduced into impalpable Pouder, adding to it some Borax in Pouder, to help the Fusion, and strew it all over the Crucible, both within and without, as thick as you can: put it into a Furnace in a small heat, and after encrease the Fire to a melting heat; so will the Glass melt, and vitrify the Crucible, and thereby be made able to endure the Fire much longer, than can be any ways required for this Work.

XV. Next, as to the Pastes, you must put a fit Proportion of the Color into them: if you make small Stones for Rings, the color must be the deeper, because of their smalness: if they are made for Pendants, the color must yet be deeper: but if greater Stones, the color may then be the lighter: but this much depends upon the Skill and Experience of the Artist or Work-man.

XVI. It is also to be observed, that a very fine *Red* may be extracted from *Gold*; and one a little more obscure from *Iron*: an excellent *Green* may be had from *Copper*; and a *Golden* color from *Lead*: a delicate *Blew* from *Silver*; but a much fairer from *Granats* of *Bohemia*, which are of small Price by reason of their smalness, but yield a very excellent color: and the same may be done from *Emeralds*, *Saphirs*, *Rubies*, and other precious Stones.

XVII. It is also to be noted, that Glass of Saturn always makes Stones softer and heavier than other-Materials: but if we make them of Rock Crystal, they will be much harder, adding to it the Tinctures which color them, and the fine *Sal Tartari*, as made at *sect.* 10. above; for this opens the Crystal and makes it the better to imbibe, or be impregnated with the Colors you intend to tinge the Mass of, making them more bright and shining.

XVIII. *Lastly*, That prepared Rock Crystal at *sect.* 9. above, is the Basis, or Ground and Foundation of all our Artificial Gems or Precious Stones; and without this, nothing excellent or drawing to Perfection, can be done in this Art.

CHAP.

CHAP. X.

A Paste for a Beryl, or Sky-Color, called Aqua Marina.

I. *A Paste for a Beryl.*

℞ Rock Crystal prepared (as in *cap. 9. sect. 9.*) ʒx. *Minium* or red Lead ʒxxv. *Zaffer* prepared ȝv. gr. v. being all in fine Pouder, mix, and in a Crucible covered and luted, proceed as in *cap.* 14. *sect.* 3. following, so will you have a fine Sky-color. Or, ℞ Rock Crystal prepared ʒx. *Æs Ustum* ʒj. gr. xv. mix, and in a Crucible perform the Work as the former.

II. *Another Beryl or Egmarine.*

℞ Pouder of Rock Crystal ʒx. fine Salt of Tartar (in *cap. 9. sect.* 10.) ʒx. Salt of Vitriol ʒlx. all being in fine Pouder, searced and mixed in a Brass Mortar, proceed as in *cap.* 14. *sect.* 3. following.

III. *Another deeper Beryl or Egmarine.*

℞ Prepared Rock Crystal ʒx. fine Verdigrise ʒiij. ȝj. fine Salt of Tartar ʒxiijss. mix all in a fine Pouder in a Brass Mortar, and proceed as before, *cap.* 14. *sect.* 3.

CHAP. XI.

To make a Chalcedony.

I. *TO make an* Aqua Fortis *for this Purpose.*

℞ Roch Alum calcined on a Fire-shovel ℔xv. refined Nitre ℔v Crystaline Arsenick ʒxx. all being in fine Pouder, add to it fine Sand or Lime ʒxxxv. mix, and in a Glass Cucurbit make an *Aqua Fortis*, distilling to dryness. To every pound of the *Caput Mortuum* add refined Nitte, mix and put it into the Cucurbit, and affuse thereon all the before distilled *A. F.* and distil again. This *A. F.* is called Water of Separation, and is that which is fit for our Use. *Note*, Some instead of the Roch Alum, take the best *Roman* Vitriol, such as if it is rubbed

rubbed on a piece of well polished Iron, will leave a Copper color behind it. This *Roman* Vitriol ought to be purified by dissolving in fair warm Water, letting it stand 3 days, that the yellow Fœces may settle: then decanting the clear Liquor, filtrating it, evaporating and crystalizing, and repeating this Work of dissolving, filtering and crystalizing 3 times.

II. *To make a fair Yellow Præcipitate.*

1. ℞ Of the aforegoing *A.F.* ℔ij. put it into a Bolt-head; and put to it fine Silver in Filings or thin Plates ʒiv. and in a gentle Sand heat or warm Water, dissolve, which will be instantly done. 2. ℞ *A.F.* (at *sect.* 1.) ℔jss. put it into another Bolt-head; and put into it Quick-silver ʒvj. mix and dissolve. 3. Put both these Solutions together in a third Bolt-head much greater, add to it *Sal Armoniack* ʒvj. dissolve over a gentle Fire, or in B.M. *viz.* warm Water. 4. Then add to it *Zaffer* prepared ʒj. *Manganese* prepared ʒss. *Ferreto* of *Spain* ʒss. put them in by little and little, for fear of breaking 5. Add to these things *Crocus Martis* made with Sulphur (in *cap.* 6. *sect.* 6.) ʒj. Scales of Copper thrice calcined, (in *cap.* 7. *sect.* 11.) which ought to boil like *Manganese* ʒj. blew Lake which Painters use, *Minium*, of each ʒj. the whole being in fine Pouder. 6. In putting in these Pouders, gently shake or stir the Glass, that they may the better incorporate with the *A. F.* and let there not be too much heat; stop the Matrass close, digest 10 days, stirring it every day, that the Pouders dissolving may yet præcipitate. 7. Evaporate the *A.F.* in a gentle Sand Furnace in 24 hours; so will you have a yellow Præcipitate, which keep in a Glass close stopt for Use.

III. *To make a fair Chalcedony in Glass.*

℞ White Crystal Glass well purified, or which has been often melted ℔xx. which put into a Pot and melt it: of the former yellow Præcipitate ʒiij. put it in at 3 times, mixing it well after each time, that the Præcipitate may well incorporate: let it stand an hour, stir it well again, and let it stand 24 hours: after stir it again the last time, and make an Essay, to see whether it gives a yellowish Azure color: if right, take the Pot out and let it cool; so will you have Colors representing the Waves, and several other Appearances. But if you would have it a fair Chalcedony, you must put into the former

former melted Metal, this Mixture. ℞ *Calcined Tartar calcined to whiteneſs in 6 hours* ʒviij. *Soot purified* ʒij. Crocus Martis *calcined with Sulphur* ʒſs. *mix them well:* let it be put in at 5 or 6 times, leſt it ſwell violently and break the Pot, which is avoided by putting it in by little and little, ſtirring it well each time, that the Ingredients may well incorporate: make the Pot boil, and let it ſtand 24 hours, and then you may work it. It will be green, blew, white, red, yellow, and of other colors, *&c.* looking on it obliquely, it will look red like Fire; and if held to the Sun, it will have by Reflection, the colors of the Rain-bow, being poliſhed at the Wheel. If it is pale, you muſt add to it more of the laſt Mixture, ſtirring it well, *&c.* It is uſed for Princes Heads, Cups, making Seals, *&c.* becauſe being graven, the Wax will not ſtick to it.

IV. *To make an Orange Tawney Præcipitate.*

1. ℞ *A. F.* ℔j. put it into a Glaſs Matraſs; to which put Filings or granulated Silver cupulated ʒiv. diſſolve. 2. ℞ *A. F.* ℔j. put it into another Glaſs Body: add purified Quick-ſilver ʒv. diſſolve. 3. ℞ *A. F.* ℔j. put it into another Glaſs Body; to which put *Sal Armoniack* ʒij. mix and diſſolve: after it is diſſolved, add to it *Crocus Martis* made with *A. F.* (in *cap.* 6. *ſect.* 9.) *Ferretto* (made as in *cap.* 6. *ſect.* 4.) Copper calcined (in *cap.* 7. *ſect.* 9.) Leaves of Copper or Braſs calcined (in *cap.* 7. *ſect.* 8.) of each ʒſs. all being in Pouder, put it in by little and little, leſt the Veſſel ſhould break. 4. ℞ *A. F.* ℔j. put it into another Glaſs Body; to which put *Sal Armoniack* ʒij. being diſſolved, add *Gradatim*, crude Antimony, blew Enamel which Painters uſe, red Lead, Vitriol well purified, *ana* ʒſs. all being in fine Pouder. 5. ℞ *A. F.* ℔j. put it into another Glaſs Body; and put to it Sal Armoniack ʒij. being diſſolved, add to it *Zaffer* prepared ʒij. Cinnabar ʒi. thrice calcined Copper (in *cap.* 7. *ſect.* 10.) ʒſs. all being in fine Pouder, put it in by little and little, for fear of breaking. 6. ℞ *A. F.* ℔j. put it into another Glaſs Body: Sal Armoniack ʒij. being diſſolved, add Ceruſe ʒij. by little and little, becauſe it makes a great Fermentation: then add Painters red Lake, Scales of Iron from the Anvil, *ana* ʒij. putting them in *Gradatim.* 7. The Solutions of the Materials being done, in about 12 days time, put all toge-

neſs

ther into another large Matrafs well luted, fhake them well together; and putting on a Glafs-head, in a gentle Sand heat, draw off the *A. F.* in about 24 hours time: towards the end, let the Fire be very gentle, leſt the Pouder is ſpoiled by too much heat. This Pouder keep in a Glafs cloſe ſtopt for Uſe.

V. *To make a Chalcedony finer than the former.*

℞ White Glafs or Cryſtal ℔ 20. melt it well in a Pot; and put thereto of the former yellowiſh red or orange Tawney Præcipitate ℥iij. or more, ſtirring and digeſting till it is perfect, as we have before directed.

VI. *To Purify Sea or Common Salt.*

℞ Salt *q. v.* diſſolve it in fair warm Water *q. ſ.* let it reſt 24 hours, decant the clear from the Fœces, and evaporate to dryneſs in a Glafs Veſſel or Cucurbit: diſſolve again, and evaporate to dryneſs; and this continue till no more Fœces ſettle, ſo is it purified and prepared.

VII. *To make a Green-yellow Præcipitate.*

1. ℞ *A. F.* ℔j. put it into a Glafs Matraſs, and put to it Leaf Silver ℥iv. mix and diſſolve. 2. ℞ *A. F.* ℔j. Quick-ſilver purified with Salt and Vinegar till its blackneſs is gone ℥v. mix in a Glafs Matraſs, and diſſolve. 3. ℞ fine Silver in Filings or Leaves ℥iij. amalgamate it with Quick-ſilver, (as Gold-ſmiths do) add to it the full weight of common Salt purified: mix, and over hot Coals evaporate the Mercury, the Silver remaining purified and calcined at bottom. 4. Add to this calcined Silver an equal weight of Salt purified, (at *ſect. 6.*) mix well together, and in a Crucible calcine anew; free the Calx from the Salt, by waſhing in warm Water; after boil it in fair Water, which do 3 times, and then dry it. 5. ℞ *A. F.* ℔j. put it into a Matraſs, and put to it the former Calx of Silver, ſtop the Veſſel and let it diſſolve. 6. ℞ *A. F.* ℔j. put it into another Matraſs: Sal Armoniack purified ℥iij. (*viz.* diſſolved and filtered till it leaves no Fœces) fine Silver Calx ℥ij. mix them. 7. ℞ *A. F.* ℔j. Sal Armoniack ℥ij. being diſſolved, put into it *Crocus Martis* made with Sulphur, (in *cap. 6. ſect. 6.*) Cinnabar, Ferretto of *Spain*, (in *cap. 6. ſect. 4.*) Ultramarine, *ana* ℥ſs. all being in Pouder, put it in *Gradatim*, and ſtop the Matraſs. 8. ℞ *A. F.* ℔j. purified Sal Armoniack ℥ij. being diſſolved, add to it *Crocus Martis*,

(in *cap.* 6. *sect.* 7.) Putty or calcined Tin, Zaffer prepared, Cinnabar, *ana* ʒfs. put it in *Gradatim.* 9. ℞ *A.F.* ℔j. Sal Armoniack ʒij. dissolve, and add Copper Leaves calcined (in *cap.* 7. *sect.* 8.) ʒj. Scales of Copper thrice calcined, (in *cap.* 7. *sect.* 11.) *Piedmont* Manganese prepared, Scales of Iron falling from the Smith's Anvil in Pouder, *ana* ʒfs. all being in fine Pouder, mix *Gradatim.* 10. ℞ *A.F.* ℔j. Sal Armoniack ʒij. mix and dissolve: add to it Scales of Copper thrice calcined (in *cap.* 7. *sect.* 11.) ʒj. red Lead, crude Antimony, *Caput Mortuum* of Vitriol purified, (in *cap.* 7. *sect.* 5.) *ana* ʒfs. mix *Gradatim.* 11. ℞ *A.F.* ℔j. Sal Armoniack ʒij. dissolve, and add to it Orpiment, white Arsenick, Painters Lake, *ana* ʒfs. being in Pouder, mix *gradatim.* 12. All these Compositions being well dissolved in the Waters over a gentle Sand heat, or in B.M. and digested 15 days in the same heat, stirring them often every day, then put all that is in each Matrass together into a great Glass Body, by little and little; mix well, and unite them together: digest well close stopt for 6 days; and afterwards, in a Glass Cucurbit well luted, draw off in a gentle Sand heat the *A. F.* to dryness, letting the Fire be very gentle towards the end, for fear of spoiling the Colors, and that some of the Spirits may remain in the Præcipitate, which will be of a green yellow.

VIII. *To make a Chalcedony, much surpassing the former two in Beauty.*

℞ Purified Glass Metal, or bits of fine Crystal (not Frit) ℔20. being melted, put into the Pot of the former Præcipitate ʒiij. and add to it, in its due time, calcined Tartar ʒviij. Soot purified ʒij. *Crocus Martis* made with Vinegar (in *cap.* 6. *sect.* 7.) ʒfs. observing all that we have said in *sect.* 3. above, after which you may work it, being of an extraordinary Beauty, beyond Expectation.

CHAP.

CHAP. XII.

Pastes for an Oriental Chrysolite.

I. *AN Oriental Chrysolite.*

℞ Rock Crystal prepared ʒ20. *Minium* in fine Pouder ʒ80. or ℔v. *Crocus Martis* made with Vinegar (in *cap. 6. sect. 7.*) ʒij. mix all well together, put it into a Crucible, and into the Furnace, leaving it a little longer there than you do in others, that it may be purified from the Lead; so have you a Paste for an Oriental Chrysolite, which will appear wonderful, set with a foil in Gold.

II. *Another way.*

℞ Pouder of Rock Crystal, (in *cap. 9. sect. 9.*) *Saturnus Depuratus, ana* ʒ10. *Crocus Martis* prepared ʒi. all being in fine Pouder and well mixed, put them into a Crucible, which cover and lute, observing the same Orders in the Boiling or Baking as in the former; so will you have a delicate green Chrysolite color.

III. It is to be noted, That what the Ancients called a *Topaz* or *Chrysopas*, which is a Gem, green and diaphanous, with a Gold Lustre, our Modern Jewellers call a *Chrysolite*, because some of them have a great Resemblance one of another. It is a Stone very hard, and will not easily endure the File; and sometimes pieces of it have been found big enough to make Statues of 6 foot high; as that made in Honor of *Q. Arsinoe*, Wife of *Ptolomeus Philadelphus*.

CHAP. XIII.

Of making fair Oriental Diamonds.

I. *THE first way of making Diamonds.*

℞ Prepared Crystal in Pouder (in *cap. 9. sect. 9.*) *q. v.* fill a Pot with it, put it in a Glass-house Furnace 12 hours, to be melted and purified: put it into cold

Water, dry and reduce it again to Pouder: add to that Pouder its equal weight of our pure refined Salt of Tartar, (in *cap. 9. sect.* 10.) mix them well, and make little Pills or Balls thereof, with fair Water: wipe them, and put them into an Earthen Pot, over a strong Fire, to grow red hot without melting for 12 hours: then put them into a Pot in a Glass-house Furnace, to melt and purify for 2 days: after which put the Matter in the Annealing Furnace, to cool *gradatim*: break the Crucible, and you have a pure Mass for Diamonds, which cut and polish at the Wheel.

II. *The second way: To make the Diamond of* Alanson.

Put Filings of Steel into an Earthen glazed Pot, with some Vinegar *q. v.* in which place, one by another, Crystals cut and polished: put common Water gently on it; warm and boil for 12 hours, adding fresh boiling Water as it consumes: then see if the Crystals have obtained the color and hardness you desire; if not, continue the Fire some hours longer, and they will be like the true *Alanson* Diamonds: polish them again at the Wheel, to give them Beauty and Brightness.

III. *The third way: To Harden Crystal and* Alanson *Diamonds.*

℞ *Dutch Trepoli*, make a Paste of it with Smiths Forge Water: in this wrap up the Crystals you design, cut and polish, put them in a Crucible, which cover and lute over a gradual Fire, let it stand till the Pot is red hot: after a while take it out, and take the Stones and polish them at the Wheel, to give them their Color and Water. To set them, take *Indian* Paper and Leaves of Tin like those put behind Looking-Glasses, and they will be difficult to discern from those which are true.

IV. *The fourth way: To Harden Crystal and* Alanson *Diamonds.*

℞ Fine Barley Meal, mix it with *Petroleum*, and make a Paste: cut it in the middle, and put all your Stones into it, but so as they may not touch one another: cover them with the other half of the Paste, put the Mass into a Crucible covered with another, and well luted together: when dry, set it in a gradual circulary Fire for 6 hours: for the first 2 hours, let the Fire be small, and then encrease it from 2 to 2 hours to the end of the 6 hours.

hours. Let all cool of it self; break the Crucible, and your Stones being repoliſht at the Wheel, will be very beautiful, fine, clear, ſhining, and ſparkling like excellent Diamonds.

V. *The fifth way: To Harden Cryſtals and* Alanſon *Diamonds.*

℞ Load-ſtone, Quick-lime, *ana* ℔j. Sulphur ℔ſs. all in Pouder; mix them well: with this Pouder cement Cryſtals and *Alanſon* Diamonds well cut, in a Crucible, laying them S. S. S. cover and lute it well: being dry, ſet it in a Glaſs houſe Furnace 3 days, in a continual red hot heat, but ſo as it may not melt: afterwards take not out the Crucible at once, but let it cool gradually, leſt the Stones break. Break the Crucible, take out the Stones, and poliſh them again at the Wheel, and they will be very beautiful, ſhining and ſparkling, reſembling Diamonds of the old Rock, ſcarcely to be diſtinguiſht from true ones. This is a great Secret.

VI. *The Sixth way: To Extract the Tincture, and make very fair and hard Diamonds of* Jargons *of* Auvergne.

1. You muſt boil theſe Stones in a Pot of Mutton Suet; ſo will they looſe all their red color, and become white. 2. ℞ Emery, ſulphureous *Tripoli*, Pumice-ſtone, Cryſtal, *ana* all in fine Pouder, and ſearced thro' a fine Sieve: make a Paſte of it with Brandy, and therewith cement your *Jargons*, laying them S. S. S. in a great Crucible; cover it with another, and lute them well: being dry, put them in a Furnace over a gentle Fire for half an hour; then encreaſe it till it is hot enough for Fuſion; in which leave the Crucibles for 14 hours: let the Fire go out, and the Crucible cool of it ſelf: then break it, and your Stones will be fine, hard, ſhining and ſparkling, and of a true Diamond color, ſo exact, that Goldſmiths and Jewellers have been cheated with them. 3. The ſulphureous *Tripoli* is thus made: ℞ *Crude Antimony*, Tripoli, *Sulphur*, ana: *grind them impalpable on a Porphyry; make them into a Paſte with Vinegar; which being dry, reduce into Pouder for the former Uſe.*

VII. *The ſeventh way: To change a White Saphir into a true Diamond.*

℞ Pure fine Sand, waſh it in Water till it is perfectly clean, and dry it: fill a Crucible half full of it, then

put in your Saphir, and fill it up with the ſame Sand: cover the Crucible with a Cover of the ſame Earth, lute the whole with good Lute, laying it an Inch thick, and dry it in the Shade: then ſet it in a Glaſs-houſe Furnace, ſetting it nearer and nearer to the Fire by degrees, leaving it 12 hours in the ſame degree of heat: take it out gradually in the ſpace of 6 hours, and let it cool eaſily: when cold, break the Crucible, and you will find your Saphir of the fineneſs, ſhining and hardneſs of a Diamond, ſeeming (when poliſhed at the Wheel) even to ſurpaſs Nature.

VIII. *The eighth way: Another way to turn a White Saphir into a true Diamond.*

℞ Leaf Iron and wrap up your Saphir in it: then take fine Gold *q. ſ.* flux it in a Crucible in an ordinary Wind Furnace: when it is in good Fuſion, put in the Saphir covered with the Leaf Iron or thin Plate, ſo that it may float on the Gold, and ſink into it: give it a ſtrong Fire for 12 hours, the Gold being all the while in Fuſion: then with a ſmall pair of Tongues take out the Saphir, ſhaking off the Gold which may hang to it, let it cool gently, for fear of breaking; ſo will you have a Saphir, having all the Perfections of a true and natural Diamond; poliſh it at the Wheel, and work it. The ſame may be done with fine Silver.

IX. *The ninth way: Another Method to turn a White Saphir into a true Diamond.*

Fill a Crucible half full of Filings of Iron or Steel, put in your Saphir, and fill up the Crucible with more Filings, ſo as to be wholly covered. Set the Crucible in the Furnace, and give it a good Fire, that the Filings may be red hot without melting: when it has been in ſome time, take it out with a pair of Tongs, and ſee if it is right colored; if not, put it into the Filings again; and repeat this Work till it is perfect. The ſame may be done with equal parts of Filings, and white Enamel in Pouder, being made into a Paſte with Spittle, and well dryed, putting the Saphir in the middle, *&c.*

CHAP.

CHAP. XIV.

Paſtes for an Oriental Emerald.

I. *TO make an Oriental Emerald.*

℞ Of the Paſte in *cap.* 5. *ſect.* 22. ʒx. Verdigriſe prepared ʒſs. Ferretto of *Spain* (in *cap.* 6. *ſect.* 2.) ʒſs. all being in fine Pouder, mix together, put it into a Crucible, cover it with another, lute it and dry it: ſet it in a Glaſs-houſe Furnace for 3 days; and after in the Annealing Furnace for 12 hours: then break the Crucible, and you will find the Maſs tinged of a very fine Oriental green color, which then cut and poliſh.

II. *Another way.*

℞ Of our Cryſtal ʒx. prepared *Sal Tartari* (in *cap.* 9. *ſect.* 10.) ʒxſs. *Crocus Martis* ʒſs. all being made into a fine Pouder in a Braſs Mortar, put it into a Crucible, which cover with another, lute them together, and put them into a Glaſs-houſe Furnace for 24 hours; and then into an Annealing Furnace for 12 hours, to cool *gradatim:* then take it out, cut and poliſh it, and it will be a right Emerald.

III. *A Paſte for Oriental Emeralds.*

℞ Rock Cryſtal prepared (in *cap.* 9. *ſect.* 9.) ʒx *Minium* or red Lead ʒxx. poudred and ſearced: fine Verdigriſe well beaten ʒſs. *Crocus Martis* with Vinegar prepared (in *cap.* 6. *ſect.* 7.) gr. xl. mix all well together, put it into a ſtrong Crucible able to reſiſt the Fire, leaving an Inch or more empty: cover it with an Earthen Cover, lute it well and dry it: put it in the hotteſt place of a Potters Furnace, and let it ſtand as long as their Pots: when cold, break the Crucible, and you will find *a very beautiful Emerald, which when Poliſht and ſet in Gold, will ſurpaſs in Beauty the true Oriental.* You muſt make Tryal whether it is fine and pure enough; if not, you muſt put it into the Furnace again till it is enough: and this you may know by lifting up the Cover; if it appears ſhining, it is well; if not, you muſt lute the Cover on again, and put it into the Furnace as before, till it is throughly boiled and purified: if you break the Crucible before it is enough, and then put it into another

Crucible, your Paſte will be painted, diſcolored and full of Bliſters.

IV. *Another deeper Emerald.*

℞ Rock Cryſtal prepared (in *cap. 9. ſect. 9.*) ʒiv. *Minium* ʒxiij. Verdigriſe prepared ʒijſs. *Crocus Martis* (in *cap. 6. ſect. 7.*) gr. xx. mix well together, and proceed exactly as in the former *ſection*, only here, letting the Matter ſtand longer in the Fire; ſo will you have an excellent Oriental Emerald, which being ſet with a foil of the ſame Metal in Gold, will be admirably fine and fair.

V. *A fairer Paſte for Emeralds.*

℞ Rock Cryſtal prepared (in *cap. 9. ſect. 9.*) ʒij. *Minium* ʒvij. Verdigriſe gr. xviij. *Crocus Martis* gr. x. all being in Pouder, mix well and proceed as we have directed in *ſect. 3.* aforegoing; ſo will you have an Emerald fit for ſmall things, but not ſo hard as the former, becauſe of the great quantity of Lead in it: keep it long in the Fire, that the pale color of the Lead may vaniſh.

VI. *Another fairer Paſte for Emeralds.*

℞ Rock Cryſtal prepared *ut ſupra* ʒij. *Minium* in Pouder ʒvj. fine Verdigriſe in Pouder gr. viij. mix all well together, put them into a large Crucible, which cover and lute well, put it into the ſame Furnace as before, following the Directions in *ſect. 3.* above, *&c.* This will much ſurpaſs the former.

VII. *Another Paſte very fair.*

℞ Rock Cryſtal prepared *ut ſupra* ʒiv. red Lead, fine Verdigriſe ſearced, *ana* ʒij. mix all together, and proceed as in the former at *ſect. 3.* leaving the Crucible 36 hours in the Fire: after which you may caſt the melted Maſs into a Marble Mold heated, and put it near the Fire to cool gently; ſo will you have a beautiful Emerald, far harder and finer than any of the former, becauſe it has leſs Lead.

VIII. *An Obſervation.*

If you have not a Potters Furnace near at hand, you may contrive one your ſelf, which may hold 20 Crucibles at once, of as many differing Matters and Colors, ſo that one Labour may ſerve for many Works: but in heating your Furnace, you ought to uſe dry hard Wood, (as in boiling the Glaſs) and continue the Fire 24 hours; in which ſpace your Work ought to be finiſhed, but for

certainty

certainty sake, you may continue the Fire for 6 or 8 hours longer, and then it will be boiled enough; which being cold, and polished at the Wheel, and set with a foil in Gold, will exceed the true Oriental Emerald.

CHAP. XV.

Pastes for an Oriental Granat.

I. A *Paste for an Oriental Granat.*

℞ Rock Crystal prepared (in *cap. 9. sect. 9.*) ℥ij. *Minium* ℥vj. Manganese prepared gr. xvj. Zaffer prepared gr. ij. all being in Pouder, mix them, put the whole into a Crucible, which cover and lute, and proceed as directed in *cap.* 14. *sect.* 3. aforegoing: so will you have a Granat as fine and resplendent as the truly Oriental.

II. *Another deeper Oriental Granat.*

℞ Rock Crystal *ut supra* ℥ij. *Minium* ℥vss. Manganese prepared (in *cap.* 3. *sect.* 1.) gr. xv. all being in Pouder, mix them well together, and wholly proceed as directed in *cap.* 14. *sect.* 3. only leave more empty space in the Crucible, because the Mass here rises more; so will you have not only a deeper, but a fairer and more beautiful Oriental Granat than the former; which polish, *&c.*

III. *A Paste making yet a fairer Granat.*

℞ Rock Crystal *ut supra* ℥ij. *Minium* or rather Vermilion, in fine Pouder ℥vj. Manganese of *Piedmont* prepared gr. xxxvj. Zaffer prepared gr. iv. mix all well together, and put them into a Crucible, leaving a greater space than in any of the others, because the Matter rises more, and proceed exactly as in *cap.* 14. *sect.* 3. so will you have a very fine Granat, more beautiful than any of the former.

IV. *An Observation.*

There are several sorts of *Granats*, (as there are of *Emeralds* and other Gems) both *Oriental* and *Occidental*, some deeper than others, which Jewellers and Goldsmiths know how to distinguish by setting them on Silver Foils: but this is to be noted, That a *Granat* is very like to a *Carbuncle*, for both being exposed to the Sun, they

they give the color of live burning Coals, which is the exact color of Fire, being a mean between Red and Yellow.

CHAP. XVI.

Pastes for an Oriental Jacynth.

I. A *Paste for a fair Jacynth.*
℞ Rock Crystal Pouder *(ut supra)* ℥ij. *Minium* ℥v. Sublimate ℥ß. Verdigrise fine gr. xlviij. Leaves of Silver N°. xij. all being made into fine Pouder in a Brass Mortar, and searced thro' a fine Sieve, mix them well together and put into a Crucible, which cover with another, and well lute them: boil and purify in a Glass-house Furnace for 12 hours: take it out, and being cold, pouder and searce it again, and put it into a new Crucible, covering and luting it well, and set it again in a Glass-house Furnace for 24 hours; and afterwards 12 hours more in the Annealing Furnace: when cold, take out the Mass, cut and polish it, and it will be of a delicate Jacynth color.

II. *Another fairer Jacynth.*
℞ Of our Crystal in Pouder (in *cap. 9. sect. 9.*) ℥ij. *Minium* ℥vj. Verdigrise fine ℥iß. mix all well together, being made into Pouder, in a Brass Mortar, and searced: put them into a Crucible, cover and lute it, and proceed exactly as in the former; so will your Gem be admirable.

III. *Another Oriental Jacynth.*
℞ Rock Crystal *(ut supra)* ℥ij. *Minium* ℥vj. Arsenick prepared as for the *Topaz* ℥ij. Vitriol calcined to redness ℥ij. all being made into a Pouder in a Brass Mortar and searced, proceed as directed in *sect.* 1. above; so will you have a very fine reddish yellow Jacynth, such as are the truly Oriental.

IV. *To make Jargons of* Avernia *(which are called false Jacynths, when they are of an ill color) to be red and like the true natural Jargon.*
Make a Pouder of equal parts of purified Sal Armoniack,

ack and Tartar calcined to whiteness; being in fine Pouder, mix them well, and put your Jargons into a Crucible, laying them S. S. S. beginning and ending with the Pouder: put the Crucible into a good Coal Fire, but not so hot as to melt the Stones, but only to be red hot, that they may be only penetrated by the Pouder: then let it cool, and you will have your Jargons very fine, and of a red and shining color like a Jacynth, but full as good as the best colored Jargons.

CHAP. XVII.

Pastes for making Artificial Pearls.

I. THE *first way, to imitate Oriental Pearl.*

℞ Thrice distilled Spirit of Vinegar ℔ij. *Venice* Turpentine ℔j. put all into a Glass Cucurbit with its Head and Receiver, luting well the Joynts; and in a gentle Sand heat draw off the Vinegar. Put this Vinegar into another Glass Cucurbit, in which hang quantities of Seed Pearl strung on a small Silver Wyre, and done about with a piece of very fine Silk: put on the Cucurbit a blind Head, lute it well, and digest 14 days in B. M. so will the heat elevate the Fumes, and make them circulate about the Pearl, bringing them to the Consistence of Paste: then take them and mould them up in what form you please, round or longish, or Pear-like, and as large as you desire, making them in proper Silver Moulds: bore them through with a small Silver Wyre or Pin, and so let them dry a little: thread them again in Silver Wyre, and set them in a Glass close covered, to dry throughly to a perfect hardness: then put them into a Glass Matrass, in a Stream of running Water for 20 days, and they will come again to their first Solidity and Strength. Now, to make them Splendid and Oriental, you must take the Pearls, string them on Silk, and hang them in a Glass Vessel wherein is *Aqua Mercurii*, so they will become humid, swell and retrieve their Oriental Lustre: take them out of this Water, and put them into a Matrass, which Seal Hermetically, and

so

ſo put it down into the bottom of a Well, leaving it there for 8 or 10 days: then draw it up, and take them out, and you will find them beautiful and ſplendid, and as good even as Oriental Pearls themſelves.

II. *The ſecond way.*

℞ Oriental Seed Pearl *q. v.* make them into impalpable pouder on a Porphyry: diſſolve in *Aqua Mercurii* or clarified Juice of Limons, in a Cucurbit in a gentle Sand heat: what Cream or Skum appears at top, carefully take off as it ariſes: take the Veſſel from the Fire, let the Matter ſettle a little, and decant the Liquor gently into another Glaſs Body, and the Pearl will be in a Paſte at bottom. With this Paſte fill your Silver Moulds, made to what form and bigneſs you pleaſe, preſſing in the Paſte (not with your Fingers, but) with a Silver *Spatula*, ſo ſhut them up 24 hours, after which bore them through with a Silver Pin or Wyre, cloſe up the Moulds, and put them into an Oven in Barley Dough, which when half baked, take out and open, taking away the Pearl; and then ſteep them in the above decanted Liquor, putting them in and out ſeveral times: cloſe them again in their Moulds, and bake them again in like Dough as before, only let this be almoſt burnt up before you draw it out; ſo will your Pearls be well hardned. Open the Moulds and take out the Pearls, ſtring them on Silk, and ſteep them in *Aqua Mercurii* for 14 days: put them into a Glaſs Body, ſtop it cloſe, and dry them well in the Sun; ſo will they be fine and ſplendid.

III. *The third way.*

℞ Oriental Seed Pearl ground impalpable *q. v.* diſſolve it in Alum Water: decant the clear, and the Pearl Paſte will be at bottom: waſh it in diſtilled Rain Water, and digeſt it 14 days in Horſe-dung or in B. M. then take out the Veſſel, and the Matter being reduced to the Conſiſtence of a Paſte, form it in your Silver Moulds, bore them with a Silver Wyre or Pin, ſtring them on a fine Silver Wyre, and hang them in a cloſe ſtopt Glaſs Alembick, that the Air may not ſpoil them: thus dryed, Silver them one by one with Leaves of Silver; ſplit up a Barble, lay them in it without touching one another; cloſe up its body, which put in Paſte of Barley Meal, and bake it with a Batch of Bread, and no more: draw it out, and let them dry: if they be not hard

hard enough, you must bake them again. To give them Transparency and Splendor, first heat them, and then cool them in the following Water, repeating this heating and cooling 6 or 7 times. ℞ Seed Pearls ʒvj. Litharge of Silver, Nitre, Roch Alum, *ana* ʒj. Water *q. s.* boil over a gentle Fire 2 or 3 hours; and the Water is prepared for the former Work. But, if yet your Pearls should not be hard enough, you must once more bake them in the following Paste. ℞ Impalpable Pouder of *Lapis Calaminaris* ʒij. Oil of Vitriol ʒij. Water of Whites of Eggs ʒij. mix all in a Retort, luting thereto a Receiver; distil to dryness in a Sand heat, and you will have a Spirituous Water; with which and Barley Meal or Flower, make a Paste, in which put your Pearls, and bake them as before; so will they be very hard, and resume their original Orient Beauty.

Observations.

IV. *To make the* Aqua Mercurii *afore-mentioned.*

℞ Putty or Tin calcined very fine and pure ʒj. Quicksilver purified ʒij. mix and make an Amalgama: wash this with fair Water till it comes off clear and colorless: then dry it perfectly, put it into a Matrass, with such a degree of heat as is necessary for Sublimation: when sublimed and cold, take out the Sublimate, to which add *Venetian* Corrosive Sublimate ʒj. grind them well together on a Porphyry: put them into another Matrass, close it very well and sink it all over in a Vessel of Water; so in a short time the whole Mass will be resolved into Water: this filter into a Glass Receiver, and coagulate on a gentle Sand heat to a crystaline Substance: this reduce in a Mortar to a very fine pouder, which search thro' a fine Sieve, put it into a Matrass, stop it well and digest in *B. M.* to be resolved into Water, which keep for Use.

V. *To whiten and make Oriental, ill-colored Pearl, such as are spotted, dull, brown, red, or of a dark yellow.*

This is performed, 1. By cleansing and soaking them in Bran Water made by boiling two handfuls of Wheat Bran in a quart of Water; and the Pearls being strung, to put them into a third part of this Water almost boiling hot, letting them lye therein till almost cold; and then

then gently to rub them with your Hands; and repeating this Work with the other two thirds of the Water remaining. 2. By putting them in fair Water Blood warm, and washing them clean in it from the Bran Water, and drying them (without handling) on a Sheet of white Paper. 3. By steeping them 24 hours in the former Mercury Water.

VI. *Other ways to Whiten and Cleanse them.*

1. ℞ Impalpable Pouder of Alabaster, and rub the Pearl very gently with it; and let them remain in it for some days. 2. Impalpable Pouder of white Coral or Chalk will do the same thing. 3. Tartar calcined white to rub them withal, and lay them for some time in it, is very effectual. 4. Bay or Ile of May Salt dissolved, filtered and coagulated, then dryed and ground small, is a singular thing for cleansing and blanching of Pearl, rubbing them therewith for some considerable time.

VII. *The natural Oriental Pearls are generated in a Fish, whose Shell is Mother of Pearl,* and they are found in the *East*, the best and most beautiful being of a Silver white and exceedingly splendid, being found in the *Persian* Gulph, about the Isle of *Ormus*, *Bassora*, &c. and some in the *West Indies* nearly as fair. There are *Occidental* ones also found in our *Oysters*, the best of which are seldom of any better color than that of Milk: these are found in *Europe*, not only in the Sea, but in fresh-water Rivers, and come from *Scotland*, *Bohemia*, *Silesia*, *Lorrain*, *Frisia*, &c, but those from *Frisia* are very small.

CHAP. XVIII.

Other ways of making Artificial Pearls.

I. *THE first way.*

Dissolve Mother of Pearl in Spirit of Vinegar, then præcipitate it with Oil of Sulphur *per Campanam*, (not with *Oleum Tartari*, for that takes away the Splendor) which adds a Lustre to it; dry the Præcipitate, and mix it with Whites of Eggs, of which Mass you may make Pearls of what largeness you please, which before they

they be dry, bore through with a Silver Wyre; so will you have Pearls scarcely to be discerned from those which are truly natural.

II. *The second way.*

℞ Chalk, put it into the Fire, letting it lye till it breaks: grind it impalpable, and mix it with Whites of Eggs; of which form Pearls, boring them as aforesaid; dry them, then wet and cover them with Leaf Silver.

III. *The third way.*

℞ prepared Crabs Eyes ground into impalpable pouder, and with Glair make Pearls; which bore as aforesaid: dry them, and boil them in Cows Milk: then in the Shade (free from Dust) dry them well; they will please.

IV. *The fourth way.*

℞ Potters Earth, and make them of what form you please: dry them in the Sun, or in the gentle heat of a Furnace: then wet them with Glair of Eggs, lightly colored with Bole Armoniack, and cover them with Leaves of Silver, being first wet with Water: when they are dry, polish them with a Tooth, and they will be Oriental. Then take bits of Parchment, and wash them in warm Water till the Water grows somewhat thick, boil and strain it, and use it warm: then fasten each Pearl through its hole upon a fine piece of Wyre, and plunge them into the Water of Parchment, taking them out again: then turn them round, that the glewy Liquor may equally cover them: thus the Silver Whiteness will the better shine through, so that the Pearls will seem to be truly natural, and being compared, will rather exceed.

V. *The fifth way.*

Calcine Muscle and Snail Shells in a Crucible till they are very white, even as Snow; with Glair make Pearls, which bore by *sect.* 1. dry them in the Sun, dip them in red Wine, dry them again, and they will be fair.

VI. *The sixth way.*

℞ Sublimate ℥ij. Tin Glass ℥j. mix them, and sublime them together, and you will have a Sublimate not inferior to the best Orient Pearls in the World; of which, with Glair, you may form what you please.

VII. *The seventh way.*

℞ Any of the aforesaid Particulars, and mix them (instead of Glair) with Varnish (made of Gum

Animæ,

Animæ and the *Alcool* of Wine) of which make Pearls: these will in all Respects be like the natural; for these will no more dissolve in Water than the truly natural; which all those that are made of Glair of Eggs are unavoidably subject to.

VIII. *The eighth way.*

After Dissolution, Præcipitation, Edulcoration, Siccation and Formation, put the Pearls into a Loaf of Bread, and bake it in the Oven with other Bread so long, till the Loaf is much burnt: then take them out and wash them, first in good Juice of Limons, then in clear Spring Water; and they will be as fair as the truly natural. Or, after baking, give them to Pidgeons to eat, keeping them close up, and in the Dung you will find the Pearl exceeding fair: where note, you must give the Pidgeons nothing to eat in 3 days time.

IX. *The ninth way.*

After Dissolution of small Oriental Pearls in Juice of Limons, make the form thereof with clarified Honey, moistning your Hand with *Aqua Mellis*: this done, perfect them as before.

X. *The tenth way.*

℞ Filtrated Juice of Limons, Pouder of Pearl, of each ʒvj. Talck ʒj. put them into a Glass, and stop it close, set it 15 days in Horse-dung, and it will be a white Paste; of which form Pearls, bore them, and dry them in the Sun; at last in Paste of Barley Meal (*viz.* a Barley Loaf) 4 Fingers thick, stick the Pearl so that they may not touch, stop the holes, and cover them with Paste: set it into an Oven and bake it with Bread, and you will find them hard and clear.

XI. *The eleventh way.*

Having formed them of the Matter intended, bored and dryed them, put them into Quick-silver, set over a glowing heat, stirring them well about, that the Quick-silver may stick to them: then dip them into Glair of Eggs upon a glowing heat, and they are done; or being dry, boil them in Linseed Oil, and wash them in warm Water.

XII. *The twelfth way.*

℞ Pearl ʒiij. prepared Salt ʒj. filtrated Juice of Limons, so much as will cover them 4 Fingers breadth: let it stand so long till it be a Paste; the Glass being very

very close stopped, shake all together 5 or 6 times a day; and when it comes to Paste, put it into a Glass with strong Spirit of Vinegar, and lute another Glass over it; digest it 3 Weeks in a cool place under the Earth so long, till all be dissolved: then mix it with a little Oil of Eggs or Snail-water, till it be like Pearl in color: then put this Paste into Silver Moulds, and close them up for 8 days; after which take them out, and bore them by *sect.* 1. and put them again into the Mould for 8 days: this done, boil them in a Silver Porringer with Milk: lastly, dry them upon a Plate in a warm place, where neither Wind nor Dust may come, and they will be much fairer than any Oriental Pearl.

XIII. *The thirteenth way.*

After the Preparation of the Matter in Juice of Limons or *Spir. Nitri*, with clean Hands make them into Paste, and wash them in distilled Water; which put into edulcorate Calx of Silver, and digest in Horse-dung for a Month; so will they be fair and very Oriental.

XIV. *The fourteenth way.*

Dissolve the Matter in *Spir. Nitri*, (which let overtop it a Fingers breadth) in a Glass Gourd, till all be incorporated into one Body; which put into Silver Moulds which have holes through them, and having stood one day, bore them through the holes as they lye in the Mould, with a Silver Needle: being quite dry, take them out, put them into a Glass close covered in the Sun, till they be quite dry: then put them upon a Silver Wyre, and let them lye covered in their own Fat (that is, that fatty Substance which swims on the top of the *Menstruum* in their Dissolution) so long, till they are very fair; then being strung, put them into a Glass Egg, and let them stand 9 days in Digestion, and they will be as fair as the natural.

XV. *The fifteenth way.*

℞ Tobacco-pipe Clay, of which form little Beads, (by *sect.* 14.) dry them in the Sun, and burn them in a Potters Furnace, then cover them with Bole Armoniack, tempered with Whites of Eggs: being dry, dip them in Water, lay on Leaf Silver; which dry again, and polish them with a Tooth: then take clean Shavings of Parchment, cut small, and washed well with warm Water: boil them in a new Pot with a slow Fire, till

they become somewhat thick, strain it; and being warm, put in the Pearl upon a Needle or fine Wyre, that the hole may not be stopt, take them out, turn them round, that the Water or Glew may not settle in one place, dipping them so often (drying them every time) till they be thick enough, and they will appear full as fair as the truly natural.

XVI. *The sixteenth way.*

℞ The impalpable and Snow-white Calx of Talck, and with our best Varnish make a Paste; of which form Pearls, and bore them with a Silver Wyre, on which let them dry: this done, make a Mixture of the Alchool of the incomparably pure red diaphoretick Mercury, Calx of Talck aforesaid, shell Gold and Silver, (in *lib.* 2. *cap.* 21. *sect.* 1.) in a just and due proportion, (as by many Tryals you may find out) in which roul your Pearls till they be all over perfectly covered, then varnish them with our aforesaid Varnish, which let dry according to Art, and if need be, polish with the impalpable pouder of Putty and Water.

XVII. *The seventeenth way.*

℞ Mercury and the finest Pewter, of each ℔j. make an Amalgama, which wash so well till the blackness is gone: make it into little Cakes, and lay them on a Marble Stone: then take Mercury sublimate in very fine pouder ℔ij. and strew it upon the Cakes, put them on a Glass Dish, and set them in a very moist Cellar to dissolve into an Oil, which rectify by a Glass Helm in *Balneo Mariæ*, and so there will be drawn off by a gentle Fire a Mercurial Water. Then take of the best small Oriental Pearls ℥j. put them into the Mercurial Water, and in 2 or 3 days they will be reduced to a Paste, which, in a Silver Mould, you may form into Pearls of what bigness you please. At the same time you must hole them with a Silver Wyre: then put them, when they are moulded, into a new Crucible, but so that they touch not one another; the top of the Crucible being well covered and luted close; so set them in a Glass-makers Annealing Furnace till they be very hard, which will be in a little time. Afterwards make a Pye of Flower, let it be very thick, and take the hardned Pearls, putting them on a Silver Wyre, and so fix them in the Pye, that they touch not any part of it, nor one another.

Lastly,

Laſtly, put the Pye, made cloſe up, into an Oven of Bakers Houſhold Bread, and let the Pye ſtand all the time that the Bread is baking; after which you will find the Pearls to be as well colored as the beſt Oriental.

XVIII. *The eighteenth way to make Artificial Pearls.*

℞ The beſt *Spir. Nitri* ℥ij. corroſive Sublimate ℥ſs. mix, diſſolve, and let it boil a little on a Aſh heat; take it from the Furnace, let it cool, and ſtand in the Veſſel to the open Air 2 or 3 Nights, and it will ſhoot into Cryſtals very fair: waſh them in fair Water twice, to free them from the *A.F.* and only the Cryſtals remain. Put the Veſſel with theſe Cryſtals for ſome days into Horſe-dung, till they diſſolve into Water; which keep for Uſe. Then take Oriental Pearls, put them into a courſe Linnen Bag, tying it with a Thread a croſs, allowing them good ſtore of room: hang this Bag in the Neck of a Veſſel, in the bottom whereof is Juice of Limons or Lime Juice: let it boil for 6 hours, ſo that the Fumes may go about the Veſſel; take out the Bag, and you will find the Pearls ſoft as Wax, and in a kind of Paſte. Have ready a Silver Mould, and your Pearls being in it, bore a hole with a Silver Needle; put them to harden in a Veſſel of Glaſs, ſo as they may neither touch the Glaſs, nor be expoſed to the Air: afterwards put them for 8 days in the above-ſaid Water, then change the Water, and let them lye 8 days longer in more of the ſame Water, to give them a Luſtre: after which take them out, and dry them well upon Glaſs.

XIX. *The nineteenth way to make Artificial Pearls.*

℞ The faireſt Seed Pearl, bruiſe them, and diſſolve them in Alum Water; this is all the Secret: make them into a Paſte, and waſh it gently with ſome diſtilled Water: afterwards make it up into a Paſte of a good body with Bean Flower Water, and digeſt in Dung for 15 days. Now, having the Conſiſtency of Paſte in a Silver Mould, form it into Pearls, and pierce them with a ſmall Silver Wyre: hang them in an Alembick cloſe ſtopt, that the Air may not alter them: after which roul each one a part in Leaf Gold, (or Leaf Silver) cleave a Barble in the middle, and put them therein: make a Paſte of the ſaid Barble with Wheat Flower, and bake it in an Oven as you bake Bread. If they have not Luſtre

enough, take ſome diſtilled Water, and pouder of Pearl ʒvj. Salt-petre ʒj. Roch Alum and Litharge of Silver ʒij. the Pearls being made, you ſhall heat them a little, and quench or cool them in this Compoſition, then dry and waſh them, repeating this 5 or 6 times. Then, to harden them, take *Lapis Calaminaris* in pouder, Vitriol, of each ʒj. Glair of Eggs *q. ſ.* mix, and diſtill from them a clear Water; which, with fine Barley Flower, make a Paſte of, in which put your Pearls, to be baked in an Oven.

XX. *The twentieth way.*

℞ Pure Chalk freed from all its Groſſneſs and Sand, make a Paſte thereof, and form it into Pearls in a Mould for that purpoſe: pierce them thro' with a ſmall Silver Wyre, and dry them in the Sun or in an Oven: ſtring them on a Silver Wyre, color them over lightly with fine Bole diluted in Glair of Eggs, with a Pencil and fair Water, and apply Leaf Silver over all and let them dry: which done, burniſh or poliſh them with a Woolf's or Boar's Teeth till they ſhine well. To give them the true color; *Boil Parchment or Vellom Shavings (being firſt clean waſht in warm Water) in Spring Water to a Glew or fit thickneſs, ſtraining it whilſt hot.* In this Glew, being warm and on a flat Veſſel, dip your String of Pearls, ſo as all may be done equally over, and then let them dry. If they be not yet perfect, dip them once more; ſo will they have a very fine and tranſparent Whiteneſs, a certain Darkneſs within, and a Luſtre without, which perfects them, and brings them to the Beauty of fine and real Pearls: but in this laſt Caſe, if inſtead of this Glew you dip or varniſh the Beads after they are ſilvered, with a white Varniſh deſcribed in the next Book, and ſo poliſh them, they will not only be fairer, but more durable, like true Pearl.

XXI. *To Whiten Pearls.*

℞ Common and Roch Alum ℔j. *Solomon's* Seal ʒij. Camphir ʒſs. diſtil therefrom a clear Water, and rectify it, and uſe it with a ſoft fine Linnen Cloth. *Or thus, which is better,* Take white Salt ℔j. conſound Water, Alcohol of Wine, of each ʒxij. Lime, Eggs, of each ʒj. Bean Flower ʒſs. mix and diſtil them. *Or thus,* Waſh them in a *Lixivium* of burnt Tartar, and keep them on a warm Stove. *Or thus,* Take Water a quart, Wheat Bran

Bran 2 handfuls: boil, and then decant half the Water; and in a white Ware Porringer, in which shall be the Pearls strung, pour in the said Bran Water, and let them lye till the Water is almost cold, that you may rub them gently with your Fingers till the Water is perfectly cold: cast away that Water and put on fresh; and this Work so often repeat till your Pearls are very pure and fair: at last put in some of the said Bran Water warm, and clear the Pearls without rubbing or touching them; which repeat the second time; and so put the said Pearls, without touching or unstringing them, upon white Paper; put them in a Cellar without covering them, letting them remain there 24 hours.

CHAP. XIX.

Pastes for Oriental Rubies and Carbuncles.

I. *Pastes for an Oriental Rubie.*

℞ Of the Paste (in *cap.* 5. *sect.* 22.) ℥x. *Crocus Martis* (in *cap.* 6. *sect.* 7.) of our Vitriol (some say Mercury) calcined, *ad Rubedinem*, *Sal Gem*, *ana* ℥v. fine Verdigrise ℥ijss. all being in fine pouder and well mixed together, put it into a Crucible, which cover and lute: put it in a Glass-house Furnace for 3 days; after that take it out, and put it in an Annealing Furnace for 12 hours, to cool *gradatim*; so will your Matter be of a fine Rubie color, which cut, polish, *&c.*

II. *Pastes for a Balass Rubie.*

℞ Of the Paste (in *cap.* 5. *sect.* 22.) ℥xij. *Crocus Martis*, Vitriol (but some say Mercury) calcined *ad Rubedinem*, *ana* ℥j. *Sal Gem* ℥ss. all being in very fine pouder, mix them well together, and proceed as in the former *Section*; so will you have a Mass of the fine color of a Balass Rubie, which is very bright, resembling a Vermilion and Crimson Rose, being mixt of a natural Red and a Sky-color.

III. *Paste for a Carbuncle.*

℞ Of the Paste (in *cap.* 5. *sect.* 22.) ℥x. *Crocus Martis* (in *cap.* 6. *sect.* 10.) ℥ss. mix all well together, being in fine

pouder, put into a good Crucible, cover and lute it well: put it into a Glaſs-houſe Furnace for 3 days, putting it *gradatim* into a ſtronger and ſtronger Fire, till it is in the ſtrongeſt: then taking out the Crucible, take the Maſs out, and grind it very fine in a Marble Mortar with its equal weight of *Sal Gem*; put it into another Crucible, cover and lute it as before, and put it into the ſame degrees of Fire *gradatim* as before: let it ſtand 24 hours in a good Fuſion; then take it out, and put it 12 hours in an Annealing Furnace to cool gently: break the Crucible, and you will find the Maſs of a fine Carbuncle color; which being cut and poliſhed at the Wheel, will ſeem to be perfect.

IV. *A Paſte for Carbuncles, much more glorious than the former.*

℞ Of the Paſte (in *cap.* 5. *ſect.* 22.) ℥x. Gold calcined ℥j. all being in fine pouder, mix them well together, and put it into one of the ſtrongeſt Crucibles, not letting it be half full: cover and lute it well; and when dry, put it into a Glaſs-houſe Furnace for 3 days, bringing it nearer and nearer to the ſtrongeſt Fire by degrees: after 3 days take out the Pot, and put the Maſs into a Marble Mortar, make it into impalpable pouder, to which add an equal weight of *Sal Gem* in fine pouder alſo: mix all well together and ſearce thro' a fine Sieve, the better to mix them. Put this pouder into a new ſtrong Crucible, ſo big as not to be half full, cover, lute and dry it, and put it into the ſame Furnace as before, bringing it nearer to the ſtrongeſt Fire *gradatim*, where let it ſtand 10 hours: then take out your Crucible and put it into the Annealing Furnace, letting it cool for 12 hours. Break the Crucible and you will find the Maſs tinged of a noble Carbuncle color, the moſt lively, reſplendent and glorious that any Stone can be endued withal. This cut and poliſh at pleaſure, it is illuſtrious beyond all Compariſon with other Gems.

V. *The Calcination of Gold for the former Work.*

℞ Fine Gold in little bits ℥j. *Aqua Regis* ℥iij. mix and diſſolve: then add to it Quick-ſilver purified and paſs'd thro' Leather ℥iv. ſo will the Gold præcipitate, joining it ſelf to it: when the *A. R.* is clear, ſo as that it has no more Gold in it, decant it off, and waſh the Præcipitate with warm Water, to take off the Salts: the Præcipitate

cipitate being dryed, add to it *Flores Sulphuris* an equal weight, mix them well together, put all into a Crucible, covering it with another Crucible, having a hole bored in its bottom, lute them together and dry them: put them into a circulary Fire, which give them by degrees for 4 hours, the Crucibles being the last hour covered all over with Coals, which let kindle and cool again. Open the Crucible, and you will find the Gold calcined: amalgamate it now with fresh Quick-silver ʒiv. adding to it *Flores Sulphuris* ʒv. mix all well, put it into a Crucible as before, luting, drying and calcining in like manner; and this Work repeat the third time: after which put it into a deep white glazed Earthen Bason or Gally Pot: affuse thereon Spirit of Wine so as to over-top it 2 inches, which deflagrate: then edulcorate with warm Water distilled, and dry it; so have you a pure fine impalpable Calx of Gold, which keep for the Purpose afore-mentioned.

VI. *The Rubie is a truly natural Gem, Diaphanous and very Radiant, of the color of Blood, Scarlet, and transparent Lacca*, having about the edges of its Fire, a little Azure color, and is found in the Isle of *Ceilon*, and in the River *Pegu*, in a Rocky Matter of a Rosie color; which Rock Matter, if it is transparent, yields the Balass Rubie: Rubies, by reason of their Fineness and Largeness, have been taken for Carbuncles, so that some have mistook them one for another, but they are truly two different Substances.

VII. *As for the Carbuncle*, whether it be a *Gem* found in the Bowels of the Earth, is yet undetermined: the most credible Authors affirm the contrary, against all that the Ancients have said of it; for that no such thing is now to be found in the World; and some boldly say, that it is a Stone not at all formed by Nature, but only made by Art; and that made by Art is far more precious and glorious, and filled with a more illustrious Splendor than any Nature can form; for that by Art you may in a few hours time make simple Rock Crystal as valuable as any Stone which Nature can produce, and which she spends so many Ages in bringing to Perfection. And, as we are perswaded, (from the reading of Authors) that there is no such natural Stone as a Carbuncle; so we believe, that if any such be in the World

indued with such an illustrious Shining and Glory, that they must be *only the Products of Art, not of Nature:* and such a one is this last, which far surpasses in Beauty *Granats, Jacynths, Rubies,* or whatever Nature has yet produced.

CHAP. XX.

Pastes for an Oriental Saphir.

I. *A Paste for a Saphirine Color.*

℞ Rock Crystal prepared (in *cap. 9. sect. 9.*) ʒiv. *Minium* ʒix. Painters blew Smalt gr. lij. all being in fine pouder, put them into a Crucible, cover and lute them well; put them into a Furnace and boil or bake as directed in *cap. 14. sect. 3.* and in other places; so will you have a beautiful Violet color, drawing near to Blew.

II. *Another Oriental Saphir.*

℞ Rock Crystal *(ut supra)* ʒiv. *Minium* ʒxij. *Zaffer* prepared (in *cap. 4. sect. 10.*) ʒj. ȝj. *Manganese* prepared gr. xij. all being in fine pouder, mix, and proceed as in the former; so will you have an Oriental Saphir of a pure Violet color, more beautiful than the former.

III. *Another Oriental Saphir much deeper.*

℞ Rock Crystal *(ut supra)* ʒiv. *Minium* ʒx. *Zaffer* prepared ʒj. gr. xxiv. *Manganese* prepared gr. xvj. all being in an impalpable pouder, mix, and proceed as in *cap. 14. sect. 3.* and other places; so will you have a deeper Oriental Saphir than the former, something tending to a Violet color; which cut, polish and set in Gold.

IV. *Another Oriental Saphir.*

℞ Of the Paste in *cap. 5. sect. 22.* ʒx. Calx of Sol (in *cap. 19. sect. 5.*) ʒij. mix well, and proceed as in *cap. 19. sect. 1.* so will you have a fair Oriental Saphir.

V. *Another Violet Saphir.*

℞ Rock Crystal prepared (in *cap. 9. sect. 9.*) ʒiv. fine Salt of Tartar (in *cap. 9. sect. 10.*) ʒivfs. Salt of Vitriol ʒfs. mix, and proceed as before; so you will have a fine Violet Saphir.

VI. *Another*

VI. *Another Violet Saphir yet deeper.*

℞ Rock Cryſtal *ut ſupra* ℥iv. of fine Verdigriſe ℥x. gr. xlviij. of Azure ℥j. gr. iv. Sublimate ℥ſs. all being in fine pouder, proceed as in the former; it will be of a very deep color.

VII. *A blew Saphir of the Male kind.*

℞ Rock Cryſtal pouder *ut ſupra* ℥iv. fine Salt of Tartar ℥iv. ℈j. Salt of Vitriol ℥ſs. fine Verdigriſe gr. xij. Azure gr. iv. mix, *&c.* ſo will you have a blew colored Saphir, no leſs agreeable than thoſe of the Violet kind.

VIII. *Another excellent Saphir.*

℞ Rock Cryſtal *ut ſupra* ℥iv. fine Salt of Tartar (in *cap. 9. ſect.* 10.) ℥iv. fine Verdigriſe ℥x. gr. xlviij. Azure ℥j. gr. iv. all being in pouder, mix, *&c.* and you'll have a very fine Saphir.

IX. *Another admirable Saphir.*

℞ Rock Cryſtal *ut ſupra* ℥iv. fine Salt of Tartar ℥j. being in pouder, mix well, put it into a Crucible covered and luted: boil 24 hours in a Glaſs-houſe Furnace; then in the Annealing Furnace let it cool 12 hours; ſo will you have an admirable blew Saphir; which cut and poliſh.

CHAP. XXI.

Paſtes for an Oriental Topaz.

I. A *Paſte for an Oriental Topaz.*

℞ Rock Cryſtal pouder (in *cap. 9. ſect. 9.*) ℥iv. *Minium* or red Lead in fine pouder ℥xiv. mix well together; put them into a ſtrong Crucible, leaving it empty about an inch deep, for fear of running over or ſticking to the Cover of the Crucible, which will ſpoil all; and proceed as directed in *cap.* 14. *ſect.* 3. ſo will you have an admirable Topaz.

II. *Another fine Topaz.*

℞ Rock Cryſtal *(ut ſupra)* ℥iv. Native Cinnabar in ſubtil pouder ℥iv. *Æs Uſtium* in fine pouder ℥iv. Putty or calcined Tin in fine pouder ℥xvi. mix well, put all into Crucible, which cover and lute, and put them into

to the Furnace for 30 hours, in a Fire not too violent, (becauſe this pouder will eaſily melt) and always of the ſame degree of heat; ſo will you have a fine Topaz color, *&c.*

III. *A very fine Topaz.*

℞ Of the ſame Cryſtal ℥iv. *Crocus Martis* ℥ſs. *Minium* a little: mix, and proceed exactly as in the former.

IV. *Another Oriental Topaz.*

℞ Of the Paſte in *cap.* 5. *ſect.* 22. ℈x. choice Orpiment in fine pouder ℥j. mix them well, put all into a Crucible, which cover, lute well and dry: put it into a Glaſs-houſe Furnace for 3 hours, and then in the Annealing Furnace gently cool; cut and poliſh it, and it will be a delicate Oriental Topaz.

V. *A Baſtard Topaz very beautiful.*

℞ Rock Cryſtal *ut ſupra* ℥iv. *Minium* ℈xij. fine Salt of Tartar *ut ſupra* ℥ij. fine Verdigriſe gr. xvj. all being in fine pouder, mix, and proceed as in a Jacynth in *cap.* 16. *ſect.* 1. and you will find your Stone very fine.

VI. *Another Baſtard Topaz, harder than the former.*

℞ Rock Cryſtal *ut ſupra* ℥iv. Vitriol calcined *ad Rubedinem* ℥j. Salt of Vitriol ℥ſs. fine Verdigriſe gr. xvj. fine Salt of Tartar (in *cap.* 9. *ſect.* 10.) ℥vſs. gr. xvj. all being made into fine pouder in a Braſs Mortar, mix them: put all into a Crucible, which cover with another, lute them ſtrongly, dry and put it into the Furnace for 12 hours; take it out, cut, poliſh, *&c.*

VII. *It is to be noted,*

1. That the *Topaz* of the Ancients, is the very Stone which our Moderns call a *Chryſolite:* and the *Chryſolite* of the Ancients, is that which the Moderns call a *Topaz.* 2. That *Oriental Topaz's* are indeed the moſt hard of all Stones next to the *Diamond.* 3. That their Color is like Water tinged with *Saffron* or *Turmerick*, but pure, ſhining and diaphanous. 4. That ſome are found in *Europe*, but they are generally ſoft as *Cryſtal*, having ſomething of the Black, with a Golden color. 5. But, that if they be of a pure *Golden* color, they are not to be diſtinguiſhed from the *Oriental*, but by their hardneſs.

CHAP.

CHAP. XXII.

Pastes for an Oriental Turcoise.

I. P*Aste for a Turcoise.*

℞ Of the Paste in *cap.* 5. *sect.* 22. ʒx. *Zaffer* prepared ʒj. fine purified Verdigrise ʒfs. all being in fine pouder, mix well together, put it into a Crucible, cover it with another, lute well and dry: put all into a Glass-house Furnace for 3 hours: then put it into the Annealing Furnace for 12 hours to cool gently: being cold, break the Crucible, take out the Mass, cut and polish it, and it will be a *Turcoise* like those of the *Old Rock*.

II. *The Name of this Stone comes from the place where it was first found*, viz. *Turky:* but now it is also brought from *Persia* and *Indostan*, or the *East Indies*, where it is found in abundance, whose Color comes much nearer to *Blew* than *Green*; and which also distinguishes them from the *Occidental*, which are more green and whitish.

III. The *Oriental* are called by the name of *Stones of the Old Rock*; the other, *Stones of the New Rock*. The *Turcoise* is a mixture of *Blew*, *Green* and *White*, and somewhat imitates *Verdigrise*; and it is without doubt, the finest, purest and most noble of all *Opak precious Stones*.

SECT. III. *Of* ENAMELS.

CHAP. XXIII.

Of Enamels in general.

I. T*HE Matter of Enamel.*

℞ Lead in Bullets ℔xxx. Tin in bits ℔xxxiij. mix them, and calcine as directed *cap.* 5. *sect.* 1. fearce the Calx, put it into a glazed Earthen Pot full of Water;

ter; put it over a Fire, and let it boil a little: take it off the Fire, decant gently the Water into another Veſſel, which carries alone with it the fineſt or Flower of the Calx: reiterate this till no more Flower will ariſe: the remaining Calx calcine again as before; and then with Water extract its Flower as before. Put theſe Waters into one large Body or Veſſel, and over a very gentle Fire evaporate to dryneſs.

II. *The Mixture.*

℞ Of the former prepared Calx ℔xxv. Frit of white *Tarſo* ſearced ℔xxv. (in *cap.* 2. *ſect.* 8. *&c.*) fine Salt of Tartar (in *cap.* 9. *ſect.* 10.) ℥iv. mix all veryw ell together in a Pot, and let it ſtand in a Glaſs-houſe Furnace for 10 hours to meliorate and purify: take it out and reduce it to an impalpable pouder; which keep cloſe in a dry Glaſs for Uſe. Thus is the Matter prepared to receive the Colors, of which we ſhall treat in the Chapters following.

III. *A fixt incombuſtible Sulphur for Compoſitions of Enamel.*

℞ *Florum Sulphuris q. v.* put them into a Glaſs Cucurbit luted at bottom; affuſe thereon Oil Olive to ſupernate 2 inches: put it on a very hot Sand heat for an hour; take it off, and affuſe thereon ſtrong Vinegar; ſo will the Sulphur præcipitate, and the Oil ſwim on the top of the Vinegar: decant off this from the Sulphur, and put on more freſh Oil, and do as before, repeating this Work thrice; ſo will you have a fixt Sulphur for Enamel, but chiefly for red Colors.

IV. *Another fixt incombuſtible Sulphur.*

℞ Soap-boilers ſtrong Lye *q. v.* put into it Flowers of Sulphur *q. ſ.* boil them for a good while; ſo will the Lye cleanſe the Sulphur from its Foulneſs and Unctuoſity, and make it fit for our purpoſe: decant the Lye from the Sulphur, dry it, and it will be white, fixt and incombuſtible.

V. *Now, the Method which Limners uſe, is by a juſt diſpoſure of their Colors*; to effect which, nothing more is required, but a lighted Wax Candle and a hollow Pipe of Metal for that purpoſe, to make a blaze upon the Matter, to make it malleable and ſoft; on which he may draw or impreſs the deſigned Figures at pleaſure.

CHAP.

CHAP. XXIV.

The way of Enameling.

I. *Of Disposing Enamels.*

They are not to be promiscuously applyed to all sorts of Metal, but according as the Nature of the Metal requires: *Copper* agrees with all *thick Enamels*, but spoils the Limpid, unless they have a prævious Preparation. *Silver* agrees with *purple Enamel*; so also with the *Egmarine*, the *Azure*, and the *Green*: all other Colors, both Clear and Opak, disagree therewith. *Gold* agrees perfectly with all, as well with the *Opak* as the *Transparent*, excepting only the clear Purple, it mightily changing the color thereof.

II. *The Quality of the Enamel.*

It ought to be hard and durable; for that which is soft (being full of Lead) is apt to change color, and easily becomes sullied and foul. The hardest is always the best, and yet even of them some loose their color in the Fire, and some are more or less lively and sparkling: but those which we shall hereafter describe in the following Chapters, will have none of those Faults; for being perfectly purified by Fire, they will endure all degrees of Fire without change of Color or Quality.

III. *To make the Furnace.*

1. It may be either round or square, and made either of Iron or Earth. 2. It must be hollow in the middle, to hold a good Char-coal Fire round about the Matter, and over it, to make it melt the better. 3. It must be so ordered, that you may easily take your Matter out and put it in again, as need requires. 4. In this case, you may for Conveniency sake use a Gold-smith's Muffle, which is a small Arch made of Crucible Earth, almost like a half Crucible cut longwise: this is to be placed on the Plain or Area of the Floor of the Furnace, the opening of it lying just against the Mouth of the Furnace, to put in and take out the Matter easily; over which a small Grate is to be placed, but so as not to touch it, for fear of breaking it. 5. Over this Grate a good Fire is to be made, and so round about the Muffle, to heat the hollow

hollow very well, under which the Work to be Enamel'd and Painted or Limned is put. 6. If you would make any Essays or Tryals, you may do it on a little Iron Shovel, the easier to draw out: but making an Essay of the Ingredients for Enamel, it ought to be a little blade of white Enamel fitted for the purpose.

IV. *The Enameling Fire.*

It ought to be a *Reverberating*, or rather a Fire of *Suppression*, and never to be under the Matter or Work: which thing is easy to be conceived, and the reason thereof.

V. *To prepare the Enamel for the Metals.*

Take Enamel, (suppose white) pouder it fine, affuse on it a little *Aqua Fortis*, let it stand, purify and refine in a small Glass Cucurbit: wash it afterwards often in fair Water, dry it, and keep it in a Glass close stopt for Use. To make use of it, beat it small in a Stone Mortar, wetting it with a little Water; so spread it on the Plates, and put it into the Furnace as before. Thus do with all clear and transparent Enamels; so will your Materials be all in a readiness when you intend to work.

VI. *To prepare the Colors for Enamel.*

Because Painting on *Enamel* is the most glorious of all Painting, you must chuse the liveliest and most noble Colors, and such as will easily melt and vitrify. What these are, we shall teach you in the following Chapters: But, for *Enameling*, you must first grind them on a Porphyry with the best Oil of Spike or Lavender, or mix them with other Matters for that purpose as you shall think fit to be mixed with calcined *Enamels*, and serve to make up the Paint for *Enamel*, mixing them well together as Painters do on their Pallets.

VII. *To make mixt Colors, when others are wanting.*

1. *A Grey.* It is made of a White mixed with Black. 2. *A fair Green.* It is made of a Blew mixed with Yellow. 3. *A fine Violet.* It is made of a Blew and Red mixed together. 4. *A Rose Color.* It is made of a Red mixed with a White: and so of some others.

VIII. *The Use of Rocaille.*

Most Artists make use of this for varnishing their Colors, but it has an ill Effect; for, because of its too much Lead, not perfectly separated, it diminishes the Life and Beauty of the Work, it always looking dull, cloudy

cloudy and tarnished. But, our *Enamel* being well refined, will produce Works so fine, beautiful and agreeable, that it is not possible for any thing in Nature to exceed them.

CHAP. XXV.

To Enamel on Metals.

I. *THE way to Enamel on Copper.*

Have a Plate of *Copper* polished or forged very smooth, and apply your *Enamel* of the color you intend, both above and under the Plate; put this into the Reverberatory Furnace, and when you see it receive the Polishing, then draw it forth. *Copper* takes all *thick* and *dark Enamels*, but such as are *diaphanous* or *transparent*, it will not well endure: in this case, you must first lay a lay of green or black *Enamel*, and over that Leaf *Silver*, that it may be able to receive the *Enamel* you design. For *Copper* is so impure, that its *Fumes* destroy the Beauty of the *Enamel* in the Furnace: nor does *Enamel* ever stick so closely to it, but that it is easily divided, scaled, peeled or broken off; which never happens to the fine Metals.

II. *To Enamel on Gold.*

Have a *Gold* Plate, (made of fine Gold, because on impure Gold the *Enamel* grows dull and ill-colored, taking away the Life of the *Enamel)* which let be a little rising, and forged very smooth: you must apply white *Enamel* on both sides, tho' it is to be wrought but on one side; but this is necessary, 1. Because the Work is the neater and finer for it. 2. Because, if it was Enameled but on one side, the Fire would swell it, and make it rise into Bubbles; and this it is apt to do when the pieces are great, and the *Enamel* carelessly laid on: this blistering and disfiguring of the Work, is avoided by laying the *Enamel* on both sides: the first lay of white *Enamel* remaining smooth, serves as a Basis or Field to place all your other Colors on, as we shall anon shew. Thick and Opak *Enamel* must be dissolved as it were, and made

made thinner (as in *cap.* 24. *sect.* 5. above) before it can be applyed: as for the *Transparent*, you need nothing but pure fair Water, and then you must spread it flat, and then border it with the Metal, or not border it, the Field being all *Enamel*; but this is troublesome, because the limpid *Enamels*, as they melt, often mix, and so confound the Colors, which always happens when the pieces are small. But red *Enamels* do not so, except by chance, and they generally come *yellowish* out of the Fire, for as soon as it is applyed, the *Gold* alters the color; but you may quickly bring it to a perfect *Redness*, by turning it at the mouth of the Furnace when you are taking it out of the Fire, and then it is that the Artist makes it *red*, and gives it its true color. And tho' *Gold* admits of all kinds of *Enamel*, *transparent* or *opak*, yet bright *purple* is excepted, because it is altered by the yellow color of the *Gold*, and therefore succeeds not so well here as on *Silver*, on which it ought only to be used. The way of working of every kind of *Enamel*, is alike; so that we shall not make any needless Repetitions.

III. *To Enamel on Silver.*

Your Plates of *Silver* must be forged like those of *Gold*, smooth and rising a little from the edges towards the middle; and having spread the *Enamel* all over on both sides, only to qualify the risings and bubblings of the Metal, which would cause unevenness and a disagreeableness on the Surface: you must put the Plate into your little Reverberatory Furnace to melt, and as soon as you see it polisht, take it out from the Fire. But, as some kind of *Enamel* does not agree with *Gold*, so there is some other sort which agrees not with *Silver*: *Silver* makes *white Enamel* to appear *yellow*, and therefore you are to make the least use of *white* on this Metal, because it becomes *yellowish* and unpleasing; but you may make use of the *white* underneath the plate, for that it there serves to qualify the risings and bubblings of the Metal in the Furnace. On the contrary, *Silver* agrees well with *Blew*, *Egmarine*, *Green* and a bright *Purple*, because the Whiteness of *Silver* gives them their true Lustre and Splendor.

CHAP.

CHAP. XXVI.

The Method of Painting on Enamel.

I. YOur plate of Gold must be Enameled with White; which done, you must delineate or draw (according to Art) your Design thereon: this done, trace or draw over again with a dark Red.

II. *This dark Red is thus made.*

℞ The *Caput Mortuum* which remains after the making of *Aqua Fortis*, from Vitriol and Nitre, and grind it with Oil of Spike or Lavender; so have you a dark Red for the purpose afore-mentioned. *Or*, ℞ *Crocus Martis* and grind with Oil of Spike or Turpentine; it will answer the same end.

III. The Picture being perfectly drawn, and the Lines compleat according to the Subject, put the Piece or Tablet on the Muffle in a Reverberatory Fire, to fix, as is before directed.

IV. Then take out the Plate, and apply the Colors in the same Method as Limners do, with this only difference, that you make the White ground serve for filling up where that Color is required, to set off the heightnings and brightness of the Light, as is done in *Miniature*.

V. And because it makes much to the heightning thereof, (*viz.* the improving their Light) in other Colors, you shall have a most excellent Prescript for that purpose in *cap.* 27. *sect.* 3, 4. following, which will singularly serve upon this occasion.

VI. The piece being thus finished, put it again into the Furnace to fix the Colors; and as soon as you perceive it to vernish or polish, draw it out, lest the Colors should mix and spoil one another; but taking out the Work, you may revise it, and this as often as you please, putting it still every time into the Furnace, to receive its just Glos or Lustre.

VII. This way of revising and correcting the Tablets, is done by *Limners* and *Painters*; who observe, that Pieces are not to be handled till they are well dryed in the Air; so in like manner these in *Enamel* must be let

alone till they receive their Compleatment and Perfection from the Fire.

VIII. This Art of *Painting* on *Enamel*, is almoſt ineſtimable, for that it is ſo wonderfully beautiful, and ſo infinitely laſting, having ſo natural a Gloſs, and a Glory never to be defaced: and could large Works be done with it, they would be above all Value, becauſe of their perpetual Luſtre.

IX. And, tho' *Painting* on *Enamel* ſeems to be more difficult than *Limning*, yet Experience tells us, that it is equally eaſy, and that any Hiſtory may be repreſented on *Enamel* as well as in *Limning*; only the Colors are not prepared the ſame way: and as in *Limning* the Work is dryed by the Air; ſo in this of *Enameling* we dry and varniſh our *Enamel-Painting* by Fire.

CHAP. XXVII.

Of Milk-white Enamel.

I. A *Milk-white Enamel.*

℞ Of the Mixture (in *cap.* 23. *ſect.* 2.) ℔x. *Manganeſe* prepared ℥j. ℈j. mix and put them together into a Pot to melt and purify over a very quick Fire, which will be quickly done: then caſt it in pure fair Water: dry it, and put it into the Pot again to melt: repeat this 3 times, changing the Water. If it is purely white, it is good; if greeniſh, add a little more *Manganeſe* to it, till it becomes white as Milk: then make it up in Cakes, and keep it for Uſe.

II. We have in *cap.* 4. *ſect.* 12, 13. ſhewed you how to make Glaſs of this color; here we have taught you to do it on *Enamel* with as much Beauty, which ſerves not only for the Baſis, Ground or Field for Painting upon, but is uſed for the Ornaments of Virginity, the Emblem of Innocence, and the Symbol of Candor and Chaſtity.

III. *A White for Painting on Enamel.*

For a white Ground to Paint withal, 1. ℞ the former white Enamel ground into fine pouder; this you are to manage with Artifice, to heighten and illuſtrate your

your Lights, which is neceſſary to be done in all Colors in *Miniature*. 2. ℞ the Mixture in *cap.* 23. *ſect.* 2. or the former white Enamel pouder, cleanſe them with *A.F.* waſh, dry, and afterwards grind with Oil of Spike.

IV. *Or 3ly thus.* ℞ Fine Putty or Tin calcined, let it vitrify in a Glaſs-houſe Pot with 8 times as much Cryſtal Frit: then pouder it fine as we have taught in *cap.* 23. *ſect.* 2. and keep it for Uſe.

CHAP. XXVIII.

Of Black Enamel.

I. *A Black Enamel.*

℞ Of the Mixture (in *cap.* 23. *ſect.* 2.) ℔vj. *Zaffer* prepared ℥iij. *Manganeſe* prepared ℥iij. being in fine pouder, mix all well together: put them into a glazed Earthen Pot in the Furnace for ſome hours: let the Pot be very large, becauſe the Metal will ſwell much: when purified, caſt it into cold Water, and dry it: put it into the Pot again to melt and purify: then, if the Color is good, keep it for Uſe: if not, you muſt put in more or leſs of the coloring Matter, till it is perfect, then make it into Cakes.

II. *Another black Enamel.*

℞ Of the Mixture (*ut ſupra*) ℔vj. *Zaffer* prepared (in *cap.* 4. *ſect.* 10.) *Crocus Martis* made with Vinegar (in *cap.* 6. *ſect.* 7.) *Ferretto* (in *cap.* 6. *ſect.* 5.) *ana* ℥ij. all being in fine pouder, mix them well together, put them into a glazed Earthen Pot in the Furnace to melt and purify: when well digeſted, caſt it into Water, dry it, and put it into the Pot again; let it melt and refine, then take it out, and make it up into Cakes.

III. *Another Velvet black Enamel, finer and fairer than the former.*

℞ Of the Mixture (*ut ſupra*) ℔vj. red Tartar ℔vj. *Manganeſe* prepared ℥iij. all being in fine pouder, mix and put them into a very large glazed Earthen Pot, becauſe the Maſs will ſwell; melt and purify, caſt it into Water, dry it, and put it into the Pot again, melting

and purifying as before: make it up into Cakes, and keep it for Use.

IV. *A Black for Painting on Enamel.*

1. The former black Enamel levigated with Oil of Spike, makes an excellent Color. 2. ℞ black Enamel of either sort, Peregrine well calcined, *ana* ℥iv. mix and make an impalpable pouder, then add Oil of Spike; and it will agree excellently with the Enamel.

CHAP. XIX.

Of fine Blew and Turcois Enamels.

I. A *Fine Blew Enamel.*

℞ Of the Mixture (in *cap.* 23. *sect.* 2.) ℔vj. Zaffer prepared ℥iij. Copper thrice calcined (in *cap.* 7. *sect.* 11.) ℥j. gr. xij. all being in fine pouder, put it into a white glazed Earthen Pot; when the Metal is well melted, cast it into Water: dry it, and put it into the Pot again, and let it stand till it is well melted, purified and incorporated: take it off and make it up into Cakes.

II. *Another noble Blew.*

℞ Of the Mixture *(ut supra)* ℔vj. plates of Copper calcined (in *cap.* 7. *sect.* 7.) ℥iij. Zaffer prepared ℥j. gr. xij. being in fine pouder, mix and melt as before, casting it into Water: dry it, and return it into the Pot again to melt, purify and incorporate, then take it off and make it into Cakes.

III. *These glorious Blews* almost all People are taken withal, as being the most agreeable Sight of all others, their Beauty and Splendor being so great and transcending all other Colors, they only having the Resemblance of Heaven it self, for which reason the *Romanists* esteem it a Sacred color.

IV. *A Blew Turcois Enamel.*

℞ Of the Mixture *(ut supra)* ℔vj. put it into a white glazed Earthen Pot, melt and purify it, cast it into Water, and dry it: put it into the Pot again, melt it, and add to it at 4 times the following Mixture. ℞ *Scales*

of

of Copper thrice calcined (in cap. 7. sect. 11.) ℥iij. *Zaffer prepared (in* cap. 4. sect. 10.) ℈iv. gr. vj. *Manganese prepared (in* cap. 3. sect. 1.) gr. xlviij. all being in fine pouder, mix and stir the Mass very well each time with your Iron Hook, that the pouders may incorporate: being well colored, take it out and make it into Cakes.

V. *But this is to be noted,*

You must be sure the color is right good and perfect before you empty your Pot; for it is Experience must teach you how to proportion the tinging Ingredients for more or less: if the tinging Matter is too exuberant, add more of the Mixture *ut supra*; if too faint, add more of the Tincture or tinging Pouder till you see the Color compleat and perfect. As this Color is very fine, so it is very difficult to make well, and requires much Experience and many Tryals: therefore you are not to be discouraged if you fail in your first Essays, for by continuing to make farther Tryals, you will at length come to do well, and to be able to see and know when you are in the right, and when in the wrong.

VI. *A Blew for Painting on Enamel.*

1. ℞ Any of the aforegoing Enamels, purify them with *Aqua Fortis*, and grind them with Oil of Spike as for other Colors: these are some of the noblest which can be used for this Work. 2. Take Painters Enamel prepared, put it into a Glass Bottle; add *Aqua Vitæ* to supernate 4 inches, 4 times a day; so will the grosser parts fall to the bottom: decant the clear Liquor, evaporate the Spirit and dry your Azure, so will it be very fine; then grind it on a Marble, and it will be fit for this Work, and far beyond *Ultramarine*; which yet may be made use of as Occasion requires.

CHAP. XXX.

Of Green Enamels.

1. A *Fine Green Enamel.*

℞ Of the Mixture (in *cap.* 23. *sect.* 2.) ℔vj. put it into a white glazed Pot, let it melt and purify 12

hours: caſt it into Water, dry it, and put it into the Pot again, and let it be perfectly refined: then take Scales of Copper thrice calcined (in *cap.* 7. *ſect.* 11.) ℥iij. Scales of Iron from the Anvil ℥j. gr. iv. all being in fine pouder, mix and put it at 4 ſeveral times into the Pot, ſtirring the Maſs very well, that it may be throughly and equally tinged: if it is right, let it ſtand a while in the Fire, and then make it into Cakes: it is a delicate Green.

II. *Another excellent Green.*

℞ Of the Mixture (*ut ſupra*) ℔vj. *Ferretto* (in *cap.* 6. *ſect.* 5.) ℥ij. *Crocus Martis* prepared with Vinegar (in *cap.* 6. *ſect.* 7.) gr. xlviij. all being in fine pouder, mix well and put them into a white glazed Pot, melt and refine: caſt it into Water, dry and put it into your Pot again, and let it refine well: ſee whether the Color is good, then let it ſtand ſome hours longer to refine: if not, add more of the tinging Pouder; and when perfect, let it ſtand a while, take it off and make it into Cakes.

III. *Another very fine Green Enamel.*

℞ Of the Mixture (*ut ſupra*) ℔vj. let it refine in the Furnace, caſt it into Water, dry it and put it into the Pot. Take Scales of Copper thrice calcined (in *cap.* 7. *ſect.* 11.) ℥iij. *Crocus Martis* (in *cap.* 6. *ſect.* 7.) ℥j. gr. iv. being in pouder, mix well and put it in at 3 ſeveral times, ſtirring the Metal with the Iron Hook, to incorporate it: let it reſt on the Fire till it is well refined; and being well colored, take it off and make it into Cakes for Uſe.

CHAP. XXXI.

Of Purple Enamels.

I. *Purple-colored Enamel.*

℞ Of the Mixture (in *cap.* 23. *ſect.* 2.) ℔vj. Manganeſe prepared ℥iij. mix and put them into a white glazed Earthen Pot very large, becauſe of the riſing of the Metal: when melted perfectly, caſt it into Water; dry

dry it, and put it into the Pot again to purify; and if it is well colored, make it up into Cakes and keep it for Uſe.

II. *Another Purple Enamel.*

℞ Of the Mixture *(ut ſupra)* ℔vj. Manganeſe prepared ʒiij. Scales of Copper thrice calcined (in *cap.* 7. *ſect.* 11.) ʒvj. all being in impalpable pouder, put it into a white glazed Pot, melt and let it refine: caſt it into Water, dry, put it into the Pot, melt and refine again; and if the Color is right, take it and make it into Cakes for Uſe.

III. *A Violet-colored Enamel.*

℞ Of the Mixture *(ut ſupra)* ℔vj. Manganeſe prepared ʒij. Scales of Copper thrice calcined (in *cap.* 7. *ſect.* 11.) gr. xlviij. all being in very fine pouder, mix well, put it into a white glazed Earthen Pot, and proceed exactly as in the former.

CHAP. XXXII.

Of Roſe-colored Enamels.

I. *TO make a Roſe-colored Enamel.*

℞ Cryſtal compound (in *ſect.* 3. following) ℔x. melt it in a glazed Pot in a Glaſs-houſe Furnace; add to it at 4 times red calcined Copper, (in *cap.* 7. *ſect.* 10.) ʒv. ſtirring well the Maſs every time: then put in Manganeſe prepared, (in *cap.* 3. *ſect.* 1.) *Crocus Martis* (in *cap.* 6. *ſect.* 9.) *ana q. ſ.* let it alone to refine for 6 hours: and if the Color is not perfect, put in more *Crocus Martis* by little and little, till the pure Roſe color is compleat and perfect.

II. *Another very fine Roſe Color.*

℞ Of Cryſtal Compound (in *ſect.* 3. following) ℔x. melt it in a glazed Pot in a Glaſs-houſe Furnace: caſt it into Water, melt it over again, and add to it, by little and little, of the Mixture (in *cap.* 23. *ſect.* 2.) ʒiij. ʒvj. ſtirring the Maſs every time to incorporate: let it alone for a while till you ſee it of an Aſh color: when you ſee that, put in no more Mixture, leſt it be too

white: let it refine, and then add to it *Minium* ʒv. purify, refine and cast it into Water: dry, melt and purify again for 8 hours; after add treble calcined Copper (in *cap.* 7. *sect.* 10.) ʒiij. ʒvj. crude white Tartar ʒiij. ʒvj. Blood-stone in pouder, fixt Sulphur (in *cap.* 23. *sect.* 3.) *ana* ʒijss. all being in fine pouder and mixt together, stir the Mass very well that they may incorporate, and see if the Color is exact: if too deep, put in a little more *Manganese* to make it lighter: if too pale, add more of the last Composition till you find it perfect, which will be an exceeding fair Color.

III. *Crystal Compound.*

℞ Salt of *Pulverine*, *Rochetta* or *Soda* ℔xij. Frit ℔iij. (in *cap.* 2. *sect.* 8.) mix and pouder finely: put them into Water, so much as to make the Mass into a body like Paste: make it into small thin Cakes, and in a calcining heat let them remain for 4 days: then make them into impalpable pouder, and add thereto of the Mixture (in *cap.* 23. *sect.* 1, 2.) ℔ij. Tartar calcined white ℔ij. all being mixt and in fine pouder, put them into a glazed Pot in the Glass-house Furnace to melt and purify: cast it into Water, dry, melt, purify and cast it again into Water; which Work repeat the third time, and then keep it for the Use afore-said.

IV. *Note*, You must always be careful, that if you find any Grains of Lead remaining in the Pot when you cast the Matter into Water, that you cast them away, lest they eat your Pot out at bottom, or break it.

CHAP. XXXIII.

Of Red Enamels.

I. *TO make fusible Manganese.*

℞ *Piedmont* Manganese, (for no other will serve the Turn) Nitre, *ana q. v.* mix and calcine in an Earthen Pot in a Reverberatory Fire for 24 hours: separate the Nitre from it by washing in warm Water; dry it well, and it will be of a red color. To this add an equal quantity of Sal Armoniack: grind them on a Porphyry

Porphyry with distilled Vinegar, dry and pouder it; put it into a strong Glass Matrass or Bolt-head to sublime for 12 hours: break the Matrass, and mix all the volatile and fixt parts together, adding to it an equal quantity of Sal Armoniack, weighing it exactly: grind, pouder and sublime as before, and repeat this Work so long till the Manganese remains fusible at bottom of the Matrass; which keep for Use. This is that which tinges Crystal, makes it red and diaphanous, or transparent as a Rubie.

II. *A Blood-red Enamel.*

℞ Crystal or common Frit ℔x. Glass of Saturn (in *cap.* 5. *sect.* 2.) ℔vj. all being in very fine pouder, put it into a glazed Earthen Pot in a Glass-house Furnace, melt, boil and refine: then cast into it thrice calcined Copper in pouder (in *cap.* 7. *sect.* 11.) as much as you think convenient: stir all well, that they may incorporate; add pouder of red Tartar *q. s.* and stir till the Mass becomes as red as Blood: make Tryal and see the Color; if it is too pale, put in more of the pouder of Copper and Tartar till it is perfect; so will you have a noble, deep, blood-red, transparent Enamel, fit for any nice Work.

III. *Another Blood-red Enamel.*

℞ Crystal Frit ℔x. *Vitrum Saturni* ℔vj. put them into one of the Glass-house Furnace Pots, let it melt and purify: cast it into Water, wash, dry and put it into the Pot again: when melted, cast into it Pouder of thrice calcined Copper (in *cap.* 7. *sect.* 10.) ℥v. or vj. which put in at several times, stirring it in with the Iron Crook to mix and incorporate them: add also Pouder of red Tartar ℥v. or vj. stirring it still: when well boiled and purified, see if the Color is right; if not, add again Pouders of Copper and Tartar, *ana q. s.* till you find it to be perfect.

IV. *A Red Enamel of a Rubie Color.*

℞ Crystal Compound (in *cap.* 32. *sect.* 3.) ℔vj. fusible Manganese ℔vj ℥s. mix and let the Mass be well purified: try the Color, and according as you find it, add more or less of the Manganese or Crystal Compound, till it is brought to its just Perfection, *viz.* of a very admirable and surprizing red-color, and of as lively and transparent a Lustre as the most ennobled Rubie is possible to be of.

V. A

V. *A Balaſs-Rubie colored Enamel.*

℞ Cryſtal Compound (*ut ſupra*) ℔vj. put it into a glazed Pot to melt and refine in a Glaſs-houſe Furnace: caſt it into Water, dry and melt again: then add to it of fuſible Manganeſe *ut ſupra q.ſ.* and it will be purple-colored. Add to it Pouder of Alum *q.ſ.* at 8 times, to bring it to a Red; but take heed you put not in ſo much Alum as to blacken it, but only to make it yellowiſh; ſo the Manganeſe vaniſhing, it will become red, of a fine Balaſs-Rubie color.

VI. *Red Paints for Enamel.*

1. ℞ Any of the red Enamels, grind it, and purify it with *Aqua Fortis*: waſh it, dry it, and grind with Oil of Spike for Uſe. 2. Take of the Mixture (in *cap.* 23. *ſect.* 2.) ℥vj. Gold calcined (in *cap.* 19. *ſect.* 5.) ℥iv. Some melt them together, purge with *A.F.* waſh with fair Water, dry, and then grind with Oil of Spike: others only mix them by grinding on a Porphyry, and then grind them together with Oil of Spike as other Colors; but this latter Method is not without Diſpute. 3. Take yellow Rocaille ℥iij. Calx of Gold *ut ſupra* ℥iij. mix, grind and melt them together: purify with *A.F.* waſh, dry; then grind with Oil of Spike for Uſe. Others only mix the Rocaille and Calx together by grinding on a Porphyry, and then grind with Oil of Spike: this way is doubtful; but this Color made with Rocaille, by reaſon of the great quantity of Saturn it contains, always makes the Work dull, foul, unpleaſant and defective. 4. Take Vitriol calcined to Redneſs, and purged with *A.F.* waſh it in fair Water, and grind it with Oil of Spike as before.

CHAP. XXXIV.

Of Yellow Enamel.

1. *To make Yellow Enamel.*

℞ Of the Mixture (in *cap.* 23. *ſect.* 2.) ℔vj. Tartar ℥iij. Manganeſe prepared ℥i. gr. xij. all being in an impalpable pouder, mix well and put it into a glazed Earthen

Earthen Pot large enough for the ſwelling of the Metal; melt, ſtir well and incorporate: caſt it into Water, waſh, dry and put it into the Pot to refine again well. Try the Color; if well, make it into Cakes for Uſe, to be applyed on Silver, not upon Gold, unleſs among other Colors, for that the color of the Gold would be apt to dull and ſpoil it.

II. *A Yellow for to Paint on Enamel.*

℞ Of the former Enamel, mix and purify it with *A.F.* then waſh in fair Water and dry it: afterwards grind it with Oil of Spike on a Porphyry; and it is fit for Uſe.

III. *Note.* As for the Variety of other Colors, we need give no other Directions, but to take the Enamels themſelves, for they are ſo perfectly fine, that other Preparations of Colors are needleſs: and therefore mixing and purifying them with *A.F.* waſhing with fair Water and drying, and then grinding, they are made fit for Painting.

IV. Alſo, you may make a Mixture of Colors, by mixing divers colored Enamels together (*as Yellow and Blew Enamels, which make a fair Green:*) then purifying the Mixture with *A.F.* waſhing with fair Water, then drying, and grinding with Oil as before.

CHAP. XXXV.

To make China *Ware, Enamel, Paint, and Gild it.*

I. *TO make the Furnace.*

It is to be made with good Bricks well burnt, or Crucible Earth, and of ſuch Stuff as will beſt endure the Fire: a ſquare Form is beſt, becauſe of the opening, and of what largeneſs you pleaſe, in proportion to the Veſſel you place therein: let it be made with 3 Stories; the firſt and loweſt for the Aſhes, a foot or 15 inches high from the Ground for the Air ſake: the ſecond or middle Story for the Fire, underlaid with a good Iron Grate, and an Opening for the Fuel, which muſt be vaulted like

an Oven, about 12 or 14 inches in height, having an hole in the middle of it of the ſhape of the Furnace, whether ſquare or round, and proportionate in bigneſs, thro' which the Flame is to paſs to the upper Story: the third, laſt or higheſt Story is to be at leaſt 2 feet high, and its Opening 14 or 15 inches, to put in and draw out the Veſſels, (for in this they are to be put to bake:) the top muſt alſo be vaulted with a ſquare or round hole in the middle, according as the Furnace is ſquare or round; and over this a Funnel is to be put, for the paſſage of Flame and Smoak. A Furnace of this kind made of thick caſt Iron, which may be luted within ſide, and to open and ſhut eaſily with cloſe Iron Doors, would be beſt for this Occaſion.

II. *The Uſes of this Furnace.*

It will ſerve for many Purpoſes beſides this of making *China* Ware; as, to Melt, Calcine, Cement, Reverberate, Anneal, *&c.* becauſe you may have in it all the degrees of Fire, by reaſon of the opening of the lower Story and the Funnel at top; beſides, at each corner you may have a Recorder, which will encreaſe or diminiſh the heat at pleaſure.

III. *To make the Paſte for* China *Ware.*

℞ Oyſter-ſhells made white as Snow, beat them in a Mortar to pouder, grind them on a Porphyry, ſearce and make the pouder impalpable: make this into a Paſte with Gum *Arabick* Water, (an ounce of very white Gum to 3 gallons of Water) in which diſſolve or quench as much Quick-lime as the quarter part of your Pouder weighs; (but moſt uſe fair Lime-water without Gum.) Of this Paſte (being firſt well kneaded and beaten) form all ſorts of Veſſels, according as you deſire: let them be better than half dry before you poliſh them with your ſmoothing Inſtrument of Copper or Iron, and ſo leave them till throughly dry: then glaze them over with white Enamel, prepared as in the next *ſection*; ſo ſet them in the Furnace to bake and be finiſhed: which done, let the Fire go out of it ſelf, take them out and paint them. Put them in to bake a ſecond time, let the Fire go out of it ſelf, and when cold, you may take them out in Perfection.

IV. *To make a kind of Baſtard* China.

This is to be made of a very fine and pure ſort of white Earth,

Earth, such as is our Tobacco-pipe Clay, or finer Earth, if any be, as Whiting; this form into Vessels as the former, and proceed in all respects as is above-directed; which is, in reducing it into fine pouder, making it into Paste with fair Water, kneading or beating of it, forming it into Vessels, half drying them, polishing and through drying again, glazing, baking, painting and finishing them as before, according to Art.

V. *To Enamel* China *Ware.*

℞ The Milk-white Enamel (in *cap.* 27. *sect.* 1.) grind it very fine as Painters do Colors; put it into a Glass Cucurbit, affuse thereon *A. F.* digest to cleanse it from its Foulness, till it becomes fine and transparent: decant the *A. F.* wash the Pouder in Water 2 or 3 times: grind it afterwards with a little very thin Gum-water on a Porphyry, and therewith glaze your Vessels, both within and without, dry them in the Air, and bake them in the Furnace as before.

VI. *Another way to Glaze them.*

Heat your Vessels to a Redness, and melt the Enamel perfectly well; in which dip the smaller Ware, but pour it on the larger, for that they will take up no more than will serve them: set them by turns in the Furnace, stopping it close to avoid the Air, bake them: let the Furnace cool of it self, then take them out, paint them, and bake them over again as before.

VII. *To Paint* China *Ware.*

This is to be done exactly according to the Method in *cap.* 26. afore-going; but much more easily, if you only imitate the *Chinese* gross and slovenly way of doing it: Grind your Colors on a Porphyry with Oil of Spike, and so paint with them on your Vessels, Portraitures, Houses, Landskips, or any other Story you please; then bake them over again as before-directed.

VIII. *To Gild upon* China *Ware.*

℞ Tobacco-pipe Clay, or some other fit Earth, white or red; grind it with drying Oil upon a Porphyry; and with this trace out your Figures, *&c.* dry it for 2 whole days or more, then apply Leaf Gold upon it, shaping the Figures with a Graver: after which put the Vessels into an Oven after the drawing of the Bread, the heat being no greater than ones Hand can endure, for fear of cracking;

cracking: after 2 or 3 hours take them forth, and they will be finiſhed.

IX. *To make the drying Oil.*

℞ Linſeed Oil very fine ℔iij. Litharge of Gold in fine pouder ℥iv. mix and make them boil: then immediately add Gum *Arabick* in fine pouder ℥vj. to purify it: boil for half an hour or more, after which filter it thro' a Linnen Cloth full of clean Sand: let it fall into a Glaſs Bottle, in which Camphir ℥vj. is before-hand put: ſhake the Bottle well till the Oil is cold; then inſolate for 15 days, and it will be perfectly fine. *The longer it is kept, the better it will be.*

X. *Another way to Gild* China.

Moiſten the places you would Gild with Gum-water lightly, then apply your Leaves, letting them dry: and this is enough for ſimple Gilding. But if you would have it carved or otherwiſe figured, you muſt do it with a Steel Graver. Take Gold Leaves, moiſten them with Water in which Borax has been diſſolved, and ſtrew over with Cryſtal-pouder, or Milk-white Enamel made into an impalpable pouder: the Gold being applyed, preſs down with Cotton or a Hares Foot; then ſet the Diſh on a reverberatory Fire, that the Enamel may melt, and the Veſſel be poliſhed. This will be noble and lively, firm and not to be effaced, very Ornamental, and (if the Veſſel is entirely Gilded) will look as well as fine Gold.

SECT. IV. *Of* Painting GLASS.

CHAP. XXXVI.

Of Painting on Glaſs in general, and of the Colors.

I. *TO make the Furnace for Painting on Glaſs.*

You muſt build it 4 ſquare, of good ſtrong well-burnt Brick, two feet and half high, or there abouts. It muſt have 3 Stories; *the firſt and lowermoſt is for the Aſhes,* which

which muſt be 8 or 9 inches high, and muſt have an Opening 6 inches broad, and 6 or 7 deep: *the ſecond or middle Story* muſt be 9 inches high, having at its bottom a ſtrong Iron Grate; it muſt have an Opening 6 inches broad and 4 inches deep; there muſt alſo be 3 Iron Bars to be laid acroſs, to ſupport a ſtrong Earthen Stove or Pan made of Crucible Earth or Glaſs-houſe Pot Earth, which is to hold and contain the painted Ware, and in which it is to be baked and annealed: *the third and higheſt Story* muſt be a foot high, with an Opening in the middle before, 5 inches high and 3 or 4 inches broad, to put in and draw out the Ware a baking, and to ſee when it is well done: *in this upper Story is the Stove to be put*, whoſe bottom ought to be an inch and half thick, and from thence up to the brims 9 or 10 inches high or deep: it is to be ſquare as is the Furnace, and have two inches or two inches and half room, clear on all ſides, that the Fire may flame round about it, to bake and anneal the Work, and is therefore to be placed exactly in the middle of the Furnace: there muſt be alſo in the Fire part of this Stove an Opening juſt againſt, and of the ſame ſize with that of the Furnace, for the Conveniency of putting in the Ware, and of taking it out. *This Furnace muſt have a Cover on the top of it, made alſo of Crucible Earth*, and ſquare alſo like the Furnace, having a round hole in the middle of it, and a ſquare hole at each corner. As ſoon as the Stove is full of Ware, the Furnace is to be covered with this Cover, and luted cloſe to the Furnace, that no Air may pierce thro' but thro' the 5 holes, which are the breathing places for the Smoak and Flame.

II. *To make the white Ground for Painting on Glaſs.*

℞ White River Pebbles, calcine them by heating them red hot in a Crucible or Iron Ladle, and quenching in cold Water, repeating this Work 8 times more or leſs; then being dry, beat them to pouder, and grind it impalpable on a Porphyry: add to it a quarter part of Nitre, calcine in a Crucible again; beat, grind and calcine a third time over a gentler Fire than the former, and ſo keep it for Uſe. Take alſo *Gip*, (a kind of Talck found among Plaiſter Mold) bake or calcine it on Coals to a whiteneſs, and reduce it to impalpable pouder. Take of the two former Calces or Pouders, and of *Rocaille*,

and

ana q. v. grind them all three well together in a hollow plate of Braſs, with Gum-water; ſo is your White prepared for Uſe.

III. *To make a Black.*

℞ Scales of Iron from the Smiths Anvil, grind them for 3 hours on the ſhallow Copper or Braſs Plate, (ſuch as Spectacle-makers uſe to grind their Glaſſes on.) Take of this Pouder, and of *Rocaille*, *ana q. v.* add a little calcined Copper, to hinder the Iron from turning red in the Fire: grind all impalpable, and keep it in a Glaſs cloſe ſtopt for Uſe.

IV. *To make a Yellow.*

℞ Fine cupulated Silver in Leaves, or in Filings, or in thin Plates, put it into a Crucible with Sulphur or Nitre in pouder, laying them S. S. S. calcine in a Furnace; as ſoon as the Sulphur is conſumed, put it out into an Earthen Baſon of Water, beat it to pouder in a Stone Mortar, and grind it with Water on a Pophyry for 6 hours, or till it is impalpable: then add to every ounce of this Pouder of red Oker ℥ix. grind them together for an hour, and keep it for Uſe.

V. *To make a Blew.*

℞ Fine white Sand ℥xij. *Zaffer*, *Minium*, *ana* ℥iij. beat them to a fine pouder in a Bell-metal Mortar: put this Pouder into a very ſtrong Crucible, ſuch as that in *cap. 9. ſect.* 14. cover it and lute well, and being dry, calcine over a quick Fire for an hour: take out the Matter, and beat it again as before: then to ℥xvj. of this Pouder add Nitre in pouder ℥iv. mix, put them into the Crucible, cover and lute it, and calcine for 2 hours in a very ſtrong Fire: take it out, grind it as before, add to it a 6th part of Nitre, and calcine again as before for 3 hours more: then with an Iron *Spatula* red hot, take out the Matter leſt it ſhould ſtick, being very clammy and not eaſily emptied.

VI. *To make a Red.*

℞ Litharge of Silver, Scales of Iron, *ana* ℥j. *Rocaille* ℥iij ſs. *Ferretto* of *Spain* ℥ſs. Blood-ſtone beaten to pouder in an Iron Mortar ℥iij. Gum *Arabick* made impalpable in the ſame Mortar, to take off what ſticks of the Blood-ſtone, ℥j. grind the firſt three things upon the aforenamed hollow Braſs for half an hour; then add the reſt, which are yet ſtill to be continually ground, that the Blood-

Blood-ſtone may not be ſpoiled: in grinding add Water by little and little, but only ſo much that the Muller may rub eaſily, and the Maſs be in a good temper or thickneſs for Painting: this done, put all into a Flint, or other fine Wine Glaſs, and drop on it, drop by drop, ſo much Water as may make it of the thickneſs of a raw Yolk of an Egg, or ſomewhat thinner: cover the Glaſs, let it ſettle for 3 days, and then decant the fineſt of the Colors which ariſe at top into another Glaſs, without troubling the Sediment: let it ſettle again for 2 days more, and decant the fineſt of the Color again: this decanted Matter put into a little Glaſs Matraſs, and in a gentle Sand heat evaporate to dryneſs, and keep it for Uſe: when you uſe it, moiſten it with a little fair Water, and it will be excellent for a Carnation: the other Fœces remaining, which are very thick, are alſo to be dryed for Uſe, and to be uſed as the former with Water, for Drapery, Timber-color, Hangings, Curtains, *&c.*

VII. *A Purple Color.*

℞ Fine white Sand ʒxij. *Minium* ʒiij. *Zaffer*, *Periſgeux* very pure and clean, *ana* ʒiſs. beat all in a Bell-metal Mortar, grind impalpable on a Porphyry, calcine, *&c.* doing all things exactly as is directed in *ſect.* 5. above; ſo will you obtain a fine purple color.

VIII. *A Green.*

℞ Fine white Sand ʒxij. *Minium*, *Æs Uſtum* (in *cap.* 7. *ſect.* 12.) *ana* ʒiij. beat all in a Braſs or Bell-metal Mortar to a very fine pouder, calcine, *&c.* doing exactly as is taught in *ſect.* 5. afore-going; ſo will you have a very excellent Green.

IX. *A Carnation.*

℞ Of the red Color in *ſect.* 6. ʒj. *Ferretto* of *Spain* (in *cap.* 6. *ſect.* 3.) ʒi. *Rocaille* (in *cap.* 5. *ſect.* 23, 24.) ʒi. grind theſe on your hollow Braſs with Gum-water, till it is fit for Uſe.

X. *A dark yellowiſh Red.*

℞ Of the red Fœces in *ſect.* 6. above; *Ferretto* of *Spain* (in *cap.* 6. *ſect.* 3.) Scales of Iron, *ana* ʒii. *Rocaille* ʒiv. grind all well together on the hollow Braſs, moiſtning them with Gum-water till they are made of a fit Conſiſtence; ſo have you a Red enclining to a dark yellow. Other Colors may alſo be produced by mixtion of the

prime Colors, as we hinted in *cap.* 24. *sect.* 7. aforegoing.

XI. *To Paint Globes, &c. of various Colors.*

Put warm Gum-water into your Globe, *&c.* and rowl it therein, so as to wet it all over, and so pour it out again: then your Colors being all ready, with or thro' a hollow Pipe blow them into your Globe, 1. *Vermilion* to represent Clouds or Wavings. 2. Pouder of *blew Enamel.* 3. Pouder of *Copper Scales.* 4. *Orpiment* in pouder. 5. *Lake* in fine pouder. 6. *Water-Gold* in pouder. 7. *Leaf Silver* in pouder, together with any other Colors you better like, and what best answers your Design: you may blow them to what parts of the Globe, *&c.* you please, by directing your Pipe accordingly.

XII. *This done,* take Plaister in fine pouder, put a good quantity of it into the Globe, *&c.* and shake it well all over, before and until the Gum-water is dry; so will it stick fast round about; and what remains loose shake it out; so will the outside of your Globe be finely marbled and colored to Admiration.

XIII. *To make the afore-said Gum-water.*

℞ Fair Water a quart: fine Gum *Arabick,* or rather Mouth Glew, ℥ij. more or less: digest it in warm Water for 2 or 3 days, then gently boil it till all is melted, strain it thro' a Flannel whilst hot, and keep it for the aforesaid Use.

CHAP. XXXVII.

Preparations of Vegetable Colors.

I. A *Fine Scarlet-colored Lake, or Tincture from Kermes Berries.*

℞ Strong-waters of the first running or distilling *q. s.* put it into a Bolt-head: add Roch Alum ℔j. mix and dissolve: then put in Kermes-berries in very fine pouder ℥j. digest, shaking the Matrass 2 or 3 times a day: after 4 days, decant the Tincture and reserve it. Take fair Water *q. s.* Roch Alum ℥iv. mix and dissolve: put this into the former Tincture, to cause a Separation: strain

ſtrain it thro' a Linnen Cloth, or rather filtering Paper; ſo will the *Menſtruum* paſs, leaving the Tincture or Lake behind: Take it up with an Ivory Spoon, make it up into Cakes and keep it for Uſe. It is an excellent Lake.

II. *Another Lake of the ſame kind.*

℞ Fair Water ℔viii. Wheat Bran ℔iv. Oriental Piraſter ℥ij. Fœnugreek ℥ij. digeſt Blood-warm and encreaſe the Fire almoſt to a ſcalding heat; let it ſtand 24 hours, then decant the *Lixivium* and keep it for Uſe. Take fair Water ℔vj. put it to half the former Liquor, make it begin to boil, and add thereto Kermes Berries or Grains in fine pouder ℥i. beat a little crude Tartar in the ſame Mortar the Berries were beaten in, to take off what hangs upon the Mortar, and add it to the former: when the Liquor begins to boil, take it immediately off and let it cool. Take prepared Shearings of Wool *q. ſ.* put them into the former Liquor, and ſteep half an hour: ſqueeze out the Tincture into another Veſſel by Expreſſion, and do thus till you have gotten all the Tincture: put the Shearings into the laſt Veſſel, ſtirring them about with a ſmall Stick very well: boil all for half an hour over a gentle Fire, otherwiſe the Tincture will be black: then take out the Shearings, put them (being well dryed) into a Veſſel of cold Water: after half an hour decant the Water gently: put freſh Water on again, then preſs and ſpread them in a clean place to dry. Take Aſhes of Aſh, Vine-ſtalks or Willow; affuſe thereon *gradatim* cold Water, and make a pure clear *Lixivium*; warm it and put the Shearings into it, boil it over a gentle Fire, and it will become red: try the Shearings by preſſing them; if they are colorleſs, the *Lixivium* has perfectly extracted the Color: ſtrain all thro' a ſtrong Canvas Strainer by preſſing, to get all the Color out of the Shearings, which are then to be waſht clean, and to be kept for another like Occaſion. Take Roch Alum ℥xii. cold Water *q. ſ.* diſſolve in a Glaſs Body, filter and mix it with the former Tincture: which done, ſtrain all thro' a Linnen Cloth; ſo will all the Liquor go thro' colorleſs, and leave the Tincture, Lake or Color behind. Gather this Lake, and putting it upon Glaſs Plates, dry it over a Sand heat, ſo as to make it up into little Cakes; which dry perfectly and keep for Uſe. You may heighten or

diminish the Color, by putting in a greater or lesser quantity of the Roch Alum.

III. *To prepare the Shearings afore-mentioned.*

℞ The finest Shearings of white Woollen Cloth *q. v.* steep them in almost scalding Water for 6 hours: what Scum arises take it all off, and separate the Shearings, which reserve. Take Roch Alum ʒviij. crude Tartar ʒiv. all in fine pouder: fair Water *q. s.* mix and dissolve: when it begins to boil, put into it of the former Shearings ℔ij. boil half an hour and cool it: take out the Shearings, lay them in fair Water for 2 hours, then press them out, dry them, and keep them for Use.

IV. *To make Tincture or Lake from Brazil.*

This is made exactly as that of *Kermes*, either by the first or second way, (by *sect.* 1, 2. above) only observing not to put so much Alum to each ounce of Brazil, as to ʒj. of the Berries, for that Brazil contains more Tincture, and deeper; so that you must add the quantity of Alum as you find by Experience and many Tryals is necessary. But if you make it the latter or second way, you must put a greater quantity of Brazil (than of Kermes-berries) to each pound of Shearings; so will you have a fine Lake, less changeable and full as rich as that of *Kermes* for Painting.

V. *To make Tincture or Lake of Madder.*

Madder comes generally from *Holland* and *Zealand*, being a Root used by Dyers: if it is good, it is red and fairer than Brazil, and gives a better color. You must first make it into fine pouder, and then you may make the Lake from it by *sect.* 1, 2, 4. afore-going. It will be a most excellent Lake, perfectly fine, and fit for the best Performances.

VI. *To make Tincture or Lake from Broom-flowers.*

Make a pretty strong Lye with Pot-ashes and Quick-lime: put into it Broom-flowers over a Sand heat, digest till the Lye has drawn forth the Tincture, and left the Flowers colorless: take out the Flowers, add as much Roch Alum as the Liquor will dissolve, and boil in a Glass or glazed Earthen Vessel, adding to it some fair Water; so the yellow Lake or Tincture will præcipitate: when the Water is clear from the Color, decant it gently, and affuse more fresh Water, to wash it and free it from the Salts and Alum; which washing reiterate 2,

?

3 or 4 times as you see need; so will the Lake be exceeding fine and bright; spread it on pieces of white Linnen or whited brown Paper, and dry it in the Shade on new-baked Tiles; so will you have a most excellent and admirable yellow Lake for Painting.

VII. *To make Tinctures or Lakes, of Poppies, blew Flower-de-luces, red Roses, Violets, and all sorts of green Herbs.*

℞ Of the *Lixivium* (in *sect.* 6.) *q. v.* put into it any of the former things, steeping and boiling so much as to extract the Color perfectly *ut supra:* decant the *Lixivium*, set it over a Fire, and beginning to boil, put into it as much Roch Alum as it will well dissolve: take it from the Fire, put it into a large glazed Earthen Vessel: mix with it fair Water; so will the Color præcipitate, which being settled clear, decant off; then affuse more fresh fair Water, stir it well and let it stand to settle; decant again, affuse more fresh Water; and this continue till all the Salts and Alum are separated from the Lake, which will be of the same color with the Flowers or Herbs were of from which it was extracted: dry it, and make it into Cakes as the former.

VIII. *Another way to Extract the Tinctures or Lakes from Poppies, Flower-de-luces, red Roses, Violets, green Herbs; as also from Borrage-flowers, Carnations, Cowslips, red Coleworts, Flags, Orange-lillies, Mallows, Marigolds, Peach-flowers,* &c.

Put any of these into a Glass Cucurbit or Matrass, fresh gathered: upon which affuse S. V. so much as to supernate 4 or 5 inches: digest with a gentle Sand heat, having luted a blind Head to it; so will the Spirits extract the Tincture: decant the tinged Spirits, which put into another Alembick, and with a very gentle *B. M.* draw off the Spirit to dryness; so will you have the Tincture or Lake at bottom of its original Color.

CHAP. XXXVIII.

Preparations of Mineral Colors.

I. TO *know whether* Lapis Lazuli *is good.*

If it is good, it must come from *Persia* or the

East Indies: Put pieces of the Stone into a good Fire, blowing continually for an hour: if after this they have their first Hardness and Color, they are good; but if they will crumble, they are naught. *Or,* Put some pieces into an Iron Ladle, into a Furnace with a strong Fire, to heat red hot, and then quench them in strong Wine Vinegar: if the Color is good and splendid as before the burning, it is good; otherwise naught.

II. *To Calcine* Lapis Lazuli.

Break the Stone into small bits, put them into a Crucible in a Wind Furnace, or into an Iron Ladle, to reunite: then quench them in Spirit of Vinegar; which Work repeat 7 or 8 times, to prepare them for poudering, and prevent sticking to the Mortar: thus calcined and dryed, pouder it in a Stone Mortar with a Cover on it, and search it, and keep it for Use.

III. *To make Violet Gum-Water for Grinding* Lapis Lazuli.

℞ Spring Water ℔ij. Honey ʒiij, mix, boil and scum till no more Scum will arise; which reserve. Take choice *Sanguis Draconis* ʒfs. grind it on a Porphyry with some of the reserved Water, till it is impalpable or dissolved; to this add more of the reserved Water, so much as to bring it to a Violet color; which keep close covered for Use. This is to be added to your *Lapis Lazuli* in Gilding.

IV. *To Grind* Lapis Lazuli.

℞ Of the Pouder at *sect.* 2. ʒviij. grind it in a Porphyry Mortar or Stone, adding by little and little some of the former Violet Gum-water: grind them together for an hour or longer, still wetting it, till about ʒiv. of the Liquor is swallowed up; but grind it not too long, lest it loose its Color: this done, dry it in the Shade, and cover it from Dust: when dry, if it easily pouders between your Fingers, it is good; but if clammy, it is from the Honey, and must be purified by Cementation; of which afterwards: but, first you must wash it well with some of the mild *Lixivium,* (in the following *section*) putting in so much as may over-top the Pouder 4 or 5 inches; then wash it well with your Hands, and let it settle: decant the clear, and let the Pouder dry in the Shade in the same Vessel it was washt in, and keep it for Cementation.

V. *To*

V. *To make the Lixivium's for this Work.*

1. ℞ Vine Stalk Ashes well searced, ten handfuls: put them into a Vessel or Earthen Stein, which may have a Brass Cock or Tap at bottom: press the Ashes very well together, and affuse thereon fair warm Water ℔xx. when sunk to the bottom, open the Cock or Tap, so that the Lye may come forth only dropping into the Receiver: Filter this Liquor thro' a Felt, or brown Paper, and keep it for Use: *This is the strong Lixivium.* 2. Affuse on the same Ashes again fair warm water ℔xx. and do as before: *This is the mean Lixivium.* 3. Affuse on the same Ashes more fair warm Water ℔xx. and proceeding in the former method, you will have *the mild or weak Lixivium.* 4. Take white Calx of Tartar ℔iij. fair Water *q. s.* boil, let it cool and settle, and decant the clear for Use. It is good to wash the *Lapis Lazuli* with, and to strengthen and improve the color thereof.

VI. *To make the strong Cement for Lapis Lazuli.*

℞ Pine Rosin, per Rosin, ana ℥jx. fine Venice Turpentine ℥vj. Mastich, Bees Wax, ana ℥iiijſs. refined Linseed Oil ℥ij. ℥ij. first put in the Turpentine, to melt over a gentle Fire; then add *gradatim*, the Pine Rosin in bits; after that, the Burgundy Pitch; then the Mastich in pouder; lastly the Wax, thin sliced; stir all continually to well mix them: which done, add the Oil, stirring it as before, and letting it boil gently for a Quarter of an Hour. Then drop some of it upon cold water, if it spreads it is not enough, if it does not, it is boiled enough, and is to be taken off. Strain it boiling hot, thro' an *Hypocras* Bag, (before hand steeped in hot water) letting it fall into a Vessel of cold water, squeezing the Bag from top to bottom with 2 flat Sticks, that none of it may remain in the Bag: then work it well with your Hands, till the water is workt from it; and if it chances to stick, anoint your Hands with some of the Linseed Oil: Lastly, keep it in a Vessel of cold water, shifting the water twice or thrice a week, so will it keep good for many Years.

VII. *To make the weak Cement.*

℞ Burgundy Pitch ℥ix. Pine Rosin, Venice Turpentine, ana ℥vj. Bees Wax ℥iſs. Linseed Oil purified better: mix, and make the Cement in all the former. Note, this Cement opens the

Lapis, and draws the color much quicker and better than the ſtrong Cement, which ought rather to be uſed after the uſe of this weaker: The whole ſecret of ſeparating the Color, conſiſts in the right uſing of theſe Cements, for which reaſon, you muſt order your Work accordingly.

VIII. *To refine or purifie Linſeed Oil.*

℞ Pure clear yellow colored Linſeed Oil *q. v.* fair water a double Quantity: ſhake them well together in a Glaſs for a Quarter of an Hour: then put all of it into a large Glaſs Funnel, ſtopt at bottom with a Cork: let all alone till the Oil and Water are perfectly ſettled, the Oil ſwimming on top: then pulling out the Cork, let all the water out: add more water to the Oil, ſhake, *&c.* doing as before, and this Work repeat ſo often, till the water comes out as clear and fair as it went in; then keep it cloſe ſtopt for Uſe.

IX. *To mix the Pouder of Lapis Lazuli in* Sect. 4. *with the Cements.*

℞ of the pouder, and of the ſtrong Cement, ana ℔j. cut the Cement ſmall, put them into a glazed Earthen pot or pan, and melt it over hot Embers, but ſo that it may not boil, (which if it ſhould, you muſt add a little Linſeed Oil) then having a Spatula anointed all over with Linſeed Oil, put in the pouder by very little and little, that they may the better incorporate, ſtirring all the while with the Spatula, till it becomes exactly like an Emplaſter: then caſt it boiling hot into an Earthen Baſon, almoſt full with cold water; taking off, alſo at the moment, all that ſticks to the ſides of the Pot, and putting it into the water; when it is cold, if it ſeems to be well colored, you have done well; then rubbing your Hands with purified Linſeed Oil, work it as you do Paſte or Dough for an Hour; the longer you work it the better, and the eaſier the color will be drawn: after which, make it up into a round Loaf or Cake, which put to dry in a white ware Diſh; pour upon it ſome freſh fair water, and let it ſtand or digeſt 15 days, the longer the better.

X. *The firſt way of ſeparating the Ultra-marine from the Lapis Lazuli.*

℞ The former Loaf or Cake, and waſh it in the ſame water, extreamly well with your Hands; weigh it, to know

know the Quantity of Oil it requires, and put it into an Earthen Dish, glazed very smooth, rubbing the bottom first with Linseed Oil; then put in water not Blood warm, so as to supernate 2 Inches above it; let it stand a Quarter of an Hour, then decant the colored water into some proper Glass Vessel: add more warm water, and the Mass will soften: continue this work till all the Tincture is extracted from the Cement. Now whilst it lies in the warm water, you must move it gently up and down, and round about with 2 Ivory Spatula's, smoothly rounded at the ends like a Wallnut, and nearly an Inch thick. If the Mass sticks to the bottom, moisten your Hands with Linseed Oil, and stir it about leisurely, that the water may be colored, which decant to the former, holding up the Mass with the Spatula's, lest it should stick to the Vessel. A little steeping at first will color the water very much, and when the Mass is just yielding its color, it will emit certain Blewish Streaks, like the Sun Beams, this water you must strain out among the other, that the grosser part of the Cement may stay behind. Then affuse *gradatim* fresh warm water, stirring the Cement easily, that it may not dilate too much, nor give its color all at once; and having stirred it 5 or 6 times about, close it up into a lump again, by which you see how much it is wasted, and how much color it has given. If the *Lapis* was very good, *at the first Steepings* it will yield 4 or 5 Ounces of *Ultra-marine*, which, (tho' it appears grosser or courser than what is afterwards made, by reason of the Gold colored Veins, yet) is the best and finest Color, and is therefore to be kept by it self. *From the second Steeping*, (following the former method) you will have 3 or 4 Ounces: This will indeed be finer than the former, but not of so good a color; keep this also by it self. *From the third Steepings*, you will yet have less, (following still the same manner) which will be yet finer than the former, but paler, and more bright colored. In these Operations let the water be no hotter, than to be just discerned to be warm. You will be 8 or 9 Hours in extracting the colors; and the waters will be at least 12 Hours in settling. If the color comes not easily out, add to the water a third part of the weak Lixivium (at *Sect.* 5 above) if that does not do, use all *Lixivium*, but let it be cold; if that is yet too

weak,

weak, make uſe of the mean, or ſtrong Lixivium, and with this heated, waſh your Cement very well, as before, *&c.*

XI. *To cleanſe the Ultra-marine, when ſeparated from the Cement.*

1. Affuſe upon it ſome of the mild Lixivium, and waſh it with your Hands, (but not rubbing it between them) thus the greaſy parts will be taken away: then waſh it 3 or 4 times in fair water, and let the waters ſettle well (at leaſt 6, 8 or 10 days) and ſo decant. 2. A ſecond way. Take Yolks of Hens Eggs, prick them with a Pin, and ſo moiſten the colors, Kneading the Maſs with your Hands; after which, waſh with the weak Lixivium, till it comes off clear, then waſh 3 or 4 times with fair water, as before, *&c.* 3. A third way. After the colors are waſhed, as before, as well as may be, you muſt caſt in by little and little, eaſily rubbing it with your Hands, which done, waſh often in fair water, and the *Ultra-marine* will be in perfection.

XII. *To ſtrain off the Ultra-marine.*

Take for this purpoſe a fine Searce, and caſt thereon the laſt waters; and Strain again thro' a finer Searce; and again thro' another finer; letting them in Straining every time ſettle till they are perfectly clear: and then ſoak off the water carefully with a Spunge: but be ſure not to Strain them all promiſcuouſly together. This being done to all the waters, let the colors ſettle in their proper Veſſels, and dry in the Shade; when dry, tye them cloſe up in little Leather Bags, rubbing them with your Hands, ſo will they attain a wonderful fairneſs, the Greaſineſs and Unctuoſity by theſe means being quite taken away.

XIII. *To exalt the Colors to a much greater Perfection.*

Take the colors before prepared, mix them again with the ſtrong Cement, and proceed exactly as directed in *Sect.* 10. 11. 12. above, ſo you will have them exceeding fine, (but a little diminiſhed in their Quantitys) one Ounce of which will go farther than ʒiij. of the former.

XIV. *A ſecond way to make Ultra-marine.*

℞ *Lapis Lazuli* ℔j. calcine it in a Crucible; quench it in Wine Vinegar, dry it, beat it to pouder, levigate it with fair water on a Porphyry, put it in a Glazed white ware, or China Veſſel, and dry it in the Shade; after

after which, in a Glass Mortar pouder it again. This Pouder put into another Earthen Vessel, and put to it the following Cement hot, stirring them with the Spatula till they are perfectly mixed: let it stand a whole day; then affuse thereon boiling water, stirring it with the Spatula very hard: when it begins to cool, decant the water; and affuse more hot water; and repeat this work till all the color is extracted: You may separate and keep the waters apart, as in the former, to distinguish the purity of colors. If the Colors are clammy or greasy, steep them in water, in which Tartar is dissolved, then wash them in warm water, and they will be well purified.

XV. *To make the aforesaid Cement.*

℞ Pine Rosin ʒiiij. Frankincense, Greek Pitch, Mastich, ana ʒij. Oil Olive ʒij. first put in the Oil, to which when hot, add the Rosin, then the Pitch, after that the Frankincense, and lastly, the Mastich in pouder, stirring them all the while with a Spatula; let them boil a little, and it is done.

XVI. *A third way to make Ultra Marine.*

Calcine bits of *Lapis Lazuli* in a Crucible, when red hot quench them in fair water; and this do 7 times, to reduce them, (by grinding on a Porphyry) to a subtil Pouder. Take of this Pouder ℔j. of the following Cement ʒx. melt the Cement, and then put in the pouder gradually, continually stirring with a Stick to mix them: which done, cast the Mass into a white ware Earthen Bason, and anointing your Hands with Linseed Oil, make it up into Cakes or Rouls, which leave in cold water for 5 or 6 days, shifting the water every other day. Afterwards put them into a clean well glazed white Earthen Bason, affusing thereon fair hot water: and when that is cold, put on more hot water, which do till the Mass softens: which done, put them into warm water, and let them lye till it is of a Blewish Color: Strain this water out, (to save the grosser matter) into another white ware Bason. Put more warm water to the Mass, which afterwards strain thro' a fine Searce, and continue this course till all the color is drawn forth. All these colored waters are to be cleansed from their greasiness, by letting them stand still for 24 Hours, in which time the color will precipitate to the bottom. Decant

cant the water gently into another Veſſel, and the greaſie matter will go along with it: Strain it afterwards into the Veſſel where the Color is, thro' a fine Searce, and all the greaſineſs and filth will be left behind: Repeat this work thrice, ſtirring the color well every time the water is returned to it, that the greaſineſs which ſtill adheres to it may aſcend to the top of the water, which will always ſtay behind on the Searce in ſtraining: At laſt let the color precipitate intirely: and afterwards decant the water very gently; then dry the *Blew Pouder*, and you will have an admirable *Ultra-marine*. See a courſe ſort in *Lib.* 2. *Cap.* 30. *Sect.* 13.

XVII. *To make the Cement aforementioned.*

℞ Pine Roſin, common black Pitch, Wax, Maſtich in Pouder, Turpentine, ana ʒjx. Frankincenſe, Linſeed Oil purified, ana ʒiij. melt all together, ſtirring them very well, that they may be mixed: then caſt it into water, and keep it for Uſe.

XVIII. *To make German Blew.*

℞ Sal Armoniack ℔ij. Flowers of Sulphur ʒxij. Quickſilver ʒviij. beat and grind theſe in an Iron or Marble Mortar, till the Mercury is wholly mortified, and diſappears, then put it into a Glaſs Body, well luted up to the middle, ſet it in a very gentle Sand heat uncovered, till all the moiſture is vaniſhed: ſtop it cloſe, and gradually increaſe the heat, to make the Maſs ſublime; ſo will you have an excellent Azure or Blew, which grind on a Porphyry to a ſubtil Pouder, for uſe in Painting.

XIX. *To make a Glorious Mineral Red.*

Take *Native Cinnabar* q. v. beat it to Pouder in an Iron or Stone Mortar, then grind it with water upon a *Porphyry*, till it is impalpable; dry it, and keep it for Uſe. The ſame you may do with Artificial *Cinnabar*, which in Pouder is called *Vermillion*.

XX. *To make a Mineral Yellow.*

℞ *Auri pigmentum* ʒx. Leaf Silver ʒi. mix, and grind them upon a *Porphyry* to an impalpable Pouder, with water: which dry, and keep for uſe. If Leaf Gold ʒſs. or ʒij. be ground with it, it will yet make two other differing ſorts of Yellows: So alſo if pure red *Crocus Martis* be added, in place of the Gold. But as to the proportions of theſe things, Reaſon *and Experience muſt teach you.* Maſticot *is another Mineral Yellow: See it* Lib. XI. Cap. 2. Sect. 29.

CHAP.

CHAP. XXXIX.

Of Coloring Glaſs from Randle Holme *and* Gerard Wane.

I. *Green.* ℞ *Minium* ℔j. Copper Scales ℔j. white Flint ℔v. divide them into 3 parts: then take *Sal Nitre* as much as one of thoſe parts, and put them into a Crucible, and melt them with a ſtrong Fire: being cold, pouder it and grind it on a Porphyry.

II. *Purple.* ℞ *Minium* ℔j. brown Stone ℔j. white Flint ℔v. divide them into 3 parts, and add to them as much *Sal Nitre* as one of thoſe parts: calcine, melt and grind it as the former.

III. *Red or Carnation.* ℞ Red Chalk ℔iv. Jet ℔iij. Gum *Arabick* ℔j. let all be finely ſhaved: grind them well on a Copper Plate with Rain-water very thick, and let it ſtand 3 days to ſettle; then dry it in an Earthen Diſh, and grind it again on a Copper Plate.

IV. *Pointure or Black.* ℞ Iron Scales p. *j.* Jet p. *ij.* *Or*, Take Iron Scales p. *j.* Jet p. *jſs.* *Or*, Iron Scales p. iij. Jet p. iij. Copper Scales p. ij. it will be a pleaſant Color.

V. *Artificial Jet for this Purpoſe.*

℞ *Minium* or red Lead p. iij. Flint or white Pebble-ſtones p. *j.* mix, calcine and grind them.

VI. *Blew.* ℞ Of Pouder Blew ℔j. *Sal Nitre* ℔ſs. mix and grind them well together.

VII. *Yellow.* ℞ *Spaniſh* Brown p. x. Silver p. *j.* (Leaf Silver) Antimony p. ſs. put all into a Crucible and calcine them well.

VIII. *White.* ℞ Of Jet p. ij. white Flint ground on a Glaſs very fine p. *j.* mix them.

IX. *White.* ℞ *Minium* or red Lead ℔iij. Sand from the Glaſs-houſe ℔j. mix them.

X. *Carnation.* ℞ Red Chalk ℥xvj. Jet ℥viij. Iron Scales, Litharge of Silver, of each ℥iv. Gum *Arabick* ℥j. diſſolve in Water, grind all together half an hour as ſtiff as you can: then put it in a Glaſs and ſtir it well; let it ſettle 14 days.

XI. *Pointure or Black.* ℞ Iron Scales ℥j. Copper Scales ℥j. Jet ℥ſs. being in pouder, mix them.

XII. *Red.*

XII. *Red.* ℞ Jet ʒiv. Litharge of Silver ʒij. red Chalk ʒj. being in fine pouder, mix them.

XIII. *Gold Color.* ℞ Silver ʒij. Antimony ʒj. melt them in a Crucible, then beat the Mass to pouder, and grind it on a Copper Plate: add to it yellow Oker or Brick-dust calcined again ʒxxx. grind them well together with Water.

XIV. *Green.* ℞ *Minium* or red Lead ʒiv. Sand ʒj. Copper Scales calcined ʒv. mix them.

XV. *Vernish for Glass.*

℞ Oil of Turpentine ʒvj. *Venice* Turpentine ʒiij. Gum *Hederæ* or Gum of Ivy (or rather Mastick) ʒj. put them into a Glass Bottle, which stop well, and Wax it that no Vapors may come forth: then dissolve in *B. M.* which will be done in about 2 hours time.

XVI. *To make drying Oil.*

℞ Litharge of Gold very well calcined ʒiij. Linseed Oil ʒxviij. mix and boil them together till you see it grows thick.

XVII. *A fine Golden or Yellow Color.*

℞ Prepared Silver or Leaf Silver, (which will do the same) put each of them smooth and even upon a Plate of Glass, and burn or anneal the same together, and the Glass will be of a delicate Golden or Yellow color.

XVIII. *A noble Red or Green Color.*

℞ Leaves of Gold or Calx of Sol made by Calcination or *Aqua Regis*, put either of them on Plates of Glass, and heat them gradually red hot together; so will the Glass be tinged of a noble Red color, or else of a florid Green; which Colors result from the Purity or Impurity of the Gold.

XIX. *Also divers Fossils and Mineral Earths* will, by the help of Fire, impart transparent Colors to Glass, differing sometimes from those of the Bodies themselves.

CHAP. XL.

Some other Colors for Painting Glass.

I. *Yellow.* Take a very thin piece of pure fine Silver, and dip it into melted Brunstone; take it out with

with a pair of Plyers, and light it in the Fire, holding it till it leaves burning; then beat it to pouder in a Brazen Mortar; and grind it with Gum *Arabick* Water and a little yellow Oker.

II. *Yellow.* Take fine Silver ℥j. Antimony in pouder ℥ij. put them in a hot Fire in a Crucible for half an hour, and then caſt it into a Braſs Mortar and beat it into pouder; to which add yellow Oker ℥vj. old Earth of ruſty Iron ℥vij. grind all well together. This is fairer than the former.

III. *White.* This is the color of the Glaſs it ſelf: you may diaper upon it with other Glaſs or Cryſtal ground to pouder.

IV. *Black.* Take Jet and Scales of Iron, and with a wet Feather take up the Scales that fly from the Iron, after the Smith hath taken his heat, grind them with Gum-water.

V. *Black.* Take Iron Scales, Copper Scales, of each ℥j. heat them red hot in a clear Fire-ſhovel: then take Jet ℥ſs. firſt grind them ſmall and temper them with Gum-water.

VI. *Red.* Take *Sanguis Draconis* in pouder, put to it rectified S. V. cover it cloſe a little while, and it will grow tender: wring it out into a Pot, that the Droſs may remain in the Cloth; the clear preſerve for Uſe. This is a fair Red.

VII. *Carnation.* Take Tin Glaſs ℥j. Jet ℥iij. red Oker ℥v. Gum ℥ij. grind them together. It is a fair Carnation.

VIII. *Carnation.* Take Jet ℥iv. Tin Glaſs or Litharge of Silver ℥ij. Gum and Scales of Iron, of each ℥j. red Chalk ℥j. grind them.

IX. *Green.* Take Verdigriſe and grind it well with Turpentine, and put it into a Pot, warming it at the Fire when you uſe it.

X. *Blew.* Provide the cleareſt Lead you can get of that color, beat them to pouder in a Brazen Mortar: take Gold-ſmiths Enamel of the ſame color, clear and tranſparent; grind each by it ſelf: take p. ij. of Lead and p. j. of Enamel, grind them together as you did the Silver. *The ſame underſtand of Red and Green.*

CHAP.

CHAP. XLI.

Of the way of Painting upon Glaſs.

I. *There are two manner of ways of Painting upon Glaſs:* the one is for Oil Color, the other for ſuch Colors as are afterwards to be annealed or burnt on.

II. *To lay Oil Colors upon Glaſs.*

You muſt firſt grind them with Gum-water once, and afterwards temper it with *Spaniſh* Turpentine: lay it on and let it dry by the Fire, and it is finiſhed.

III. *To Anneal or Burn your Glaſs, to make the Colors abide.*

You muſt make a 4 ſquare Brick Furnace, 18 inches broad and deep; lay 5 or 6 croſs Iron Bars on the top of it, and raiſe the Furnace 18 inches above the Bars: then laying a Plate of Iron over the Bars, ſift (through a Sieve) a lay of ſlack'd Lime over the Plate; upon which lay a row of Glaſs, upon that a bed of Lime; and upon that Lime another row of Glaſs: thus continue *S. S. S.* till the Furnace is full.

IV. *Lay alſo with every bed of Glaſs a piece of Glaſs, which you may wipe over with any Color; (theſe are called Watches)* and when you think your Glaſs is burnt enough, with a pair of Plyers, take out the firſt and loweſt Watch, and lay it on a Board; and being cold, try if you can ſcrape off the Color; if it hold faſt on, take out that row, always letting it abide the Fire till the Color will not ſcrape off.

Another Way.

V. *Take very white Glaſs, varniſh it very thin on one ſide with a white Varniſh,* then having ſome fine Cut or Print on Paper, juſt fit for the piece of Glaſs you intend to paint that Deſign on: dip it in Water, let it ſoak and dry a little, and clap the Picture ſide thereof to the Varniſh ſide of the Glaſs, as exact and ſmooth, and even as you can, and ſo let it dry throughly: being dry, moiſten the Paper on the blank ſide, and with a blunt Graver draw off and trace the Lines of the Picture, which will afterwards remain perfect and diſtinct on the varniſht ſide of the Glaſs.

VI. *This*

VI. *This Draught is for the Model you muſt paint, in which you muſt obſerve the Tracings, Strokes and Lines of the Picture, which are to direct you in your Shadowing*; which, if not well and exactly performed, will be a manifeſt Damage to the Picture: but the Mode of *Painting on Glaſs* is contrary to that of *Limning* or *Painting on Cloth, Wood* or *Velom*; for in this the Point being but on one ſide, it is plainly viſible on the other; and here the Settings off are firſt done, then the compound Colors are run over, and ſo continued till the Work is perfected; whereas *Limning on Cloth*, the Settings off or Heightnings are the laſt Strokes; and their Ground Color, is what here we end withal, and is our laſt Lay upon Glaſs.

VII. *We treat not here of the making up the Colors, nor how to mix, or alter and finiſh the Artificial ones*, for that has Relation to the Arts of *Limning* and *Painting*, which we have very fully and largely diſcourſed of in the former parts of this Work, and therefore ſhall ſay no more of it here.

VIII. *The Painting on Glaſs* is juſt the ſame as in *Miniature* with Water-colors, laying the Picture underneath it as before; and this will ſhew finer than if done in Oil; the Colors moreover dry inſtantly.

IX. *Your Work being thus done in Oil or Water-colors, you may add to it, and improve its Beauty*, by over-laying all the Colors with Leaf Silver, which will be exceeding glorious and beautiful, if laid on Lakes, Verditers, *&c.* which are diaphanous or tranſparent.

A Third Way.

X. *Chuſe ſuch Glaſs as is white, purely ſmooth and plain*, and having the Original in Paper which you intend to paint by, mark out each part of the Print or Picture, and trace them over with the Black in *cap. 36. ſect. 3.* with a Pencil, which do exactly, neither too thin nor too thick, and then let it ſtand 2 or 3 days or more to dry, before you paint it.

XI. *Then having all your Colors in a readineſs, fill the parts of your Deſign with them*, for which purpoſe you muſt uſe the point of the Pencil, chiefly in Carnation, in which you muſt be very exact: you muſt be very careful and expeditious, being cautious not to blot or blur the Tracings, chooſing rather to paint on the other ſide of the Glaſs.

XII. *All the Colors, except yellow, may be applyed on the same side, but that Color must be laid on on the other side,* because it is apt to run into or mix with the others Colors; and if near the Blew, it will make the place Green, and so, for want of these Precautions, the whole may be spoiled.

XIII. *If the Yellow transmits its self thro' the Glass, it is as well as if it had been done on the same side:* this it usually does, whereas other Colors, by reason of their grosser Consistence or Body, will not suffer so easy a Transition.

XIV. *The Yellow ought to be very equally and truly laid on, in a greater or lesser quantity, according as the Shadows must be:* you must observe this in the other Colors, and withal to lay them on as speedily as may be, chiefly the Azure, Green and Purple, which require much Exactness.

XV. *To heighten and set off the Lights, as in setting a Beard, describing Hair in Drapery,* &c.

Use the Handle or But-end of the Pencil, pointed Stick or Quill, wherewith take off those Colors in those places you would enlighten.

XVI. *To Paint, as if bedawb'd.*

Trace your piece with Black and let it dry for 3 days; after do it over with the following Wash lightly and equally; which lay so thin on as it may not efface the former Lines, and let it also dry for 3 days; then run it over again with the same Wash, where you find it convenient to give a second tinge, and let it dry for 3 days longer.

XVII. *This done, to give it the true Lights and fit Heightnings,*

Take the sharp But-end of your Pencil, or pointed Stick, or Pen, and take off the Color of the first Wash as before, in the most necessary places; so will your Work be finished.

XVIII. *To make the afore-mentioned Wash.*

Take a Pewter Cup or other Vessel, put into it a quantity of your black Color: then dissolve Gum *Arabick* Pouder in its equal weight of Wine, and put this into the Black in the Pewter Dish or Sawcer, that it may be very clear, and not easily dryed; and this is the Wash for bedawbing and painting Glass grey or greyish.

XIX. *Your*

XIX. *Your Glaſs being thus painted, and the Draught perfectly finiſhed*, you muſt now come to Baking of it, to give the Paint a Conſiſtency with the Glaſs by Penetration, which muſt be done in the Furnace deſcribed in *cap.* 36. *ſect.* 1. or in that deſcribed in *ſect.* 3. of this *Chapter*.

XX. *If you have many pieces of Glaſs or Work*, you muſt put them into the Stove (in *cap.* 36. *ſect.* 1.) laying them one upon another, *S. S. S.* with very fine pouder of Quicklime thrice baked in a Potters Furnace, and poudred, making *the firſt Lay of Lime half an inch thick on the bottom of the Stove*, and upon that *a Lay of bits of broken Glaſs*; on that another Lay of Pouder of Lime, and another Lay of bits of broken Glaſs: on that another Lay of Lime Pouder; upon which third Lay put your Pictures or Drawing of Painted Glaſs, with nothing but Lime Pouder; and theſe to be laid as afore-ſaid *S. S. S.* till the Stove is full; and upon all a Lay of Lime Pouder.

XXI. *The reaſon of this treble laying of Lime, with bits of broken Glaſs at bottom, before you put in your painted Glaſs*, is, to prevent the Injury which the Violence of the Fire might do (being very ſharp) under the immediate bottom of the Stove.

XXII. *All this done, cover the Furnace and Stove with its proper Cover, luting them well together with ſtrong Lute round about*, that the Heat, Fire or Smoak may come no where forth, but at the holes of the Cover.

XXIII. *The Lute being throughly dry, begin to kindle the Fire at mouth of the Furnace with Char-coal, but with great gentleneſs*; and encreaſe it very leiſurely, leſt your Painted Glaſs ſhould break, or the Paint be ſpoiled: continue thus for 2 hours; and then put the Fire farther in, letting it remain for an hour; after which put it farther in till it is compleatly under the Stove, where leave it for 2 hours longer: then encreaſe the Fire by degrees for 2 hours more, continually adding Char-coals till the Furnace is full, and the Flame comes thro' every hole of the Cover: keep it in this degree of Violence for 3 or 4 hours, ſhutting the Mouth or Door of the Furnace.

XXIV. *In this time you muſt often take forth your Watches (mentioned in* ſect. 4. *above) to ſee how your Work goes on*, which you may alſo perceive by the ſparkling of the Iron

Bars under the Stove; and when you find the Colors almoſt perfect, encreaſe the Fire with very ſmall Billets of dry Wood, to make the Flame environ and reverberate, over and round about the Stove; which continue till the Work is finiſhed, which will be in 12 or 14 hours time: let the Fire go out of it ſelf, and being cold, take your pieces out.

CHAP. XLII.

Of Gilding upon Glaſs.

I. *TAke the Glaſs you deſign to Gild*, moiſten it over with Gum-water; and being half dry, put on Leaf Gold where you intend it, and ſo let it dry.

II. *Cover your Piece over with any piece of hollow Glaſs, and put it on an Iron Plate at the mouth of the Furnace, to heat gently*; and when it is well heat, put it in farther, and in a little time it will be red hot: then draw it a little towards the mouth of the Furnace, and there let it cool gradually.

III. *Now, if your Leaf Gold is well laid on at firſt*, and you have been careful in managing your Fire, you will find your Gold to be ſo well united to your Glaſs, that it will be impoſſible for ever after to remove it.

IV. *Another way, which is better.*

Moiſten the Glaſs you deſign to Gild every where with Gum-water; and when half dry, lay on the Leaf Gold, letting it dry.

V. *This done, waſh all the gilded part with Water in which Borax has been diſſolved*; and ſo duſt it well with impalpable Pouder of white Glaſs.

VI. *Afterwards ſet it into the Furnace, firſt in a very gentle heat*; and encreaſe the heat by little and little till the Glaſs becomes red hot, and the Pouder on the Gilding is melted and runs.

VII. *Then draw it leiſurely to the mouth of the Furnace, and let it cool leiſurely*; ſo will your Glaſs be admirably Gilded, not to be hurt by Scraping, force of Weather, Heat, Cold, or Age it ſelf.

VIII. *There*

VIII. *There is another way of Gilding on Glass, which is done with Linseed Oil,* as we have taught in *cap.* 35. *sect.* 8, 9, 10. to which I referr you: but the former ways are so excellent, that this is (being compared to them) but truly Trifling.

APPENDIX.

CHAP. XLIII.

A Discourse of Looking-Glasses.

I. *THE Substance or Metal of Looking-Glasses, is to be Crystal Frit, (in* cap. 2. sect. 8.) *or Frit made of Flints*; the melted Matter of which is to be cast upon an excellently polisht Table of pure tough Copper or Iron; which Table must be of the Magnitude you desire, and its bottom so much sunk as you intend the thickness of your Glass Plate to be, *viz.* it is to have Edges round about it so high as your Glass is to be thick: over this you are to have a Plate or Runner of Metal, to slide and press it on the melted Glass, that it may spread it self all over the Copper or Iron Table, to make it close, compact and even.

II. *To Grind, Polish and Cut the Glass.*

You must lay it on Sand in a fit place, lest it break in working; then grind it with a Grinder and very fine Sand and Water. 2. You must grind it over again with Pouder of Emery, to give it a greater Smoothness. 3. It is then to be ground with *Tripoli* in the same manner, which polishes the Glass singularly. 4. *Lastly*, It is brought to its utmost Excellency and Beauty by grinding it with Putty or Calx of Tin, which gives it its perfect Polish and Lustre. 5. *The Diamond Cut* is done by grinding the Crystal on drift Sand and Water, to its just Dimension. All these things were formerly done by Hand; but now Art is come to that Perfection, that what was formerly performed with vast Labor and Pains, besides

an almoſt invincible Care, is now performed eaſily, and exactly, and as it were at once, by the help of an admirable *Engine* or *Mill*, out-doing the Operation by the Hands, almoſt a thouſand fold.

III. *To File or Silver Looking-Glaſſes.*

Have a very firm, ſmooth Table, much greater than the Glaſs, on which ſpread one or more Sheets of very fine Tin, full as thin as Paper, and ſo prepared as to be free from any Rumple, Wrinkle, Furrow or Knot, (which will ſpoil the Glaſs;) over theſe Sheets ſpread good Quick-ſilver, covering them all over with it: when the Quick-ſilver has ſoakt in well, place the Glaſs thereon, and it will ſtick to them; after which turn it, and ſpread Sheets of Paper on the Filings; preſs it gently, ſmoothing and ſtroking it with your Hands, to take away the ſuperfluous Quick-ſilver: then dry it in the Sun or by the Fire, and it will become abſolute and compleat.

IV. *To File Glaſſes with a Diamond Cut.*

You muſt have a Table for the Purpoſe made with a Diamond-cut riſing Border, to touch the ſides of the Glaſs, on which you muſt lay it, with the back ſide, which is to be filed, upwards: then lay on the Sheets of Tin very ſmooth and cloſe; over them the Quick-ſilver, to diſſolve them; then with the Sheets of Paper cover all, and ſo ſmooth and run it over with your Hands, to take away the ſuperfluous Quick-ſilver, and then dry it as before.

V. *Another way to Foliate Looking-Glaſſes.*

℞ Saturn, Jupiter, *ana* p. j. melt them, and forthwith add of good Tin Glaſs p. ij. carefully skim off the Droſs, take it from the Fire, and before it is cold, put to it good and pure Quick-ſilver p. x. ſtir all together, and keep this foliating Liquor in a new clean Glaſs for Uſe. When you uſe it, ſtrain it from its Droſs upon a Cloth.

VI. *To make Concave Burning-Glaſſes.*

The whole Myſtery of making theſe is in the Moulds, which muſt be Fragments or Portions of a Sphere; otherwiſe they will have little or no Effects in uniting the Sun Beams. To make the Glaſs Concave, you muſt have the Mould Convex, which muſt be done by a Sphere, according to the bigneſs you would have it: Take a Sphere or what bigneſs you pleaſe, divide it equally into two

two Hemi-spheres; and one of the Hemi-spheres equally into 3 parts, by Plains parallel to the greatest Plain; the Convex Segment will then be the 6th part of the whole Sphere, which is the Measure of your Burning-Glass.

VII. *To make Convex Burning-Glass.*

You must then have Concave Moulds, and this you may have two ways; 1. Take two Concave Moulds and close them exactly together as Founders do their Frames, and thro' the mouth of the Mould pour in your melted Crystal Metal, to fill the Mould, and so let it cool. 2. You may take two Concave Glasses, join their Faces and soder them well round about, leaving only a little hole, by which you are to fill the hollow space with Spirit of Wine, and stopping the hole up, put them into Frames of Wood or Metal. This has a greater Influence in concentrating the Sun Beams than the other.

VIII. *To make Parabolick or Spheroidal Burning-Glasses.*

You must make their Moulds as the former, observing their just Proportions; for if the Moulds are too much raised, their good Effects are hindred by their deepness; and on this Nicety depends the Success of the Work: and these are said to be more powerful than the former; where note, That all these Glasses must be extreamly well polished, even to Perfection.

IX. *To make Steel Burning-Glasses, whether Concave or Convex, Spherical or Parabolicks.*

The Moulds are to be prepared for them as in the three former *Sections:* the Metal of which they are to be made, is composed as follows. ℞ *Copper* ℔ix. *fine Tin* ℔iij. *white Arsenick, Tartar,* ana ʒiij. first melt the Copper, then immerge the Tin in the melted Copper, else it will fume away and leave the Copper behind: these being melted together, add to them the Arsenick and Tartar; keep them in this melting heat for 2 or 3 hours, and so cast it into the Mould or Moulds. *Note,* Some make the Arsenick to be ʒxxiv. others, instead of the Arsenick, put in Antimony ʒxij.

X. Another Composition for Steel Glasses.

℞ *Refined Rose Copper* ℔iij. *melt it, then add of fine Tin* ℔ix. *as soon as they are melted, add red Tartar calcined* ʒxviii. *white Arsenick* ʒvj. *Nitre* ʒiij. *Alum* ʒi. keep these in a

melting heat for 3 or 4 hours, that the Salts may evaporate; then cast it into the Moulds. This is more solid and hard than the former, and more fit for flat Looking-Glasses.

XI. Another Composition, much better than the former.

℞ *Plates of Rose Copper in small bits* ℔ij. *put them into a Crucible, and imbibe them with Oil of Tartar* per delique: *take white Arsenick, or rather Orpiment,* ℥ss. *in pouder; lay the Copper and Arsenick in the Crucible* S.S.S. *till the Crucible is full:* affuse on them Linseed Oil, to cover the Arsenick and Copper; cover and lute the Crucible, and let it dry: set it on a Sand Furnace, letting the Sand rise to the brims of the Crucible: let the heat be gentle till the Oil begins to evaporate; so will the Oil prepare the Venus for retaining the Arsenick, which ought to enter almost as easily as a Sponge sucks up Water: then encrease the Fire so much as to make the Oil evaporate and boil up; after which take off the Crucible, cool and break it; so will the Copper be of many colors, and the better prepared, if Orpiment be used instead of the Arsenick. ℞ of this Copper ℔ij. of Latten ℔iv. melt the Latten on a very hot Fire, and then put in the Copper; when well melted, cast the Mass almost drop by drop thro' a Birch Broom into a glazed Earthen Vessel full of fair Water, to granulate it; by which means it will be so hard as not to be touched with a File, and as good as Steel for our intended Uses. ℞ *of this hard Metal* p.iij. *of fine Tin (without Lead in it)* p.j. *melt the Metal before you put in the Tin: melt and mix all well, and then cast it into the Moulds.*

XII. *To Polish these Steel Glasses.*

To bring these Glasses to their perfect Exactness, you must bring them to an exquisite Polish, working and grinding away the outside at the Wheel, with the Sand Stone which Braziers make use of; and then applying the Handle, to give them their due Polishing and Lustre. Take it off this Wheel and put it on a second, rubbing it in an oblique Line with prepared Emery, which will give it such a fine Polishing, that Specks, Scratches and Lines shall scarcely be perceptible. Take it off this and put it on another, grinding or rubbing it with prepared Hematites: after that you must work it obliquely with

Putty

Putty or Calx of Tin, working it for a long time till it has obtained its perfect Polish. *If these Glasses are sullied or made dull with the Air or any thick Vapor,* you must clear them by rubbing, not with Woollen or Linnen, but with a piece of Deers or Goats Skin, wiping it in an oblique Line.

XIII. *Another way to Polish these Glasses.*

You may polish them *with Lead melted with Emery, adding Water in the Operation* for the first Process: then *fine Emery and Lead for the second Operation:* and lastly with *Hæmatites and Tin Dross mixt together*; for that these things make a finer Burnish or Polish than the former, the Tin Dross putting a high Polish upon the Glass. The reason why these Metalick Glasses are called *Steel Glasses,* is not from their being made of Steel, for there is no Steel in them; but from *the very great Hardness of their Temper and Composition,* equalizing that of Steel; these being extreamly hard, white, and not very brittle, and therefore the more easily polished, and made admirably fine.

Explicit Liber Decimus.

POLY-

POLYGRAPHICES

LIBER UNDECIMUS.

Of *Varnishing, Japanning* and *Gilding.*

CHAP. I.

Of Instruments and Utensils for these Works.

I. THE *Chief Instruments are,* 1. Strainers. 2. Funnels. 3. Glass Bottles. 4. Varnishing Pencils. 5. Drawing Pencils. 6. Muscle Shells. 7. *Dutch* Rushes. 8. *Tripoli.* 9. Linnen. 10. Oil Olive. 11. A Cushion. 12. Swan-quill Pencils. 13. Cotton. 14. A Pallet. 15. A Brush. 16. Shammy Leather. 17. A Burnisher. 18. A Wyre Brush. 19. Grinding Stone and Muller. 20. Putty.

II. *Strainers.* They ought to be 3 or 4, made of course Linnen Cloth, Sugar-loaf fashion; some of which are for straining your ordinary Varnishes; some for white Varnish, and some for Lacca Varnish.

III. *Funnels.* You may have of them also 3 or 4, or more, and that of Glass or Tin; some for common Varnishes; some for white Varnish; some for Lacca Varnish, and some for Lackering.

IV. *Glass Bottles and Vials.* These are to hold your several sorts of Varnishes, and they may be either great or small, according to your Quantities.

V. *Varnishing Pencils.* These must be great or small according to your Design: they are made of Camels Hair, and are very soft: of differing Prizes, according to their Magnitude, from 6 *d.* to 3 *s.* the Pencil.

VI. *Drawing*

VI. *Drawing Pencils.* These must be both greater and lesser, as great Goose, little Goose, Duck, Crow and Swallow Quills, according to your Design: the longest haired Pencils are the best.

VII. *Swans-quill Pencils.* You ought to have 3 or 4 of these, of finer Hair than ordinary, which are generally sold for 6 *d.* a piece, and are used chiefly in Gilding.

VIII. *Muscle Shells.* Fine, smooth, middle-sized Horse Muscle-shells are fittest for these Occasions; of which you ought always to have 2 or 3 hundred in a readiness, for mixing your Metals or Colors in, as need requires; not that you will need the 10th part of them at once, but that you might not be to seek for them when you want them.

IX. Dutch *Rushes.* You ought to be furnished with a great number of them, which are to be had at the Iron-mongers in *Foster-lane.* They are to smooth your Work before you varnish it; and as you lay on your Ground or Color, if any Knob or Roughness appears, with them to rush it off.

X. *Tripoli.* It ought to be made into subtil pouder and sifted; it is to polish your Work after it is varnished, and may be had at the Iron-mongers.

XI. *Linnen.* It may be old Linnen or Rags, both course and fine, which are for clearing up the Work.

XII. *Oil Olive.* It is also for smoothing, clearing up your Work, and giving it an exact Polish.

XIII. *A Cushion.* It must be made of Leather, stufft very evenly and smoothly with fine Tow, and strained on a Board, 14 inches one way and 10 inches another. On this you are to cut your Leaves of Gold and Silver, with a thin, narrow, and sometimes broad, sharp and smooth edged Knife. Gilders commonly border this Cushion at one end and 4 or 5 inches down each side with a slip of Parchment or Velom 2 inches high, to be as a Fence to keep their Leaves of Gold from Wind and Air.

XIV. *Cotton Wool.* It is of Use to press down the Leaves of Gold or Silver gently and evenly upon the Work; you are to breath upon it, and then with it to touch and take up the Gold, and so to lay it upon the place you design, pressing it down, and close therewith: some use a Hares Foot for the same Purpose.

XV. *A Pallet.* It is the end of a Squirrels Tail, ſpread abroad and faſtned to a flat Pencil-ſtick, which is broad at one end and ſplit, much like an Houſe-painter's graining Tool, but much leſs. It ſerves for taking up and laying on whole Leaves of Gold or Silver at a time; and ſerves for all the ſame Uſes with the Cotton aforementioned.

XVI. *A Bruſh.* It is to be made of Hogs-hair, and is of Uſe after Gilding, and that it has lain by a day, to beat over the Work gently, that the Gold or Silver may be preſſed cloſe and forced into all the uneven hollow parts of the Carving; and after all, to bruſh off all the looſe Leaves into a Sheet of Paper for other Uſes.

XVII. *Shammy Leather.* It is of Uſe after the Gilding is throughly dry, to rub it over, ſmooth and poliſh it. The Leather ought to be white, and very fine and ſoft.

XVIII. *A Burniſher.* They were uſed to be made of a Dogs Tooth put into a Pencil-ſtick, or ſome ſuch-like thing; But of late they are made of Agats and Pebbles, which being form'd or ſhap'd, are highly poliſht, that they may the more contribute to heighten the Luſtre of the Gold and Silver. Theſe make a quicker diſpatch, performing with a more facil Expedition. Theſe Pebble Burniſhers are worth 5 *s.* apiece, and much to be preferred before thoſe of Dogs Teeth.

XIX. *A Wyre Bruſh.* It is ſold at the Iron-mongers, and is deſigned to ſcrub thoſe Silver, Copper and Braſs pieces which you deſign to Gild over; thereby perfectly to free them from any Dirt, Ruſt, Naſtineſs or Filthineſs which may adhere to them; which not being taken off, would hinder the cloſing of the Gold therewith.

XX. *Grinding Stone and Muller.* Theſe are not only for grinding Pouder and Colors very ſmall and ſubtil, but alſo to grind your Gold Size and Oil together, when you intend to Gild in Oil.

XXI. *Putty.* It is Calx of Tin, and is of Uſe in Poliſhing, to give the laſt Smoothneſs, Shining and Gloſs upon Varniſhed and Japanned Works after the Uſe of *Tripoli.*

CHAP.

CHAP. II.

Of the Materials necessary for these Works.

I. THE *chief Materials are*, 1. Rectified Spirits. 2. Gums. 3. Rosins. 4. Colors. 5. Metals and Minerals prepared for this Purpose.

II. *Rectified Spirits.* They are made from Wine, or Sugar, or Mault Liquors; or from Cyder, Perry or Molosses; or from the common Spirits made of those things by Rectification. They are for the Dissolution of Rosins or Gum-Rosins; and therefore if not highly rectified, are unprofitable for these Uses. Now, to know whether your Spirit is good or no, you must put some of it into a Spoon, and put a little Gun-pouder to it; then set the Spirit on Fire, if it burns all away and fires the Gun-pouder after it, it is good, and will dissolve your Gums; otherwise, not.

III. *Gum-Arabick.* Chuse that which is whitest, clear and transparent: it is of Use for to make Gum-water, and is worth about 12*d.* a pound.

IV. *Ising-glass* or *Ichthyocolla.* That which is cleerest, whitest and freest from Yellow, is the best. It is of Use for making Size; and may be had for about 4*s.* a pound, more or less.

V. *Sanguis Draconis* or *Dragons Blood.* You must chuse that which is the brightest Red, and freest from Dross or Filth: the best is that which is called *Drops*, made up in a kind of Leaf or Husk, worth about 7, 8 or 9*d.* an ounce, according to its Goodness: that which is in Lumps or Cakes, is course.

VI. *Cambogia* or *Gutta Gamba.* You are to chuse that which is the brightest Yellow, and freest from Dross; not that which is brown, dirty, gross, and thick or cloudy. It easily dissolves in Water, and makes a yellow-staining Liquor, to wash Pictures and Maps with; and is worth about 7*s.* a pound.

VII. *Gum-Lac*, called *Seed-Lac.* The best is that which is bright, clean, large grain'd, and free from Dust, Sticks and Dross: it is worth from 12 to 18*d.* the pound, according to the Goodness.

VIII. *Gum-*

VIII. *Gum-Lac*, called *Shell-Lac*. The beſt is that which is moſt tranſparent and thinneſt, and which, if melted with a Candle, will draw out into the longeſt and fineſt Hair, like melted Sealing-wax, becauſe of its toughneſs. It is ſometimes adulterate, and therefore you may diſcern the true by theſe Directions: beſides its Uſe for making Varniſhes, it is the principal Ingredient for making Sealing-wax: the beſt is worth from 16*d.* to 2*s.* the pound.

IX. *Gum-Animi*. It is either Oriental, coming from the *Eaſt Indies*, or Occidental, coming from the *Weſt Indies*, as in *Hiſpaniola*, *Cuba*, *Jamaica*, *New Spain*, &c. It is a Roſin of a whitiſh Yellow, much reſembling *Gum-Copal*. The beſt is whitiſh and clear, like unto white Amber, and that which is moſt tranſparent, is the beſt: this *Garzias* will have to be *Cancamum*, but it is not.

X. *Gum-Copal*. It comes from *Hiſpaniola*, *Cuba*, and other places of the *Spaniſh Weſt Indies*: it is of a yellowiſh white color, odoriferous, fine, clear and tranſparent. Chuſe that which is whiteſt, cleareſt, moſt tranſparent, and freeſt from Droſs. It is not ſo ſweet or odoriferous as the *Gum-Animi*, nor ſo fat or oily; but it is more pure, clear and white, and of the more excellent Subſtance; and therefore to be choſen before the *Animi* for mechanical Uſes.

XI. *Gum-Sandarack*. It is brought from *Barbary* in little longiſh Tears or Drops, of a whitiſh-yellow color, and almoſt tranſparent, very hard, and if reduced into fine pouder, is called *Pounce*: this diſſolved in Linſeed Oil, makes that called *Liquid Varniſh*. That which is largeſt and whiteſt, and caſts the leaſt yellow, is beſt, being free from Droſs or Duſt. It is worth about 12*d.* a pound.

XII. *Benjamine*. That which is the brighteſt and of the moſt tranſparent color, and very like to clarified Roſin, is the beſt. There are ſeveral kinds of it; as, 1. The *Amygdaloides*, which has white bits or ſpots in it like blanched Almonds. 2. The *Greyiſh*. 3. The *Blackiſh*: but that which is hardeſt and moſt tranſparent, is to be choſen for our Uſes.

XIII. *Roſin*. The beſt is that which is clear and tranſparent, and clarified or freed from its Droſs and Filth, worth about 4*d.* a pound: but there is a white Roſin,

Rosin, which is also white and clear, and worth about 5 *d.* or 6 *d.* a pound.

XIV. *Mastiche.* It is the Gum of the *Lentisk-tree* growing in *Chio*, *Ægypt* and *Syria*, and is brought to us out of *Turky*, from *Smyrna* and *Aleppo*, but the best is from *Chio*, which is of a light color or whitish yellow, free from Dross or Filth, in grains or drops, friable, clear, and almost transparent.

XV. *Olibanum.* This was the true ancient Incense; but from what Tree it is produced, Authors have not agreed. But my self being in the *West Indies*, I gathered it plentifully from the *Floridian* Cedar, which is the *Cedrus Baccifera:* See my *Seplasium, lib. 9. cap. 38. sect. 3, 4.* The best is in roundish drops, some bigger, some lesser, and it is pure without either Bark or Wood, of a yellowish white, (but the whiter the better) and which, if crackt or broken, are very clear, and almost transparent. This may supply and be used in place of *Mastiche*, (if that is wanting) and possibly is the better Rosin of the two.

XVI. *Gum-Elemi.* That which is the stiffest, whitest and cleerest, and freest from Dross or Filth, is the best. It comes from the *Spanish West Indies*, and is a bright, white, soft, and almost transparent Rosin, enclining to a yellowish-greenish color.

XVII. *Turpentine.* There are several sorts of Turpentine, as the *Common*, *Venetian*, *Strasburg*, *Cyprus* and *Chio*; of all which *Varnishes* may be made: but that which is chiefly in use in these Works, are the *Venetian* and *Strasburg*; of which two, the former is the most useful; chuse that which is whitest, cleerest and finest, which is worth about 16 or 18 *d.* the Pound.

XVIII. *Bole Armenius.* This is that which we call fine Bole, and is as fine as *Red Oker*, and is of a deep dark, blackish Red Color, soft, and as it were greasy, and free from Gravel, Sand, or other filth: if it is choice and good, it will stick very fast to the Tongue when it touches it.

XIX. *Lamp-Black.* It is made by the burning of Lamps, having many Wicks, covered with a very large Top, at a due distance, to receive the Smoak, which continually sticking upon this Top, produces this black Color: every half Hour take off the Top, and with a Feather

Feather sweep off all the black on it: snuff your Wicks, and put on the Cover again; and thus continue till you have what Color you desire, or all your Oil is burnt up. A Quart of Oil, valued at 6 *d.* will make *Black* enough to do a large Cabinet: It is of Excellent Use for *Black Varnish.*

XX. *Masticot.* It is a Mineral Yellow, and made of Lead. ℞ *The first Calx of Lead made by Incineration,* viz. *the grey Ashes: calcine them in a Reverberatory Furnace with flaming Fire, so ordered, notwithstanding that the Calx may not melt. And when the* Calx *has changed Color, and begins to grow yellow, it becomes that Color or* Pigment *(so much in request among* Painters) *which they call* Masticot. This, if it be yet Calcined till it is Red, it becomes that which they call *Minium.*

XXI. *Red Lake,* the common sort used by Painters. ℞ *any Roots, Woods, Leaves, Flowers as of Alkanet, Brasil, Logwood, Red Sanders, Madder Safflower, Clove-Gilliflowers, Red Roses,* &c. *q. v. add to them about a sixth or eighth part of Salt of Pot Ashes, and fair water a sufficient Quantity, which boil away to one half: filter the Liquor, and precipitate the Lake with water in which Alum is dissolved, or that is acuated with Spirit of Vinegar, Sulphur, Vitriol or Nitre, putting in so much till the effervescence ceases: immediately the whole Liquor will become thick, as if it was Coagulated or Curdled. This* Coagulum *edulcorate by the repeated Affusion of fair water, separate the Lake by filtration, which dry upon Paper, and keep for Use.*

XXII. *Florentine Red Lake.* It is made from *Scarlet Cloth,* or from *Cochenele,* or *Kermes Berries,* (with which the *Scarlet* is Dyed) exactly according to the former Method in all respects. And in the same manner all other subtil Vegetable Colors are produced.

XXIII. *Priming.* It is made of any Color which has a Body; as Cerule, White Lead, Whiting, Brown or Red Oker, Umber, fine Bole, &c. ground in Oil pretty light. If the color is too dark, it may be altered, by adding a little White Lead: with this your Work may be thinly primed over, and so suffered to dry.

XXIV. *Fat Oil.* Put Linseed Oil into Leaden Vessels made like Dripping Pans, so much as to be an Inch deep: expose them to the Sun for 6 Months, till it becomes as thick as Turpentine: the longer it stands the fatter

fatter it will be, and give to Gold a greater gloſs. If it is almoſt as thick as Butter, ſo as you may in a manner cut it with a Knife, it is admirable, and ought to be carefully kept for Uſe.

XXV. *Drying Oil.* Mix Linſeed Oil a Quart, with Litharge of Gold ʒij. or iij. and boil them for a Quarter of an Hour: if you would have it more drying, boil it a while longer; but have a care of boiling it till it is too thick, and unfit for uſe. Or thus. Take Red Lead and Umber in fine pouder, ana ʒjſs. Linſeed Oil ℔ij. boil as before: If when it has ſtood 2 days, it has a Skin over it, it is then fit for Uſe. Drying Oil is worth 2 *d.* an Ounce, and fine Varniſh 3 *d.* an Ounce at the Color Shops.

XXVI. *Oil of Turpentine.* It is uſed to diſſolve the Colors, and make them ſpread the better, and to make the Work to dry the ſooner, and is now worth about 6 *d.* or 8 *d.* a Pound.

XXVII. *Braſs Duſt*, commonly called *Gold Duſt.* The beſt, (which comes from *Germany*) is that which is fineſt, and of the brighteſt and moſt Gold-like Color, which you may perceive, by taking a little of it between your Finger and Thumb, and rubbing them together; if it is good, it will be of a bright, rich, Golden Luſtre: if bad, it will be of a dull clayiſh Color. The courſer ſort works well with Gold Size, but not with Gum Water: It is of differing Prizes, according to the goodneſs: the beſt is worth 12 or 14 *s.* the Ounce, whilſt ſome other ſorts of it is not worth above 4 or 5 *s.* the Ounce, being very mean and bad. The middle ſort, which is worth 8 or 9 *s.* the Ounce, will work well.

XXVIII. *Silver Duſt.* The beſt comes from beyond Sea, having a lively bright Luſtre, like that of Poliſhed or new Coined Silver, which you may find by rubbing it between your Finger and Thumb: whereas the worſer ſort (which is made in *England*) is dull, dead, and heavy, more fit for a Color, than a Metal: by comparing them together, you may ſee the difference. The beſt is worth 16 *s.* the Ounce: the other counterfeit is not valuable.

XXIX. *Green Gold.* It is an Adulterated or mixt Metal, caſting a kind of dead greeniſh color; and is worth about 6 *s.* the Ounce. This, as alſo the following,

are uſed in Garments, Flowers, Houſes, and the like, making the work look more beautiful and ſurprizing.

XXX. *Sullied* or *Dirty Gold*. It is another kind of Adulterated Metal, bearing ſome reſemblance to droſſy Gold, its price is 6 *s*. the Ounce, and is uſed for the ſame occaſions as the former.

XXXI. *Tin Duſt*, or *Pouder*. It is made of Block Tin ground to Pouder, which is of a dull, dark, but Silveriſh Color, made uſe of in Rocks, *&c.* and is Sold for 6 *s*. an Ounce.

XXXII. *Natural Copper Pouder*. It is made of Copper ground without mixture, to Duſt: this is of the true natural color of Copper, and is Sold for 6 or 7 *s*. the Ounce.

XXXIII. *Artificial Copper Pouder*. This exceeds the Natural, and is more deep and Red, but very clear, and of a bright ſhining color, which ſhews how far Art can out-do Nature: it is Sold for about 10 *s*. the Ounce.

XXXIV. *Adulterate Copper*. It is of a thick, heavy, dull, Metalick color, and commonly uſed to work other Metals on: for being laid as a Ground, you may hatch or heighten with bright Gold, or other ſhining Metal: and is Sold for about 6 *s*. an Ounce.

XXXV. *Speckles*. They are of divers ſorts, as Golden, Silver, Copper, and many other colors, ſome finer, ſome courſer, which are to be uſed according to the Fancy of the Artiſt, and as the nature of the matter may require: they are uſed on Mouldings, outſides and inſides of Bowls, Cups, Boxes, Drawers, *&c.* Thoſe of Gold, Silver and Copper are uſed about *Indian* Work. They are made in *England* very well, and are Sold each of them at the ſame price, *viz.* 4, 5 or 6 *s*. an Ounce, according as they are in fineneſs, and to be had at a Gold Beaters, over-againſt *Mercers Chappel* in *Cheapſide*; and at another of the ſame Trade, at the *Hand* and *Hammer* in *Long Acre*.

XXXVI. *Colors Tranſparent*. Theſe are laid upon Gold, Silver, or ſome light color; by which they are made to appear in their true colors, very lively and beautiful. Of theſe there is, 1. *Fine Verdigriſe* for a Green. 2. *Fine Lake*, for a Red. 3. *Fine Smalt* for a Blew. Theſe muſt be ground upon a *Porphyry*, with *Nut Oil*, ſo much as will juſt moiſten the Quantity, and make it fit

fit to work, grinding till the Mass is as fine and as smooth as Butter: then it is to be put into Muscle Shells and mixed with *Oil of Turpentine*, till it is thin enough for Use.

XXXVII. These being laid upon Gold, Silver, or any other light color, will be Transparent, and change their Lightness or Darkness, according to the Metals, Colors, or Ground you lay under them: but in grinding *Red Lake*, you must use Drying Oil, instead of Nut Oil.

XXXVIII. *Opake or Embodied Colors.* These are laid upon the Black of your designed Work, where you would have Birds, Beasts, Flowers, Shrubs, Trees, &c. The chief of these are, 1. *Vermilion* for a Red. 2. *White Lead* for a White. 3. *Flake White*, which is a pure white, if it be for any Nice Work. 4. *Oker* or *Orpiment* for a Yellow. 5. *An Opake Blew:* this must be made with *Smalt*, grinding it with Gum *Arabick* water, and adding White Lead to give it a Body, in such Quantitys, as to make it lighter or deeper, as you desire it: and thus you must do with all transparent Colors, which have not a Body of themselves.

XXXIX. Some use *Rosett*, *Fine Lake*, and *Sea Green* for a *Purple:* as also other sorts of Reds and Greens; which ways of working are very manifold, and require much Practice and Experience to find out what things to mix together, and their various and just proportions for lightness or deepness of the Color.

XL. *Lastly, all these Opake Colors are to be layed with Gum Water:* those who have a mind to work either in Gum Water or Gold Size, shall in what follows receive sufficient Directions: But the Transparent Colors are to be wrought with *Nut Oil*, as has been said already.

CHAP. III.

Of Sizes and Gum-Water.

1. *To make Isinglass Size.*

℞ Fine Isinglass in small bits ʒj. fair water ℔ss. let it stand 12 Hours only warm: afterwards let it boil,

but very gently, and continue the ſimmering till it is all diſſolved, the water being alſo waſted away to a Pint or leſs: let it cool, and keep it for Uſe. It will be thick like a Gelly, but will not keep above 2 or 3 days; ſo that you ought to make no more than preſent occaſion requires.

II. *To make Gold Size.* ℞ Gum Animi, Aſphaltum, ana ℥j. Minium, Litharge of Gold, Umber, ana ℥ſs. all being in very fine pouder, add thereto Linſeed Oil ℥iiij. Drying Oil ℥viij. *(in Cap. 2. Sect. 25.)* digeſt over a gentle Fire which does not Flame, ſo as it may only ſimmer or bubble up, not boil, (for fear of ſetting the Houſe on Fire, ſhould it run over) keep it conſtantly ſtirring with a Stick, till the whole Maſs of Ingredients are diſſolved and incorporated, and forbear not ſtirring it till it becomes thick and Ropie, and is boiled enough: being almoſt cold, ſtrain it through a courſe Linnen Cloth, and keep it for Uſe.

III. *To prepare it for working.* ℞ of this Gold Size *q. v.* put it into a Muſcle Shell, adding Oil of Turpentine enough to diſſolve it, making it as thin as the bottom of your *Seed-lac-Varniſh*, hold it over a Candle to melt, and then Strain it thro' a Linnen Rag into another Shell: To theſe add *Vermilion*, ſo much as to make it of a darkiſh Red. If now it is too thick for Drawing, you muſt yet add ſo much *Oil of Turpentine* as may make it thin enough for that purpoſe. The cheif uſe of this Size is for laying on of Metals, which we ſhall hereafter teach you.

IV. *The beſt Gold Size for Burniſhing.*

℞ Fine Bole *q. v.* grind it finely on a Marble with Water; then ſcrape into it a little tried Beef Suet, grind all well together: after which mix a ſmall proportion of Parchment Size, with a double proportion of Water, and it is done.

V. *To make Silver Size.*

℞ Fine Tobacco-pipe Clay, grind it ſmall, (and if you pleaſe, you may add a little Lamp-black, to turn it of a light Aſh color) ſcrape into it a little Deers Suet, and grind them together extreamly fine; then add a mixture of Size and Water as before-directed.

VI. *Another Silver Size.*

℞ Fine Tobacco-pipe Clay in fine pouder *q. v.* ſcrape into

into it ſome black Lead and a little *Genoua* Soap: grind them all well together, then grind them with Parchment Size, *ut ſupra.*

VII. *A Size for Silver or Gold.*

℞ Fine Bole in fine pouder ℔j. black Lead ℥ij. in pouder, grind them together: then add Oil Olive ℥ij. Bees Wax ℥j. melted together: grind all theſe very finely in a Maſs; and laſtly grind them together with Parchment Size and Water. Remember this, That you never grind more Gold or Silver Size at a time than will ſerve the preſent Occaſion.

VIII. *To make Parchment Size.*

℞ Cuttings of clean Parchment ℔j. (price about 3 *d.*) fair Water ℔iv. boil to a Gelly: ſtrain hot, then let it cool, and it will be a ſtrong Size. This may be uſed, as well as for the former Occaſions, in white Japan-work, inſtead of Iſing-glaſs Size.

IX. *The way to uſe this Size.*

Melt ſome of it over a gentle Fire, and ſcrape into it as much Whiting as may only color it: mix and incorporate them well together with a clean Pencil: with this Frames, *&c.* may be whited or prepared, rubbing it well in with your Bruſh, that it may enter into every hollowneſs of your Carved-work, *&c.* letting it dry on. Melt the Size again and put in more Whiting, ſo as to make it ſomewhat thick; and with this you are to whiten over your Frames, *&c.* 7 or 8 times, letting it throughly dry between each time: but after the laſt going-over, before it is quite dry, you are to dip a clean Bruſh-pencil in fair Water, to wet and ſmooth it over; which, when throughly dry, you are to ruſh it over as the neceſſity of the Work ſhall require. Afterwards with a Gouge or Chizel, not half a quarter of an inch broad, open the Veins of the Carved-work which the Whiting had choakt up; then with a fine Rag wetted and your Finger, carefully ſmooth and water plain it all over; which, when dry, is then fit to receive the former Gold and Silver Size.

X. *To make Gold Size in Oil.*

℞ Yellow Oker in fine pouder *q. v.* mix it with Linſeed Oil, which is ſomewhat fat *q. ſ.* grind them well together, and put the Maſs into a Gally-pot, upon which put ſome fat Oil to keep it from skinning: cover it cloſe

with Bladder or Paper, and keep it for Uſe: it will keep good 10 or 12 years, and be better, not worſe. This Gold Size is always preſent and ready for any urgent Occaſion: and if you would have your piece extraordinarily done, let it be twice thinly primed over with the Priming in *cap.* 2. *ſect.* 23. and laid by for 3, 4 or 5 days, to dry throughly.

XI. *To make Gum-Water.*

℞ The whiteſt, cleareſt and beſt Gum-*Arabick* ℥j. fair Water ℥xij. mix and diſſolve: when throughly diſſolved, ſtrain it thro' a fine *Holland* Rag, and keep it in a Glaſs Bottle for Uſe.

XII. Laſtly, *As to Iſing-glaſs Size, this Caution is to be obſerved.*

When you lay Blews, Whites, or any other Colors with it, let it not be too ſtrong, but rather very weak, and ſufficient to bind the Colors, and make them ſtick on the Work; for if it is too ſtrong, it will be apt to crack and fly off. But when you lay or waſh with clear Iſing-glaſs, to keep your Varniſh from ſoaking into or tarniſhing your Colors, then it is to be ſtrong, and of a full body.

CHAP. IV.

Of making Varniſhes.

I. THE beſt white Varniſh.

℞ *Of the whiteſt and largeſt Gum-Sandarack which caſts the leaſt yellow* ℥xvj. *of clear* Venice *Turpentine* ℥iij. *whiteſt Gum-Animi and Gum-Copal*, ana ℥iſs. *choice Maſtiche* ℥j. *cleareſt Benjamin, Gum-Elemi, white Roſin*, ana ℥ſs. *To the Sandarack and Maſtiche in pouder, put rectified Spirit of Wine* ℔ſs. *in a Bottle by it ſelf. To the* Venice *Turpentine, Animi and Benjamin, (both in fine pouder;) put of the ſaid Spirit* ℥xij. *To the Copal and Roſin in pouder, put of Spirit* ℥viij. *To the Elemi, by it ſelf, put alſo of Spirit* ℥iv. *diſſolve each apart, becauſe they more eaſily and better diſſolve apart than together, ſhaking the Bottles once in two hours for the firſt day, and then once or twice a day for 2 or 3 days*

days more: this done, thro' a fine Linnen Strainer strain all the Dissolutions in each Bottle into one large one: digest all together for 6 or 7 days, the longer the better, and gently decant as much as will run clear, reserving the thick and muddy part for ordinary Uses, as mixing with other Varnish for black work, and to gloss the insides of Boxes, *&c.*

II. Another white Varnish inferior to the former.

℞ *Gum- Sandarack in powder* ℥xij. *best rectified Spirits* ℔iv. *mix, shake them well together, and digest for 2 or 3 days: then decant or strain the clear into another Bottle.* ℞ *Mastiche in powder* ℥xij. *rectified S. V.* ℔iv. *digest 2 or 3 days as before, then decant or strain into another Bottle, and keep it for Use.* Now, when you design to Varnish a Print or any other thing with these Varnishes, you must mix these two together thus. ℞ of the Sandarack Varnish ℥iv. of the Mastich Varnish ℥viij. mix them well. The reason of this Mixture, is, that we may have the Varnish to answer our desire in Hardness or Softness: when you have set by your Work for 2 days, you may try its Temperature, by pressing your warm Fingers on it; if it leaves its Print behind it, it is then too soft, and you must use a wash or two of the Sandarack Varnish, to harden it: but if it not only resists your Touch, but has some Streaks, Flaws or Crackles like Scratches in it, more or less, it is then too hard, and must then be helpt with a wash or two of the Mastiche Varnish.

III. To make Seed-Lac Varnish.

℞ *Best rectified Spirits* ℔viij. *Seed Lac* ℥xxiv. *put all into a very wide-mouthed Glass Bottle; mix and digest 24 hours, or till it is dissolved, often shaking it very well, to keep the Gum from clotting together: this done, take another Glass Bottle as large, and strain the dissolved Matter thro' a Strainer of Flannel, shaking all well together before you pass it thro' the Strainer; and then in straining, squeeze it with your Hand, leaving the Fæces or Dregs behind, which are of no Use, but to be cast away: then stop up the Bottles of Varnish, digest in a warm Sand heat 3 or 4 days, and being well settled, decant off very gently the top or pure clear of your Varnish, so long as it will run clear, and no longer. Let the remainder settle again for 3 or 4 days, and decant off all that which is fine, and keep it for Use.*

IV. *Now, here is to be noted,* That upon any urgent

Occasion you may make this Varnish in less than 24 hours time, and use it immediately; but the former Preparation is the better: besides which, the clear Varnish you thus decant off from the top of the Bottle, is of extraordinary Use to adorn your Work, and make it more glossy and beautiful. Some make this Varnish by boiling, but that is an ill way, because the Strength of the Spirit is lost, which ought especially to be preserved; besides which, you may hazard the setting your House on Fire, and therefore also to be avoided.

V. To make Shell-Lac Varnish.

℞ *Of best rectified Spirits* ℔viij. *of the best shell Lac* ℥xxiv. *mix and shake them well together, and let them stand* 24 *or* 48 *hours, and so strain* ut supra *thro' a Flannel Bag, and keep it close stopt for Use.* This is that which the common Varnishers mostly use, for that it has a double or treble Advantage with it; 1. That you need not wait any time for its Perfection, but it is fit for Use the same moment it is made. 2. It has a greater Body than that of *Seed Lac*, and therefore less Labor and less Varnish goes to perfecting the Work, and make it look tolerably bright. 3. That it is a fit Varnish for ordinary Works which require not polishing, it looking well when first done, or for a small time; but it is commonly attended with a Mist or Dulness.

VI. *These following things are also to be observed.*

1. That the *Seed-Lac Varnish* has much Sediment and Dregs in making it; whereas this *Shell-Lac Varnish* has none, for it wholly dissolves, and is free from all Fœces and Dross or Foulness; yet it is requisite to strain it, lest any Sticks or Straws should be in it. 2. That tho' this Varnish has no Sediment, yet it is much inferior to the other in other Respects; for this *Shell-Lac Varnish* will never be fine, clear and transparent as the other is, and therefore it will be in vain either by Art or Industry to endeavor the making it so. 3. That if you design a neat glossy piece of Work, you must totally banish this Varnish from your Use: but it is commonly used in ordinary Varnishings, as of Olive-wood, Wallnut-tree, and the like.

VII. Another mixt Shel-Lac Varnish.

℞ *Of Shel-Lac Varnish* ℔iij. *Venice Turpentine* ℥vi. *mix and dissolve in a gentle Sand heat.* This will harden well,

well, and is a Varnish good enough for the insides of Drawers, Frames of Tables, stand Pillars, Frames of Chairs, Stools, and the like.

VIII. To make a Yellow Securing Varnish.

℞ *Venice Turpentine q.v. boil it* per se *in a Pipkin with a very gentle Char-coal Fire, stirring it continually with a Stick: boil it so long till being cold, it may be crumbled into a fine yellow Pouder. Take of this Pouder* ℥i. *of the finest Seed-Lac Varnish* ℥iv. *mix them in a large Glass Bottle, stop it close, and digest in a very gentle heat or only warmth, till the Rosin is mostly dissolved, now and then unstopping the Glass, to prevent its breaking: then digest 2 days cool, and decant the clear into another Bottle, and keep it close stopt for Use.*

IX. *Here is to be observed*;

1. Whatsoever you design to do with this Varnish, whether Gold-works, Metals, Colors, Rocks, Plains, Woods, or other Figures, to give them a Gloss, and keep them from Tarnishing, ought to be done in a warm place, that it may also the sooner dry; if that cannot be had, you must give it the space of half an hour to dry in, between every wash, however it will become glossy either way. 2. Take a Pencil proportionable to your Work, dip it in the Varnish, and go over your Work sprig by sprig, and part by part, as Leaves, Stalks, Flowers, Rocks, Figures, *&c.* with a steady Hand, having a care not to trespass in the least upon your Black or Ground-work. 3. Having run over all your Work thus 3 or 4 times, (not oftner, lest you spoil the Color of your Metal) rest satisfied, that your Work, whether of Gold-size or Gum-water, is defended against any thing of Tarnishing, or whatother Injury of Air or Age soever, and that there is added to the native Lustre of the Metals a very bright, admirable and durable Gloss.

X. A white polishing Varnish, much like some of the *Indian* Performances.

℞ *Venice Turpentine* ℔j. *fair Water* ℔iij. *mix and boil all over a gentle Fire in a clean Pipkin, stirring it often with a Stick so long, till when cold, you can reduce it to fine pouder, which will be white as Paper.* ℞ *of this Pouder* ℥i. *of Seed-lac Varnish* ℥viij. *put all into a Bottle which will hold* ℥xx. *stop it close and digest over a gentle heat (now and then opening the Glass) till the Turpentine is nearly all dissolved:*

then

then digeſt in a cool place for 2 or 3 days, and decant the cleareſt for Uſe. You muſt waſh oftner with this Varniſh than with that juſt before, before you can make your Work acquire a glittering Poliſh.

XI. *Here is to be obſerved;*

Firſt, That your piece now lying before you, drawn and finiſhed, you may ſecure againſt all Danger by means of this laſt Varniſh. Take a fit, neat, clean Varniſh-pencil, dip it into this Varniſh, (put into a little Gally-pot) always ſtroaking it againſt the ſides of the Pot, for fear it ſhould be too full of Varniſh; and with this (without any diſtinction) waſh over your whole Work, both Draught and Ground, and repeat it 5 or 6 times, as you ſee your Gold or Metal keeps its color, gently warming it and throughly drying it between each waſh, but let it be but juſt warm, for if more, it will ſpoil all.

XII. *Secondly*, This being done, and that very evenly and ſmoothly, let it lye 4 or 5 days or more, and then poliſh it thus: ℞ *Tripoli* in fine pouder, and a fine Rag, dip the Rag into a Baſon of Water, and lick up with it ſome of the *Tripoli*, with which rub your Work with a gentle and even Hand, till it becomes ſmooth and gloſſy; and let your chief Aim be to render your Ground or Black ſmooth and bright.

XIII. *Thirdly*, *To take off the* Tripoli, you muſt uſe a ſoft Spunge dipt in Water, to waſh your Work with; and then a clean, ſoft, dry Rag, to free it wholly: after which mix a little Oil and Lamp-black together, and with a fine Rag rub it up with that, and then with a dry Rag clear it from the Black and Oil: laſtly, with one clean, ſoft, dry Rag more, rub it gently ſo long till it ſhines, and is ſufficiently poliſht, according to the utmoſt of your deſire.

XIV. To make Varniſh for Prints or Pictures in Oil, called *Turpentine Varniſh.*

℞ *Venice Turpentine* ℥iij. *put it into an Earthen Pot over the Fire: when melted, add to it Oil of Turpentine* ℥vj. *as ſoon as they boil, take off the Pot, and when cold, put it up into a Glaſs Bottle, which keep cloſe ſtopt for Uſe.* With this you may varniſh your Prints on Glaſs, or other things, to render them tranſparent; and this is what the Shops ſell for fine Varniſh. If it ſhould prove too thick,

thick, you may make it thinner by an Addition of more Oil of Turpentine.

XV. A more excellent Varniſh for Pictures in Oil, or making Prints tranſparent.

℞ *Of the beſt Oil of Turpentine* ℥xlviij. *pure, clear, white Maſtiche in fine pouder* ℥xviij. *mix and ſhake them well together till the Maſtiche is diſſolved: then hang the Bottle in a Veſſel of Water, but not ſo deep as to touch the bottom, and make the Water boil for half or three quarters of an hour or more, taking it out in that ſpace 3 or 4 times, to ſhake it*; ſo will you have Varniſh as good in its kind, for theſe Purpoſes, as any other whatſoever.

CHAP. V.

Of making ſome other kinds of Varniſhes.

I. *Common Liquid Varniſh.*

℞ Linſeed Oil *q.v.* Gum Sandarack *q.ſ.* being in fine pouder, mix and diſſolve over a gentle heat, and keep it for Uſe.

II. *A Varniſh for Painted Pictures.*

℞ White Roſin ℔j. Gum Arabick, Venice Turpentine, Linſeed Oil, *ana* ℥ij. firſt melt the Roſin and Linſeed Oil together, and ſtrain it very hot: ſteep the Gum in Oil Olive *q.ſ.* till it is diſſolved, and ſtrain it: mix both theſe together, and add the Turpentine; then digeſt over a Stove Fire till they are well mixed, and ſo keep it for Uſe. When you have occaſion for it, uſe it hot.

III. *Another for the ſame.*

℞ Gum Sandarack, Olibanum, both in pouder, *ana* ℥iv. Venice Turpentine *q.ſ.* mix, melt and incorporate over a gentle Fire, and ſtrain it hot out. When you have need of it, uſe it hot, and it will dry immediately, and ſhine, and be gloſſy.

IV. *Another for the ſame.*

℞ Pure clear Amber (diſſolved in Oil of Turpentine) ℥iij. mix it with refined Linſeed Oil ℥j. over a gentle Fire, ſtirring them well, and it is done,

V. *A*

V. *A good Varnish for Gold, Silver, Brass, Copper, Iron, Steel, Stone, Wood, Velom or Paper.*

℞ Benjamin in fine pouder *q. v.* rectified Spirits so much as to supernate 4 inches: digest 4 days, then strain it, and it will be bright and shining, drying immediately, and retain its Brightness many years. *Note*, If it is Silver which is to be varnished, you ought to use the white part of the Benjamin only; but if it is Gold, or any thing gilded, chuse the clear part of the Benjamin; and before straining, put in a few Blades of Saffron for the Color sake.

VI. *A Varnish for Wood and Leather.*

℞ Tincture of Saffron, or Turmerick made with rectified Spirits ℔j. prepared Gum-lac *q. s.* dissolve the Gum in the Tincture, and it is done. This Varnish is also of great Use to lay over Gold and Silver, or any thing which is exposed to the Air.

VII. *A Varnish particularly for Gold, Silver, Tin or Copper.*

℞ Linseed Oil ʒxij. Mastiche, Aloes, *ana* ʒj. (in pouder) mix all in a glazed Earthen Pot, which cover with another; in the bottom of which let be a hole, wherein to put a small Stick with a broad end, to stir withal: cover them all over with Clay, (except the hole) set it over a gentle Fire, and stir it as often as it boils up for a while, and then strain it for Use. First let the Metal be polished, then strike it over with this Varnish.

VIII. *To make a common sort of Varnish.*

℞ Rectified Spirit ℔iv. Shell-lac ʒix. Rosin ʒiij. dissolve the Gums in a gentle heat, (being close covered) then let them settle, and strain or decant off the clear, which keep close in a Glass Bottle for Use. The thick which remains you may squeeze thro' a Strainer, and keep for other Purposes.

IX. *To make common Varnish.*

℞ Gum Sandarack in pouder, Oil of Spike, Oil of Turpentine, *ana* ℔j. mix and dissolve over a gentle heat, and it is done. If thro' Carelessness the Fire should catch hold of it, clap a Pewter Dish or Cover, with a wet Woollen Cloth, the top of the Vessel close, and it will immediately go out.

X. Vernix Italica, *The* Italian *Varnish.*

℞ Pure Venice Turpentine ʒviij. evaporate to dryness over

over a very gentle heat, and reduce it into pouder: affuse thereon *gradatim* Oil of Turpentine twice its weight; digest till the Pouder is dissolved: decant the clear from the Fœces, and keep it for Use.

XI. *The Mastich Varnish.*

℞ Oil of Turpentine ℔ij. Grains of Mastich in fine pouder ℔j. or so much as the Oil will dissolve: when cold, separate the clear from the Fœces, and keep it for Use.

XII. *The Olibanum Varnish.*

℞ It is made altogether as the former: so also a Varnish of *Gum Animi*, of *Copal* and of *Gum Sandarack*. These *Mastich*, *Olibanum*, *Animi*, *Copal* and *Sandarack* Varnishes are all of good Use for the preserving and setting off of Pictures: and being laid upon things Gilded, or Silvered over, or laid over with the Leaves of any Metal, they so preserve them, that they loose not their Color or Gloss.

XIII. *To make a Red Varnish.*

℞ Rectified Spirit ℔ij. Shell-lac ℥iv. *Sanguis Draconis* in fine pouder ℥viij. Cochenele ℥j. digest a week over a gentle heat, and strain out for Use.

XIV. *To make a Yellow Varnish.*

℞ Rectified Spirit ℔ij. Saffron ℥j. infuse 4 days, strain out, and add *Sanguis Draconis* ℥ij. fine Aloes ℥j. digest a week in a gentle Sand heat, and strain out.

XV. *An excellent Universal Varnish.*

℞ Of the best rectified Spirits ℔iv. of the best Oil of Turpentine ℥viij. Gum Animi, or Copal, or Gum Sandarack in fine pouder ℔j. mix, and dissolve by digesting in a gentle heat: decant the clear, and keep it in a Bottle close stopt for Use.

XVI. *The Amber Varnish.*

℞ Clear Amber in subtil pouder *q. v.* affuse thereon Linseed Oil or Oil of Walnuts, so much as may melt the Pouder: gently boil them till they acquire a black color; then pour all out upon a wet Marble: beat this Mass into pouder, and dissolve it *gradatim* in a sufficient quantity of prepared Linseed Oil, and keep it for Use; as varnishing Canes, Sticks, Fans, Pots, Cups, Tables, Stones, Statues, Cabinets, *&c.* being laid on with a hard Brush Pencil, the better to spread it over.

XVI. *The*

XVII. *The* Indian *Varnish for Cabinets, Coaches, and such like.*

℞ Rectified Spirits ℔iv. Seed-lac or Shell-lac ℥xij. put them into a Glass Body and dissolve in *B. M.* (but be sure the Water in the *Balneum* boils not, for then it will turn the Varnish white:) strain thro' a Flannel Bag, and keep it in a Glass Bottle close stopt for Use. *This preserves Leaf Silver it is laid on from the Injuries of the Air, and makes the Silver look of a Gold color; for which Reason Coach-makers and others use it.* If it is laid on any other Color, it makes it look very much more beautiful: and if in any place it lyes rough, you may polish it with fine Pouder of *Emery* and Water, or rather with *Tripoli.*

XVIII. *A strong Varnish or Cement to make a Dial plain on a Wall.*

℞ Lime and Sand, which temper with Linseed Oil *q. s.* This spread upon the Wall, will harden to the Hardness of a Stone, and will not decay in may Ages. *This is the strongest and most lasting Varnish, Cement or Plaster for this Purpose; but if you cannot get Oil, you may temper your Lime and Sand with scummed Milk; and this you will find will last 6 times as long as the common or ordinary Plaster, made of Lime and Hair with Water.*

XIX. *To make an excellent White Varnish.*

℞ Rectified Spirits ℔iv. Oil of Turpentine ℥iv. Gum Sandarack, Mastich in fine pouder, *ana* ℥xiij. ℥iij. Gum Animi in fine pouder ℥ij. ℥vj. mix; digest in a large Bolt-head or Matrass, in a very gentle *B. M.* or Sand heat, not full out boiling, which stop well or cover with a blind Head; and in about 8 hours time all will be dissolved: decant the clear into a Glass Bottle well warmed before-hand, in which keep the Varnish close stopt for Use.

XX. *If you Varnish upon Paper pasted on a Board, you must first prepare your Paper with Ising-glass Size,* rubbing it over with a Brush of Camels Hair 2 or 3 times, which is to be throughly dryed each time; then putting a little of the Varnish into a warm Gally-pot, (you must stop the remainder close, for fear, if the Spirits should evaporate, the Varnish should curdle and the Gums separate) lay on the Varnish with a Brush several times, letting it stand an hour before the Fire between each washing o-

ver

ver: after 3 or 4 days time of drying it, polish it with fine Pouder of *Tripoli*, *Emery* or *Putty*, by help of a Rag and a little fair Water.

XXI. Vernix Japanica, *The Japan or* Indian *Varnish by another Proceß.*

℞ Rectified Spirits ℔iv. Seed-lac in fine pouder ℥xxxij. mix them well, by strongly shaking them in a Glass so long till the Spirit has dissolved the Lacca: digest 2 days, shaking it 2 or 3 times a day: then let it settle and strain thro' a Flannel, or decant the clear; which keep in a Bottle close stopt for Use.

XX. *Now, here is to be observed;*

1. That this thin Varnish, being laid upon any thing, immediately drys, and that it ought to be continually laid on, till it is thick enough and the Superficies equal and smooth. 2. That it is chiefly to be used in *April*, *May*, *June*, *July* or *August* in a clear shining day; or if in cold Weather, in a close warm Room with an Iron Stove in it, or before a good Fire; otherwise it will be apt to chill, and your Work will be cloudy and opacous, not clear and bright: after which it is to be dryed in a gentle heat for 6 or 7 days. 3. That it may be laid over any Color, by which means the Color will look much more beautiful and glorious; or otherwise it may be mixt with the Color, being in fine pouder and moistned with rectified Spirit; or if the Color will yeild a Tincture, it may be mixt with a Tincture of the same color. 4. That being put upon Leaves of Metal, as of Gold, Silver, Tin, Brass, it makes them look much more glorious, and preserves them also. That the Varnished things may be made smooth and even by rubbing them with Pumice-Stone and Oil Olive: and *lastly*, they may be farther polisht by rubbing them with Chalk or Putty, by which means they will shine, and look as clear as Glass.

XXIII. *A Varnish to preserve Timber or Wooden Works from Rotting.*

℞ The best and hardest Rosin, purify it well: add to it a sufficient quantity of Linseed Oil, so much as may conveniently serve to toughen it; melt and incorporate them well together: then take Umber ground very fine, and mix therewith; which being well mixed together,

and

and whilſt hot, you may lay on and varniſh Timber or other Wooden Work therewith at pleaſure.

XXIV. *Here is alſo to be obſerved*;

That it is an excellent Varniſh to preſerve Timber or Wooden Work, the Border-boards of Gardens, or any other thing, which you would have laſt long in Wet or Moiſture, as the Pillars of *Horizontal* Dials, Wooden Pails, Rails, Gutters, Arbors, *&c.* for it lies like *China* Varniſh, and will endure 10 times as long as any Painting. 2. That it is an excellent thing to prime Hogſheads or Barrels with which you uſe to keep Water in, Wooden Ciſterns, *&c.* which may be done both within and on the outſide; and being ſpread on Cloth with a Trowel, it will make a moſt excellent Covering for Tents, Huts, Pent-houſes, Houſes of Pleaſure, *&c.* 3. That the burnt Umber is the beſt Color to mix with it, yet you may mix other Colors therewith, as *Minium*, *Maſticot*, *Litharge*, *Verdigriſe*, &c. but this laſt ſome obiect againſt, becauſe of its corroding Quality. 4. That the beſt way of laying it on, is, firſt to heat it hot, for ſo it will ſtick the cloſer and faſter to the Wood.

XXV. *To Prepare Linſeed Oil for the Amber Varniſh at* Sect. 16. *above.*

℞ Linſeed Oil *q. v.* put into it a piece of Bread: ſo will an Effervescence be made by the Aqueous Particles: then put in ſome *Alçali*, as Lime, Chalk, Whiting, and ſeveral Calces of Lead, that the Acid may be abſorbed: let it ſettle, decant the clear, and clarify it; ſo it is prepared. ℞ of this prepared Oil, and put in *per vices*, Pouder of Amber, Sandarack, *&c.*

CHAP. VI.

Of making Japan Varniſhes.

I. *White Japan Varniſh.*

℞ Thick Seed-lac Varniſh or the beſt white Varniſh ℥vj. white Lead or flake Lead in ſubtil pouder, enough to color it white; mix them. 2. ℞ of the thickeſt, or rather beſt white Varniſh ℥vj. Venice Turpentine

tine ʒj. mix them well: add white or flake Lead enough to color it. 3. ℞ of the finest white Varnish ʒvj. pure flake Lead in fine pouder, enough to color it white: mix them to be used as shall hereafter be directed.

II. *Black Japan Varnish.*

1. ℞ Of the thickest Seed-lac Varnish ʒvj. Lamp-black enough to color it: mix them in a Gally-pot. 2. ℞ of the thickest Seed-lac Varnish ʒvj. *Venice* Turpentine ʒj. 3. ℞ of the finest Seed-lac Varnish ʒvj. Lamp-black *q.s.* mix them, to be used as hereafter directed.

III. *Another Black Japan Varnish.*

Make the two first degrees as before: then take of the finest Seed-lac Varnish, of the best white Varnish (in *cap.* 4. *sect.* 1.) *ana* ʒiij. mix them well; and then Tincture it with Lamp-black as before-directed.

IV. *Red Japan Varnish.*

1. ℞ The thickest Seed-lac Varnish ʒvj. Vermilion *q.s. viz.* as much as your Judgment and Experience shall direct you, to give it a good Tincture: mix and keep it for Use.

V. *A deep or dark Red Japan.*

1. Make the Red in the former *Section.* 2. ℞ thick Seed-lac Varnish ʒvj. fine *Sanguis Draconis* in subtil pouder *q.s.* mix them. 3. ℞ fine Seed-lac Varnish ʒvj. *Sanguis Draconis* in fine pouder *q.s.* mix them for Use.

VI. *A pale Red Japan Varnish.*

℞ Vermilion *q.v.* mix it with so much white Lead as to make it become of the Paleness you desire, or rather paler, because the Varnish will heighten it: mix this with Seed-lac Varnish, according to the afore-going Methods.

VII. *Olive-colored Japan.*

℞ Thick Seed-lac Varnish ʒvj. *English* Pink in subtil pouder, mixed with Lamp-black and white Lead in due proportion *q.s.* mix them for Use. If it is too light, help it with Lamp-black: if too dark, with white Lead: if too green, with Umber ground fine, for this will take away the Greenness.

VIII. *Chestnut-colored Japan.*

1. ℞ *Indian* Red or Red-brown Oker, grind with ordinary Size or Water till it is as fine and as soft as Butter; then mix a little white Lead, which grind strongly as before: and lastly Lamp-black in a fit proportion,

ſtirring and mixing them well together. 2. If the Mixture is too bright, darken it with Lamp-black: if too dark, lighten it with white Lead, varying the Proportions till you have perfected the Color you aim at; for what Color exactly you have when thus mixt and wet, the ſame alſo will ariſe when varniſhed, tho' drying without Varniſh, it will look otherwiſe. 3. ℞ thick Seed-lac Varniſh ʒvj. of the former prepared Color *q. ſ.* mix them in a Gally-pot over a very gentle Fire, for Uſe.

IX. *Blew Japan.*

1. ℞ White Lead, grind it upon a Porphyry with Gum-water till it is impalpable. 2. ℞ the fineſt and beſt Smalt, which mix with Iſing-glaſs Size: to this put of your white Lead ſuch a proportional quantity as you would have it in ſtrength of Body: mix theſe together to the Conſiſtence of common Paint. 3. If the Blew is too pale and weak, add more Smalt, and no white Lead; but if it is too deep, then add more of the white Lead.

CHAP. VII.

Of making Lackering Varniſhes.

I. *THE common Lacker Varniſh.*

℞ Rectified Spirits ℔iv. Shel-lac ℔j. put them into a Gallon Glaſs Bottle, and let them ſtand till quite diſſolved: ſtrain, and then add a little common *Sanguis Draconis* in ſubtil pouder, and a little Turmerick in fine pouder, both tyed up in a Rag: digeſt a day or two, often ſhaking it, and it is done. Where note, *That you may heighten or diminiſh the Color, by encreaſing or diminiſhing the quantity of the coloring Ingredients.*

II. *Another Lacker.*

℞ Rectified Spirit ℔iv. Shel-lac ℔j. diſſolve and ſtrain: then inſtead of common *Sanguis Draconis*, take a very little of Drop or fine *Sanguis Draconis* in fine pouder, and *Engliſh* Saffron dryed; which tye up in a fine Linnen Rag, and put into the Varniſh as before. *If you would have the Color deeper, or more like Copper, add more* Sanguis Draconis;

Draconis; *but if lighter and more pleasant, then the more Saffron.*

III. *A Lacker Varnish to be used without Fire or Sun.*

℞ Of the following Varnish in *sect.* 4. ℔iv. *Venice* Turpentine ʒij. iij. or iv. mix and dissolve it well with the Varnish. *With this you may Lacker or Varnish any thing in the open Air, which, altho' it may look dull and cloudy just after Varnishing, yet will that quickly vanish, and it will obtain in a short time a pleasing and goodly Lustre.*

IV. *To make the best sort of Lacker Varnish now used by the Gilders.*

1. ℞ Fine Seed-lac Varnish (in *cap.* 4. *sect.* 3.) ʒxij. with which mix Ornatto in fine pouder *q. s.* dissolve it in a Gally-pot over a gentle Fire, which reserve in a Bottle close stopt. 2. ℞ fine Seed-lac Varnish ʒxij. Cambogia in pouder as much as it will dissolve in a gentle Sand heat: reserve this also in a Glass close stopt for Use. 3. ℞ Seed-lac Varnish ℔ij. and add to it 5 or 6 Spoonfuls of the first reserved Tincture, and 10 or 12 Spoonfuls of the second reserved varnish Tincture; to which add dryed Saffron ʒs. tyed up in a Rag: digest 24 hours, being first well shaked together. 4. Then make a Tryal of this Varnish upon a bit of Silver; if it is too yellow, put in more of the *Ornatto* or first reserved varnish Tincture; but if too red, then put in more of the *Cambogia* or second reserved varnish Tincture: thus encreasing or diminishing the Proportions till you have brought it to the exact Golden color, which is the Ultimate or only thing aimed at.

V. *To Lacker Oil Painting, Sized Works, or Burnisht Silver.*

Warm your Frame or piece of Work before the Fire, then putting out some of your Lacker into a large Gally-pot, with a fine large and fast Brush of Hogs-hair or Camels-hair, nimbly pass over your piece, and be sure to miss no part of it, nor yet to twice wash any of the same; but be sure to lay it thin and even, and presently warm it by the Fire whilst it looks bright; for by these means you may Lacker it again in a quarter of an hour, warming it before and after the Operation. Repeat the Work twice or thrice, and if the Color is not deep enough, do it a fourth time; but beware of doing it too deep, for that is a Fault not to be mended.

VI. *To make Lackering look like Burnisht Gold.*

If your Silver is before-hand well burnished, and your Lacker of a true Gold color, and it be carefully laid on with an even hand, not thicker in one place than in another, matting it as you do burnisht Gold; it will be so exactly like Gold Foil or Gilding, that it will be able to deceive the most subtil and curious Eye, not before-hand acquainted with the Fallacy.

VII. *Now, here is to be noted*;

That in Lackering Carved Works, you must be quick, and strike or jobb your Brush against the hollow parts of it, to cover them also, matting or varnishing them deeper and more dull than other parts of your Frame or Piece: and this deepning is done with the Lacker Varnish made deeper with the *Ornatto* Varnish, (or with *Ornatto* it self, worth about 4 *d. per* ounce;) which being well mixt, with the same, all the hollow and deep Places and Veins of your Work, are therewith to be touched and deepened, whereby you accomplish its Color, and bring the Reflection of a perfect Glory.

CHAP. VIII.

Of the Way and Manner of Varnishing.

I. THE Intent of Varnishing, is, either to preserve the Gloss of Paintings or Pictures, or else to represent and imitate the Forms of shining and perlucid Bodies.

II. To Varnish Paintings and Pictures, 'tis no more but with a Pencil dipt in the Varnish, to go over the same, then letting it dry; and so going over it so often as in Reason you shall see convenient.

III. If you are to imitate any thing, as *Amber*, *Lapis Lazuli*, *Marble*, *Tortoise-shell*, &c. you must first make the Imitation of them upon that which you would Varnish, with their proper Colors, as in Limning or Painting with Oil, which must be throughly dry: then by the former *Section* go over all with the Varnish so often, till you see it thick enough, letting it dry every time leisurely.

IV. How

IV. How to use the *Securing Varnish* and the *white Polishing Varnish*, we have at large taught you in *cap. 4. sect. 9*, 11, 12, 13. so that no more need be said of it in this place.

V. Having Varnished your piece sufficiently over, and being perfectly dry, according to the Nature and Curiosity of it, it is to go either unpolished, or to be polished. If it is to be polished, 1. You are to rub it with a fine Rag, and fine Pouder of *Tripoli* and fair Water till the greatest of its Roughness is taken away. 3. Then washing it clean from the *Tripoli*, if it is black Varnish, you must perfect the Polishing of it with another fine Rag, Lamp-black, and a little Oil Olive, rubbing it so long with them till it shines and looks like a perfect Mirror or Looking-glass; but if it is a white or light-colored Varnish, you must take (instead of the Lamp-black) very fine Putty or Chalk, rubbing with that in like manner till the Polishing is perfect.

VI. This being done, to clear the Varnishing of the Lamp-black, or Putty, Chalk and Oil, you must rub it with a fine, soft, dry Rag till the Lamp-black, Putty, Chalk and Oil are lickt up with it, and totally vanish: after which taking one clear, fine, soft, dry Rag more, rub it gently and evenly till it acquires the Clearness, Gloss and Lustre you desire.

CHAP. IX.

Some general Observations in Varnishing.

I. LET the Wood you would Varnish be close grain'd, free from all manner of Knots, Flaws, Holes or Greasiness, and very smooth and clean; which, if so, then Rush it well all over with your *Dutch* Rushes.

II. Lay with your Varnishing-pencils your Blacks or other Colors very even and smooth, without any Knobs, Asperities or Roughness: if any such thing appears, with your Rush take them away: and this you must continually do so long as those Impediments shall follow your Work.

III. Work always in a Stoved Room (if in Winter) and near a Fire, keeping your Work always warm, but by no means hot, for then it will certainly blister, or crack and flaw, which is irreparable, and can never be rectified or amended but by scraping off all the Varnish.

IV. After every distinct wash you ought to let the Work be throughly dry; if not, it will always be full of Knobs, Asperities or Roughnesses, which will enforce you to the continual Use of your Rushes.

V. Let your Work lye and rest after it is Varnished as long as may be, or as your Convenience will admit; so will it prove the better, and receive the more exquisite Polishing.

VI. In Varnishing, begin always your Stroak in the middle of the Table, Box or Plain, (and not from one end to reach to another) and so strike it to one of the ends; then taking it off, put it to the place you began at, and draw it to the other end; and thus continue it till the whole Plain is Varnisht over.

VII. For if you should at one stroak draw your Pencil from one end to another, it would hang upon the Edges and Mouldings of your Box or Piece, the Varnish lying in Drops and Splashes, caused by the Brushes being at beginning of the Stroak over charged and too full of Varnish; for which Reason you ought to stroak your Pencil once or twice against the sides of the Gally-pot, to hinder this Abundance or Superfluity.

VIII. When you come to Polishing, let your *Tripoli* be scraped with Glass or a Knife, that it may be as fine and soft as Pouder for Hair; let your Rags also be very soft, fine and clean, tho' for the more ordinary or common Work, courser *Tripoli* and Rags may serve: rub indifferently hard, but smooth and even, Polishing one place as much as you intend for that time, before you leave it and pass to another.

IX. Never Polish your Work to the ultimate smoothness at one time, but let it rest 2, 3 or more days after your first Endeavours, and then give it the finishing and concluding Stroaks.

X. Be careful also that you come not too near the Wood, left your Work looks thin and hungry, and as it were Thread-bare: if you wear the Varnishing thus too

too much away, there is no Remedy for it but by another Varnishing.

XI. Use a large Quantity of *Tripoli* at first Polishing, till it begins to be smooth; afterwards a small matter will be sufficient; and be sure there be no Gravel, Grit, Sand, or grating matter in it, lest it rase or scratch your Work: if so, you must rub (with the Rag about your Finger) till you have polisht them out.

XII. When you come to clearing up your Work, wash off your *Tripoli* with a Spunge and Water, and afterwards wipe it dry with old, soft, dry Linnen.

XIII. Then (your piece being black Varnish) mix *Lamp-black* with Oil, and with another soft, dry Rag rub your Work all over with it, letting no corner or Moulding escape; for this will absolutely free your piece from the remaining *Tripoli*.

XIV. This done, with another fine, clean, soft Rag or Cloth, rub it well all over, not sparing any pains, with a nimble and quick Stroak, and as hard as you well can; so will its Gloss and Lustre be incomparable.

XV. But if it is white Work, when you are come to clearing it up, you must not sully it with *Lamp-black*; but give the finishing polish to it by Oil mixt with *Putty*, or *White Chalk*, or Grounds of *Hair Powder*; concluding with a fine, soft, dry Rag or Cloth, as in the former.

CHAP. X.

Of Varnishing Wood without Colors.

I. TO *Varnish Olive Wood, Tables, Stands, Cabinets, Looking Glasses, Dressing Boxes*, &c. *Rub* over the piece you intend to *Varnish*, which being well done, set it by a soft and gentle Fire, that it may be well warmed, and so made fit to receive the Varnish.

II. Then wash it 10 or 12 times over with *thick Seed lac Varnish* (which remained after the top or fine was poured off) with a *Pencil* fitted to the bigness of your Table, Cabinet, Frame, *&c.* letting it throughly dry between every washing.

III. If any Hillocks, Knobs or roughneſs does appear, when dry, then ruſh them off, at every turn as you meet with them; and continue Ruſhing it, till it is very ſmooth.

IV. After all this, waſh it over again, ſix ſeveral times with the *fineſt* of the *Seed lac Varniſh*; and ſo let it ſtand three days, to dry throughly.

V. Then take *Tripoli* ſcraped with a Knife: and take a fine ſoft Rag, dip it in fair water, and then in the *Tripoli*, with which rub and poliſh it, till it acquires an admirable ſmoothneſs and gloſs.

VI. But you muſt be very careful, that you rub it not, nor wear away the Varniſh too much, for that is no ways to be repaired, but by freſh Varniſhing it again.

VII. After you have rubbed ſome conſiderable time with the Rag and Tripoli, you will do well to uſe the Rag often wetted without *Tripoli*, whereby you will obtain the better Gloſs.

VIII. Then wipe off your *Tripoli* with a Spunge full of fair water; and afterwards wipe off the water with a dry Rag: Rub it with *Lamp-black* and *Oil* all over, and wipe off that with a dry Cloth: and clear it with another.

IX. If after all this pains, your Work looks dull and heavy, and the Varniſhing miſty, (which is cauſed by poliſhing it before it was throughly dry, in moiſt, damp Weather) you muſt give it another ſlight Poliſh, and clear it up, as before, and that will give it its due Luſtre.

X. If you have been too ſparing of your Varniſh, ſo that it is not thick enough to endure a through Poliſh, you muſt uſe again your *fineſt Seed lac Varniſh*, giving it 5 or 6 Waſhes more.

XI. And then, after 4 or 5 days time, in which it will be throughly dryed, you muſt Poliſh it, and clear it up, as before.

XII. If you deſire to keep the abſolute, true, natural and genuine color of the Wood, you muſt then only uſe the *White Varniſh (in Cap. 4. Sect. 1.)* for that is the only thing which compleatly anſwers this end, for that being often waſhed with it, it neceſſarily heightens and increaſes the true natural Olive Color.

XIII. *To Varniſh Wallnut Wood.* The ſame Method is to be obſerved in this as in that of *Olive*, and the ſame Rules

Rules will hold exactly in all other sorts of Wood which are close and hard, and of a smooth Grain, as Box, Lime Tree, Pear Tree, Yew, *&c.*

CHAP. XI.

Of Dying or Staining Wood, Bones, Ivory and Horns.

I. SOmetimes Tables, Stands, Cabinets, Dressing-Boxes, Looking Glasses, Frames, *&c.* being made of differing Woods, and of Colors which are disliked, you may by the following Rules, Dye or Stain such sorts of Woods, Bones, Horns, *&c.* of what Colors you please, and then by the former Rules Varnish upon them; so will they look very pleasing to the Eye, and as if truly Natural.

II. *To Dye Wood of a Beautiful Red.*

Make a strong Alum water, put your Wood into it, and let it boil a little: then take it out, and put into the said Water a sufficient Quantity of Ground Brasil Wood: put your Wood in again, and boil a Quarter of an Hour, and it is done. When dry, Rush and Polish it, and you will find it a Rich and Beautiful Color. Note, *Woods which are white, take this Dye best.*

III. *To Dye or Stain a fine Yellow.*

Take Knotty Ash, or any other Wood which is white, curled, and knotty; smooth and Rush it well; then warm it at the Fire, and with a Brush dipt in *A.F.* wash over the Wood, and hold it to the Fire (as you do *Japan* work) till it leaves smoaking. When it is dry, *Rush* it again, for the *A.F.* will make it very rough; Polish it, and if you please Varnish it with fine *Seed-lac* Varnish; and being dry, then Polish the Varnish, and you will find (because the knotty and curled parts will admit of great Variety) that no Out-landish Wood will surpass it, and that a pleasing Variety will be interwoven, much beyond whatever you could imagine or expect. Note, *If also you put Filings of Metals, as of* Silver, Copper, Brass *or* Iron *into the* A.F. *or* Gold *into it with* Salt *or* Sal Armoniack

Armoniack, *each Metal will produce a different Tincture, which will Dye the Wood accordingly.* They oftentimes Stock Piſtols with ſuch kind of Wood as this.

IV. *To Dye or Stain Woods for Inlaid or Flowred Works for Cabinet-makers.*

℞ Juice of the moiſteſt or new-made Horſe-dung ℔viij. put it into 6, 7 or 8 ſeveral Veſſels, and put into each Veſſel Roch Alum and Gum Arabick, *ana* about the quantity of a large Nutmeg, diſſolving them: then put into each Veſſel a different Color, as Red, Green, Blew, Yellow, Orange Tawny, Purple, *&c.* ſuffering them to ſtand 2 or 3 days, often ſtirring them: then take your Wood, (cut thinner than an Half Crown, and of what breadth you pleaſe) *viz.* Pear-tree or other white Wood, put it into the ſaid ſeveral Liquors boiling hot, in which let it lye as long a time as is needful, to color it, but ſome pieces longer than others, for the longer they lye in the Liquor, the deeper and higher the Color; ſo will you take them out throughly dyed, and of as many differing Colors as there were Pots of Liquor.

V. *To Dye or Stain Wood Black.*

℞ Logwood and boil it in Water or Vinegar, and whilſt very hot bruſh over or dip your Wood in it 2 or 3 times: then take Galls p. iv. broken into bits, Copperas p. *j.* boil them well in the Water, with which waſh the Wood ſo often, or ſteep it in the Liquor till it is perfectly black.

VI. *To Dye Bone, Horn, Ivory,* &c. *Black.*

℞ *A. F. q. v.* put bits of Braſs into it, letting it ſtand till it is turned green, with which waſh your Bone, Horn, Ivory (being firſt Poliſhed) 2 or 3 times: then put them into a ſtrong Decoction of Logwood in fair Water whilſt hot, letting them lye a while: which done, Ruſh and Poliſh them, and they will be as black, and have as good a Gloſs as any Japan or Ebony.

VII. *If you would have any Figure or ſet of Flowers,* &c. *remain white upon the Ivory,* draw them neatly on the Ivory with Turpentine Varniſh before you ſtrain it; for thoſe places which are covered with the Varniſh, are ſo ſecured, that the Dye or ſtaining Matter cannot touch or diſcolor them. After the Matter is dyed, you may hatch, engrave or cut them with a Graver according as you deſign,

sign, and then fill those Lines with Lamp-black mixt with Oil, to make them appear in their Perfection.

VIII. *To Dye or Stain Bones, Horn, Ivory, Wood of a Green Color.*

First boil them in Alum-water, then take Wine Vinegar *q. v.* *Spanish* Green or common Verdigrise well ground *q. s.* Sal Armoniack half as much as of the Verdigrise, mix them, and put the Wood, Ivory, Horns or Bones into the same, keeping them in a gentle boiling heat till they are sufficiently stained. If the Wooden Work is too large to go into the Vessel, wash it over several times boiling hot till the Color is good.

IX. *To Dye Bones, Horn, Ivory or Wood Red.*

℞ Rain Water *q. v.* Quick-lime *q. s.* mix and let it dissolve, and stand for a night: then decant the clear Water, straining it thro' a Cloth. ℞ of this Water ℔viij. Brazil-wood scraped or ground ʒiv. mix and boil gently: then your Wood, Ivory, Horn or Bones (being first boiled in Alum-water) put into and boil in the former Tincture of Brazil till it is sufficiently Red.

CHAP. XII.

Of Varnishing Prints.

I. GET a smooth Board of a size fitting your Print or Picture, and with strong common Size made of Parchment or Leather, Size it over thus; Melt the Size at the Fire, and scrape Whiting into it to make it of a moderate thickness; and with a soft Hogs-hair Brush or Pencil fit for your Work, wash it once over, letting it dry: then white it again, and so repeat it till it lies with a fair substantial Body, perfectly covering the Grain of the Wood, whether it be Deal, Oak, Walnut-tree, or any other.

II. Then with your Rushes Rush off some part of your Whiting pretty close, and make it very smooth; but do it not so much as to discover the Grain of the Wood.

III. *With Flower or white Starch and Water make a Paste,* which with a large Brush-pencil besmear over the back-

side

ſide of the Print or Picture, and carefully with an even and ſteady hand lay it upon the Board, preſſing it down and ſmoothing it on, that it may ſtick as cloſe as may be, without wrinkles, cockling, bliſtering or any riſing up; which if you find, lay another dry Paper upon it, and by preſſing and ſtroking the Paper every ways, free it from the ſame.

IV. Be cautious in this Paſting, that it be ſo well done, that not the leaſt ſwelling or bubble be found upon your Work; for if it be, the whole Beauty of the Picture will be loſt and deſtroyed when you come to Varniſhing.

V. Being thus fixed to the Board, let it throughly dry: then take the cleareſt of your Iſing-glaſs Size, (in *cap.* 3. *ſect.* 1.) being juſt warm, with a ſoft Pencil waſh over your Print or Picture: let it be perfectly dry, and repeat this Waſhing again; which reiterate alſo the third time, letting it be throughly dry.

VI. After 3 or 4 days time waſh it over with your fineſt white Varniſh (in *cap.* 4. *ſect.* 1.) in a gentle heat, not too nigh the Fire to avoid bliſtering, letting it dry; and then repeat it 5 or 6 times more.

VII. This done, let it reſt 2 or 3 days, and give it 8 waſhes more of the ſame Varniſh in like manner: let it reſt for 2 or 3 days more, and then give it 6 or 7 other waſhes of the ſame Varniſh.

VIII. Being at length throughly dry, Poliſh it with fine *Tripoli*, a Rag and Water; and laſtly clear it up with Oil and Putty, or white Starch, or Wheat Flower, as is before taught.

IX. *To Varniſh Pictures or Prints without Poliſhing.*

℞ Of the beſt white Varniſh, or Varniſh made with Maſtich and Oil of Turpentine (in *cap.* 4. *ſect.* 15.) *ana* ℥ij. mix them. Into this Mixture dip a Camels-hair Bruſh, and therewith Varniſh over your Print 4 or 5 times by the Fire as you do other Varniſh; and when it is dry, it will have a very rich Gloſs.

X. *To Varniſh Prints or Pictures, and Poliſh them like Japan.*

This is done with Japan Varniſh, waſhing it 5, 6 or 7 times over in all reſpects as the former: then being dry, Poliſh with *Tripoli*, and clear it up with Oil and Putty, *&c.*

XI. *To*

XI. *To Finish, Polish and Varnish Pictures not laid upon Glass.*

Touch the foreside of your Picture with shell Gold in Gum-water; or else after you have Varnisht it 2 or 3 times with the best white Varnish, take Japan Gold Size, with which hatch and lay it over with Gold Dust: and as your Judgment and Experience shall advise, touch and heighten all the strongest Lights, and deepen your Shadows also, by which you will give so much Life and Spirit to it, as that a Limner himself may mistake it for a piece of real Painting.

CHAP. XIII.

Of Preparing Woods for Japanning.

I. TAke Plaisterers Size, dissolve it over the Fire, making it pretty warm; and mix Whiting with it in fine pouder till it is of a good Body, but not too thick.

II. Take a Brush of Hogs-hair fit for the purpose, with which and the former Mixture lay your Work once over, letting it dry very well: and so often repeat this till you have hid all the Hollownesses, Crevises, Pores and Grain of your Wood, letting it throughly dry between every Laying.

III. Afterwards take a fine wet Rag and rub it over all your Work, till you have made it as smooth as possible; and this is called *Water-Plaining*.

IV. When it is dry, Rush it even and smooth, and as close to the Grain as possibly may be.

V. This done, wash over your Work twice with the thickest of your Seed-lac Varnish, letting it dry each time; and if it is not smooth, Rush it again to make it so.

VI. A day or two after Varnish it over with Black, or what other Color you design, according as has been directed; and when sufficiently dry, you may finish it by Polishing it.

VII. By

VII. By this Method you must Prime Carved Frames for Cabinets, Stands or Chairs, if you would have them to look well, save that these are not to be Polished, and therefore require not so great a body of Varnish, but only to make them to look shining and glossy.

VIII. But for the tops of Tables, Boxes, sides of Cabinets, &c. where the Wood is ordinary and rough Grain'd, as Deal, Oak, &c. you may take common or Joyners Glew, dissolve it in Water till it is fine and thin, into which put the finest Saw-dust, till it is indifferently thick.

IX. Then with a Brush fit for that purpose lay it all over your Work; and being dry, repeat it so often till all the Roughness and Grain of the Wood is sufficiently hidden.

X. After 2 or 3 days let a Cabinet-maker scrape it with his Scraper as Pear-tree and Olive-wood are done, to make it as smooth and even as may be; then Varnish it as formerly directed. This, if well done, will not come behind any other Work for Beauty and Durability.

XI. But after all, if every thing be weighed, your close, firm and smooth Grain'd Woods are chiefly and only to be chosen; of all which Pear-tree is the first in Estimation.

CHAP. XIV.

Of Japanning Wood with Colors.

I. *Black Japan.*

I. YOur Wood being close Grain'd, well wrought and smooth, Rush it smooth, and keep it warm by the Fire or in some warm place; but be always careful, that whilst you Varnish you suffer it not to come so near the Fire as to burn, scorch or blister it, for which Fault there is no other Remedy, but scraping off and new Varnishing the piece again: in this case, to work in a Stove, is doubtless the best way, because it gives an even and moderate heat to all parts of the Room.

II. Then

II. Then take of the Japan Varnish (in *cap. 6 sect.* 2. N°. 1.) put it into a Gally-pot, and with it first wash over or Varnish your piece 3 times, letting it dry throughly between each time: again with more of the same Varnish wash it over 3 other several times, letting it throughly dry between each time, and Rush it smooth between each of them.

III. Take of the Japan Varnish (in *cap. 6. sect.* 2. *n.* 2.) and wash your Work over with it 6 times, letting it stand 12 hours between the 3 first and the 3 last Varnishings.

IV. Your Work being thus far done, take the *Japan Varnish* (in *cap. 6. sect.* 2. *n.* 3.) and with that let it be Varnished 12 times, standing 12 hours between the first 6 and the last 6 Washings; then let it lye 6 or 7 days; after which Polish it with *Tripoli* and a Rag as before-directed.

V. But in Polishing, you must work at it till it is almost smooth, and so let it lye for 2 days; then Polish it again almost enough, and again let it lye 6 days: and lastly Polish it fully, and so clear it up with Oil and Lamp-black as formerly directed; so will you have a good black Japan, scarcely at all inferior to the true *Indian*.

II. *Another Black Japan.*

VI. Lay your Black as before (in *sect.* 2, 3.) then take of the *Japan Varnish* (in *cap. 6. sect.* 3.) with which Varnish your Work 7 or 8 times, letting it stand 24 hours between each time to dry; and then repeat it 4 or 5 times more, keeping it but just warm.

VII. Then let it stand 2 days, and wash it 6 or 7 times with fine *Seed-lac Varnish* only; and after 6 or 7 days Polish it as before-directed in *sect.* 4, 5. above.

VIII. *If your Work should after a little time grow dull, cloudy and misty*, it is to be remedied with a slight Polish, and clearing it up afterwards; for that this Dulness might be caused by reason that either your Varnish was not yet throughly dry, or that it was not laid thick enough on.

IX. *If it is from the first Cause*, a new Polishing mends it: *if it is from the latter Cause*, you must mend it by 5 or 6 Washes more of your fine *Seed-lac Varnish*; and then Polishing again as before.

X. *It*

X. *It is alſo to be noted*, That in this and all other Japan Works you muſt never ſtrike your Pencil twice over the ſame place, for it will make your Colors or Varniſh lye rough and ugly; but let every ſtroak wash a new place, carrying a ſteady, quick and even hand, beginning at the middle of the Table, and ſo drawing your Brush to either end, till the whole piece has been paſſed over.

III. *White Japan.*

XI. In doing this, you muſt let nothing come near it which will foul or ſoil it: your firſt work muſt be to lay the Ground, which is made with Iſing-glaſs Size (in *cap.* 3. *ſect.* 1.) mixt with as much Whiting, ſcrapt into it, as will make it of a reaſonable thickneſs, or ſo long till by a ſtroak of your Pencil dipt into it, it will whiten the plain of your Work; but let it be neither too thick nor too thin: this Whiting with your Hogs-hair Brush mix very well with your Size.

XII. Whiten your Work once over with it, and when it is throughly dry, do it again; and when dry, reiterate it the third time: after which let it dry 12 or 24 hours, covering it from Duſt.

XIII. Then with ſome *Dutch* Rushes, let it be Rusht as near to the Grain of the Wood as you ſee fitting.

XIV. Take fresh Iſing-glaſs Size *q. v.* white Flake *q. ſ.* ſo much as make the Size lye with a fair body; mix them well together, and with this go over your Work 3 ſeveral times, letting it throughly dry between each time; then Rush it very ſmooth.

XV. Then take white Starch boil'd in fair Water till it is ſomewhat thick; and with it, almoſt Blood warm, wash over the whole Work twice, letting it dry between each time; and ſo let it ſtand 1 or 2 days.

XVI. With a pure clean Pencil (washt in rectified Spirit, to free it from Duſt) dipt into the fineſt white Varniſh (in *cap.* 4. *ſect.* 1.) wash over your Work 6 or 7 times; and after 2 days repeat the like number of Varniſhings again: this, if well done, will give a finer Gloſs than if it was Poliſht: but if it is ſlovenly done, Poliſhing will then be abſolutely neceſſary, for which reaſon you muſt give it 5 or 6 Varniſhings more.

XVII. If this laſt is well done, it will need no Poliſhing; and then two washes more will do: but if it requires

Poliſh-

Polishing, you must then give it 3, and a weeks time of drying before you begin to Polish.

XVIII. *In Polishing*, you must use the finest *Tripoli* and Rags, not too wet nor too dry, with a light and gentle hand: and in clearing, (instead of Lamp-black and Oil) you must use Putty and Oil, and conclude with white Starch mixt with Oil, to give it the finishing Stroak.

XIX. But there are some who wholly reject this work with Size, liking that only which is performed with *Varnish*: and therefore such may, if they please, use the *white Japan Varnishes* (in *cap. 6. sect.* 1 *n.* 1, 2, 3.) exactly, according to the method laid down for the black Japan, in *sect.* 2, 3, 4, 16. above, which will give a more than ordinary Satisfaction: and besides it will not be so ready to Crack or Peel off.

IV. *Blew Japan.*

XX. ℞ Gum-Water, *q. v.* white Lead, *q. s.* grind them well upon a Porphyry. ℞ Ising-glass Size, *q. v.* of the finest and best Smalt, *q. s.* mix them well, to which add of your white Lead before ground, so much as may give it a sufficient Body; these mix together to the consistence of Paint.

XXI. With this mixture, go over your Work, and do it 3 or 4 times, till you see your Blew lies with a good and fair Body, letting it dry throughly between each time: if your Blew is too pale, put in more *Smalt* into your Size, without any *white Lead.*

XXII. Then *Rush* it very smooth, and go over it again with a stronger Blew: and when it is through dry, wash it twice over with the cleerest *Ising-glass Size* alone; and covering it, let it dry 2 days.

XXIII. Then gently warming your Piece at the Fire, with a clean Pencil wash your Work over with the finest white Varnish, (in *cap.* 4. *sect.* 1.) repeating it 7 or 8 times, and let it dry again 2 days as before. After which repeat again the third time, your washes 7 or 8 times in like manner.

XXIV. Let it now dry for a Week, and then Polish it as before directed; and with *Lamp-black and Oil* clear it up, to give it a Polite, and Glossy appearance.

XXV. *As to the Color you must be guided by your Reason and Fancy, whether you will have it light or deep,* for a

ſmall proportion of the Lead makes it deep, a greater proportion light. Alſo the Size for laying Whites, Blews, or any other Color, ought not to be too ſtrong, rather weaker, and juſt ſufficient to bind the Colors, to make them ſtick on the Work, for if it is too ſtiff, it will be apt to Crack and fly off. And the Reaſon of waſhing twice with clear Size, is to keep the Varniſh from ſinking into, or tarniſhing the Colors; and in this caſe it ought to be of *a ſtrong and full Body.*

V. *Common Red Japan.*

XXVI. Iſing-glaſs Size, or rather the thickeſt *Seed-lac Varniſh*, (as ſome adviſe, becauſe it will not then break off in Poliſhing, as that mixt with Size commonly does, beſides it better helps to bear the body of Varniſh, which muſt afterwards be laid over it) *q. v.* fine pure Vermilion *q. ſ.* as your Reaſon and Judgment ſhall direct: mix them well.

XXVII. Warm your work by the Fire, and with a Pencil Varniſh it with the former mixture; doing it 4 times, and letting it dry between every time; after which *Ruſh* it ſmooth.

XXVIII. This done, waſh it 8 times with the *ordinary Seed-lac Varniſh*, and let it reſt for 12 hours; then *Ruſh* it again, tho' but ſlightly, to make it look ſmooth.

XXIX. Laſtly, for an Exquiſite outward covering, waſh it 10 times with the *beſt Seed-lac Varniſh*; let it lie 7 days to dry, and then Poliſh it with *Tripoli*, and clear it up, with *Oil and Lamp-black.*

VI. *A deep or dark Red Japan.*

XXX. Firſt lay on your common Red, as before directed: then take thick Seed-lac Varniſh *q. v.* fine *Sanguis Draconis* in ſubtil Pouder *q. ſ.* mix it by little and little with the Varniſh: a very ſmall matter of it will extreamly heighten your Color, and every waſh will render it deeper.

XXXI. When the Color is almoſt as deep as you deſign, forbear the *Sanguis Draconis*, becauſe the after layings of the *Seed-lac Varniſh*, will add to the Color what is wanting.

XXXII. Then conſider how many Varniſhings are ſtill to be laid on, and accordingly uſe your *Sanguis Draconis*, perfecting the Work, as is directed in the former *Common Red Japan.*

VII. *A*

VII. *A pale Red Japan.*

XXXIII. Take the pale Red Japan Varniſh (in *cap. 6. ſect. 6.*) and waſh your Work over with it four times, letting it dry between every time; and follow the Method exactly laid down in *Sect.* 27, 28, 29. aforegoing.

XXXIV. Where Note, that in making this mixture, you muſt think with your ſelf, how many times you are to Varniſh after your Red is laid on; for if many, then know, that they will increaſe and heighten the Color, for which reaſon you muſt make your mixture the Paler. In theſe things you muſt be guided both by *Reaſon* and *Experience.*

VIII. *Olive Colored Japan.*

XXXV. Take Iſinglaſs or Parchment Size (in *cap. 3. ſect.* 1, 8.) *q. v.* Engliſh Pink in fine Pouder, *q. ſ.* grind them together till they are as thick as Butter: then mix with it Lamp-black, and white Lead in due proportion, which by ſome Tryals you will eaſily find; adding Lamp-black, if too light; white Lead, if too dark.

XXXVI. If it is too Green, help it with *Raw Umber*, ground very fine with Size, for this will take away the Greenneſs.

XXXVII. Or, take the *Olive colored Japan Varniſh* deſcribed in *cap. 6. Sect.* 7. which is very much the better; and with either of theſe, Varniſh over your piece according to the aforegoing Rules, Poliſhing, and cleaning of it, as before directed.

XXXVIII. Where Note, 1. That no Colors laid in Size, will endure ſo ſtrong a Poliſh, as thoſe in Varniſh, but are more ſubject to be rubbed off. 2. That the *finiſhing Varniſh*, muſt be the *beſt white Varniſh*, that the Colors may not *Tarniſh.*

IX. *Cheſtnut colored Japan.*

XXXIX. It is made of *Indian* Red, or brown Red Oker, either of them being ground with Iſing-glaſs or Parchment Size, upon a Porphiry, till they are as ſoft and fine as Butter, *&c.* (in *cap. 6. ſect. 3. N.* 1, 2.

XL. Or, take thick *Seed-lac-Varniſh*, and mix it with the ſame Colors as you did the Size; lightning it with the white Lead, if too dark; and darkning it with Lamp-black, if too bright or light, till the Color

refults which you defire: this mixture with the *Seed-lac Varnifh* you will find to be much the better.

XLI. The Colors being thus mixt, if you ufe the Size mixture, put fome of it into a Gally-pot, over a gentle Fire, to melt it, or give it a fit Temper, not too thick, nor too thin; then with a *Hogs-hair-brufh*, wafh therewith your piece fmoothly over, and let it dry, which repeat fo often till your Color lies full and fair.

XLII. Being thro' dry, *Ruſh* it fmooth, but not clofe to the Wood, and fo let it reft a day or two: and then wafh it with *thick Seed-lac Varnifh* three or four times, letting it dry throughly.

XLIII. Or you may begin and lay your ground Work with the mixture of *thick Seed-lac Varnifh*, (in *fect.* 40. above) going over your Work as with the Size mixture: and then being dry and ruſhing of it; you may go over with it 3 or 4 times again, with fimple thick *Seed-lac Varnifh*, letting it dry as before.

XLIV. This being done, whether with the *Size mixture*, or with the *Varnifh mixture*, and they being throughly dry, then Varnifh it again up to a Body, with your fine white Varnifh, (in *cap.* 4. *fect.* 1.) till it is fit to be Polifhed, which perform with fine *Tripoli*, and a Rag and Water, and fo clear it up with *Lamp-black and Oil.*

X. *Lapis Lazuli Japan.*

XLV. Take Iſing-glaſs Size, or thick *Seed-lac Varnifh*, and make a mixture with *Spodium* or white Lead, with which Varnifh your Piece 3 or 4 times over, laying it for a ground Work; letting it dry between each time.

XLVI. Let it lie 2 or 3 days, that it may be throughly dry, and then *Ruſh* it, till it is very fmooth, letting it lie after the *Ruſhing* 2 or 3 days more.

XLVII. Then take *thick Seed-lac Varnifh* q. v. *and mix with it pure fine Blew Smalt*, with which go over your Work 4, 5 or 6 times, letting it dry between each time: then let it lie 2 days, and *Ruſh* it again.

XLVIII. After it is fmoothly *Ruſht*, Varnifh it twice over with the *beſt white Varnifh*, and let it dry again for two days more. Then mix pure *Ultramarine*, or fine *Blew Smalt*, with the *beſt white Varnifh*, and therewith Varnifh it 5, 6 or 7 times, till it comes to a full Body,

dy, and a perfect likeneſs, letting it dry between each time.

XLIX. In the laſt time of Varniſhing with your *blew Varniſh*, run ſtraglingly over all your Piece, in wild irregular Streaks (as a reſemblance of Nature) with *Liquid* or *Shell-Gold*, filling the Blew as you ſee occaſion, and adding very ſmall Specks up and down, and ſuch other various Colors, as are uſual to be ſeen upon the Stone.

L. This done, and the Work throughly dry, Varniſh it 3 or 4 times over again, with the *beſt white Varniſh*, letting it dry between each time: let it lie 2 or 3 days, then *Poliſh* it with *Tripoli*, and clear it with *Lamp-black*, or *Putty and Oil*, as formerly directed.

LI. *Laſtly*, this is to be Noted, that by theſe Methods, you may make and uſe any Color you can Fancy, or which Reaſon and Experience may direct you to: but withal, that all Colors which are Light, and apt to Tarniſh, and looſe their Beauty or Gloſs with *Seed-lac Varniſh*, muſt be covered and finiſhed with the *beſt white Varniſh*, that of *Seed-lac*, being prejudicial.

CHAP. XV.

Of Marble and Tortoiſe Shell Japan.

I. *To make marble Japan.*

I. PRepare your Wood in all reſpects as for *white Japan*; do it over with *Flake white*, or *white Lead*: if you deſign a *White*, with ſome Veins, uſe ſome *Vine Black*, (made of the cuttings of Vines, Burnt and Ground) mix with a very weak *Iſing-glaſs Size*, being warmed, the ſaid *Vine black*, and *white Lead*, making 2 or 3 degrees of it, till you have produced the intended Colors for the Clouds, and Veins of the Marble.

II. Then with a large clean Bruſh, wet your Piece over with Water; and before it is dry, with a *Camels Hair Pencil* dip in the paleſt thin mixture, and lay the fainteſt large Clouds and Veins; which being laid on while the Work is wet, will lie ſoft and ſweet, like that which is Natural.

III. And before it is too dry, with a *ſmaller Pencil*, and one degree darker, gently touch all the leſſer Veins, and variety of the Marble, endeavoring as much as may be, to imitate, the exact foot-ſteeps of Nature.

IV. After this, with a ſmall pointed Feather, and the deepeſt Color, touch and break all your ſmaller Veins, making them irregular, wild, and confuſed, as they appear in the real Stone: then let it dry for a day or two, and waſh it over with *Iſing-glaſs Size*, or *Parchment Size*.

V. Let it dry for 2 or 3 days, and then Varniſh it over with the *beſt white Varniſh* (in *cap.* 4. *ſect.* 1.) 5 or 6 times, letting it dry well between every time: Let it reſt ſeven days, and then Poliſh and clear it up, exactly in all things, according to the directions for Varniſhing, in *cap.* 8. *ſect.* 5, 6.

VI. If you would have it *white* or *grey Marble*, you muſt uſe the *beſt white Varniſh*; but if *yellowiſh*, or of a *Parchment Color*, you muſt uſe the *beſt Seed-lac Varniſh*, either alone, or mixt with the *white Varniſh* at pleaſure.

II. *Another Marble Japan.*

VII. ℞ Of the beſt white Varniſh, (in *cap.* 4. *ſect.* 1.) or of the Varniſh univerſal, (in *cap.* 5. *ſect.* 15.) with which mix white Lead in ſubtil Powder and Lamp-black, or Ivory-black in ſuch proportings as you ſee fit; making three ſeveral degrees of the ſame.

VIII. With the firſt and lighteſt Degree, go over your whole Piece with a Bruſh Pencil, clouding and marbleing the thing as Nature requires; and go over it 4 times, letting it dry between every time.

IX. With the ſecond darker Degree, and a freſh clean Pencil, go over your Work again, *viz.* Some of the Clouds, and edges of the Clouds, as alſo ſome of the greater and leſſer Veins, ſomething ſhadowing and making them deeper; and this work repeat in differing Places, in ſome twice, in ſome thrice, and in ſome four times.

X. With the third and darkeſt Degree, go over the edges of ſome of the greater Veins, and over all the leſſer Veins, repeating the work in Spots and particular Places 4 times, as you did before.

XI. All

XI. All this being done, let it lie 2 or 3 days, and ſtrike it over 4 or 5 times or more, either with the *beſt white Varniſh*, or with the *beſt Seed-lac Varniſh*, letting it dry between every time: then let it dry ſeven days, and ſo *Poliſh* it, and clear it, as we have before taught.

III. *To make Tortoiſe Shell Japan.*

XII. That which we endeavor to imitate is *Tortoiſe Shell* laid upon *Silver Foil*, which gives it life and beauty: now to imitate this well, let your Wood be cloſe grain'd, ſmooth, and well wrought, as Box, Pear-tree, Wallnut-tree, *&c.*

XIII. But if it is courſe grain'd, as Deal, Oak, *&c.* you muſt prime it with *Size* and *Whiting*, as we have taught in *cap.* 13. *ſect.* 1, 2, 3. letting it dry between each time, and at laſt *Ruſhing* it ſmooth.

XIV. Then take a fit *Varniſhing Pencil*, and with your *thickeſt Seed-lac Varniſh*, ſtrike over the breadth of a *Silver Leaf*, which taking up with Cotton, lay on upon your Work whilſt it is moiſt, dabbing it cloſe to the Work, as you are taught in *Gilding*.

XV. This done, Varniſh another Place, and in like manner lay on another *Leaf of Silver* as before, and ſo continue, till the whole Work is covered over with *Leaf Silver*: and then let it dry throughly, and with a fine Hair Bruſh ſweep off all the *looſe Silver*.

XVI. Take *Lamp-black*, or rather *Cologne Earth*, (which comes neareſt to the Color of the Shell) *q. v.* and grind it with Parchment Size, or Gum-water, till it becomes very fine and impalpable: and being finely ground, mix it with more Parchment Size or Gum-water, agreeing with that you firſt ground it withal.

XVII. With this mixture ſpot the darkeſt part of your Shell, after a careleſs cloudy manner, imitating Nature as much as may be, letting a piece of the true Shell lie by you to look upon, thereby to acuate your Fancy and Genius.

XVIII. Take Gum-water *q. v.* and therewith grind fine *Sanguis Draconis* very ſoft; but ſome grind the *Sanguis Draconis* dry, till it is very fine, and then mix it with *fine Seed-lac Varniſh*, which is moſt proper and agreeable for this Work, and not ſo apt to Poliſh off as Size or Gum-water.

XIX. Now whereas, there are several Reds lighter and darker to be found on the edges of the blacker Part, and sometimes lie in Streaks, and Clouds, on the transparent part of the Shell, we are now to imitate that with one of the two former mixtures of *Dragons Blood*.

XX. Dip a *small Pencil* into one of those mixtures, and dash the said Reds, flushing them in and about the dark Places, both thicker and thinner, fainter and lighter, and with less Color towards the lighter part of the Shell: then sweeten it so, that by degrees, it may so loose its strength of Redness, as to be quite lost in the Silver, or more transparent parts of the Work.

XXI. This done, give it 6 or 7 washes of *fine Seed-lac Varnish*, (in *cap.* 4. *sect.* 3.) and letting it dry 1 or 2 days, rush it gently and very smooth, to make it fit for the next Operation.

XXII. ℞ *Fine Sanguis Draconis, Cambogia, ana q. s.* grind them dry to a subtil Pouder: mix it with as much *fine Seed-lac Varnish*, as may Varnish the piece 6 or 7 times more: and let it dry 12 hours or more.

XXIII. Then give it another or third Varnishing with the last mixture, doing it so often over, till the *Silver* seems to be changed into a *Gold-like* Color.

XXIV. *Lastly*, take heed that your Varnish be not too thick and high colored with the *Sanguis and Cambogia*, but rather heighten it by degrees, lest your *Silver* be too high colored, before it has received a sufficient Body of Varnish. Let it dry 6 or 7 days, then Polish and clear it up, as before directed.

IV. *Another Tortoise Shell Japan.*

XXV. First prime your piece very well, as you are taught in *cap.* 13. *sect.* 1, 2, 3, 4. Then Lacker and Size it in Oil, as you are taught in the Art of Gilding.

XXVI. Then lay on your *Leaf Silver*, and let it dry very well: and have ready finely ground in Oil, these Colors, *viz. Red Lake, Cinnabar, brown Pink, Cologne's Earth, and burnt Umber*, placing them distinctly on your *Pallet*.

XXVII. Strike over your work with Turpentine Varnish (in *cap.* 4. *sect.* 14.) and whilst it is wet; mix *lake* and *brown Pink*, thin with Varnish, and with it lay all your fainteſt Clouds or Spots, which soften sweetly whilst the Varnish is moist.

XXVIII. Let

XXVIII. Let it ſtand four hours or more, and if the Colors are dry, with a large ſoft Pencil, paſs it lightly over again: and again moiſtning it, put in more Clouds, which more and more darken with *Umber*, and *Cologne Earth*, before it is dry; always obſerving the Life, and ſweetning your Work, which is by blending, and inſenſibly mixing the Colors after they are laid, ſo as you cannot perceive where each of them begin or end.

XXIX. *If the Clouds are not dark enough*, reiterate the Clouding and Varniſhing once more, as you ſee need requires: when well dryed, Glaze it 2 or 3 times with *brown Pink*, with a little *Tincture of Verdigriſe* in it: or you may Varniſh it with *fine Seed-lac Varniſh*, and then finiſh it as the former.

V. *Another Tortoiſe Shell Japan.*

XXX. Firſt lay a white Ground as before taught: then with proper Colors, as *Vermilion*, *Auripigment*, &c. duly mixt with common or *Turpentine Varniſh* ſtreak and cloud, or ſhaddow the *white Ground* with any irregular fancy you pleaſe, as nearly imitating *Tortoiſe Shell* as you can.

XXXI. Let it throughly dry, and then ſtrike it here and there with the reddiſh yellow Varniſh, mixed with a little *Cinnaber*, or *Indian Lake*, clouding it up and down the Work as nature requires; and touching it alſo with *Varniſh*, mixt with *Lamp* or *Ivory-black*.

XXXII. This done, Varniſh it 5 or 6 times over with the *fineſt white Varniſh*, in *cap.* 4. *ſect.* 1. or the *univerſal Varniſh*, in *cap.* 5. *ſect.* 15; or with *fine Seed-lac Varniſh*, letting it dry between every time.

XXXIII. Let it now dry a Week, and with *Pumice-ſtone* in fine Pouder, but rather fine *Tripoli*, and a wet Cloth, Poliſh it by gentle rubbing.

XXXIV. *Laſtly*, go over with it again 4 or 5 times with the *fine White*, or *fine Seed-lac Varniſh*; and when throughly dry, Poliſh it with *Tripoli*, and clear it with *Putty and Oil*, as before declared.

VI. *Another Tortoiſe Shell Japan.*

XXXV. Firſt lay a white Ground as before, and ſmear it over with *Vermilion* or ſome ſuch like, over which lay *Leaves of Gold* or *Silver*, as before taught, with

Gum

Gum Ammoniacum, lacca Varnish, common Varnish, Size or *Glair*.

XXXVI. This done, and being throughly dry, shadow, cloud, and stain it, by some of the former Directions, according as the Reason and Nature of the thing requires; striking it over here and there with yellow Varnish, or reddish yellow Varnish, and red Varnish mixed, with yellow Varnish in perfect imitation of the Shell.

XXXVIII. *Lastly*, strike it 6 or 7 times over either with the *best white Varnish* (in *cap.* 4. *sect.* 1.) or with the *fine Seed-lac Varnish* (in *cap.* 4. *sect.* 3.) letting it dry between every time: then after 7 days drying, Polish and clear it as before.

CHAP. XVI.

Of laying Speckles or Strewings on Japan Work.

I. TO *lay Speckles or Strewings on the out or insides of Boxes, Drawers, Mouldings*, &c. Mix your *Speckles* (enough to answer the present Occasion) with your *ordinary lac Varnish*, so much as may make it fit to Work, but not so thick as for Colors, and mix them well with a proper Brush.

II. Warm your Piece gently before a Fire, and with a fit Pencil wash it over with the former mixture, and being dry, repeat it again and so often, till your *Speckles* lie as thick, and as even as you desire.

III. Then being throughly dry, go over and beautify your Work 3, 4 or 5 times with *Seed-lac Varnish*, mixt with *Turpentine*, and so let it dry; the work being now done, unless you intend to Polish it.

IV. *But if you design a Polishing*, then you must wash it 8 or 10 times over with the *best Seed-lac Varnish*, letting it dry every time, after which Polish it as formerly directed.

V. All

V. All sorts of colored Speckles may be thus used, except those of Silver, the laying on of which requires the *best and finest* of your *Seed-lac Varnish*, or the *best white Varnish*, which must make it fit for Polishing: but if you intend not to Polish it, fewer washes of your Varnish will suffice.

VI. *To lay Speckles on the drawing part of Japan Work, as on Flowers, Herbs, Trees, Fowls, Beasts, Rocks, Garments*, &c. Make a Tiffany Sieve of a Wooden Pill-Box, by striking out Bottom and Top, *&c.* Then with your Varnish and Pencil strike over the Places you would Speckle.

VII. Which done, before it is dry, put some of your Speckles into your Sieve, and gently shake the Sieve, over the Places you design, till they are all speckled according to your Intention.

VIII. *But for Rocks*, with a dry new Pencil, sweep all the straggling *Speckles*, which lie beyond the wet Parts, into, and upon the sides and top of the Rock, which will render the work not only thicker of *Speckles*, but also more Beautiful, and give it a kind of Shadow and Reflexion.

IX. As soon as one Part is compleated, you must go on with another, but not before the other is perfectly dry; your *Rock Works* also, ought to be of different Colors, and as many Shapes, till your whole design is Compleated.

X. Your Work being cold, it will certainly for the present look dull and cloudy, and as if very ill done, or with ill Materials without either Life or Beauty; but let not this discourage you, for it will in a little time obtain its Lustre and Glory, and by the help of your *Securing Varnish* be made firm and durable.

CHAP.

CHAP. XVII.

Of Japanning Metals with Gum-Water.

I. *TO work Metals or Colors with Gum-water.*
When you design to work *Japan* in *Gum-water*, it is only to be done with those Colors which have a body, not with transparent Colors.

II. Take Gum-water (in *cap.* 3. *sect.* 11.) put it into a Muscle Shell, with which mix so much of your Metal or Color, as may make it neither too thick, nor too thin, but that it may run fine and smooth from your Pencil.

III. And before you mix no more for your Metals, but so much as is requisite for your present Business; for by keeping mixt they will spoil, and become useless; besides their gathering of Dust which renders them unfit for use, and so unserviceable.

IV. And for your Colors, your Shells must be often shifted and changed, for otherwise the Colors and Gums will become knobby, thick, and out of Order.

V. Your Metals or Colors thus prepared, and well mixed; with a *Hogs Brush Pencil*, lay on your design, with a smooth and even Hand, drawing the Pencil on the side of the Shell, that it may not be over loaded with the Metal or Color, when you design to draw small Lines or Stroaks, that they may be clear and fair.

VI. But when you draw broad things, as Leaves, or other large Works, then charge your Pencil full, yet so that it may not drop.

VII. *Now here is to be Noted,*

1. That the practise of *Gum-water* is useless and unnecessary, in the use of *Gold Size*. 2. That your *Gum Work* being throughly dryed, you are to run it over 8 or 10 times with your *fine Seed-lac Varnish*, or *best white Varnish*: and then Polish it, and clear it.

VIII. Your Black or Ground, you intend to make your draught on, when cleared up, will be so Glossy, as if it were Greasy, so that your Metal or Color will not easily stick on: and therefore you ought to rub it with a *Tripoli* Cloth, and suffer it to dry: so will the draught

draught of your Pencil be ſmooth and neat, and ſtick on according as you deſire.

IX. *If your work with the Gum-water ſhould not ſucceed to your ſatisfaction*, as not being even, or regular, or lines at a due diſtance (as it may ſometimes happen to young Beginners) you may with the *Tripoli* Cloth wipe out all, or any part, of that which you think unhandſom, or unfit to ſtand, and then immediately make a new draught.

X. And ſo by theſe means, you may mend, alter, add, detract, blot out, change, and variouſly contribute to your Deſign, till the whole Piece is of one intire perfection, and good, and anſwerable to each part of the undertaking.

CHAP. XVIII.

Of Japanning in Gold Size.

I. *THE making and preparing this Size for working*, we have taught in *cap.* 3. *ſect.* 2, 3. when therefore, you have wrought your Work, and that you purpoſe to decipher on it, you muſt draw this Size all over that Part, and that Part only, which you reſolve to Gild, or adorn with Gold, paſſing over thoſe places where you intend to lay your other Metal or Colors, as Silver, Copper, Braſs, *&c.*

II. *Your Size being thus wrought for the Gold*, let it remain till it is ſo dry, that when you put your Finger upon it, it muſt be glutinous and clammy, and ſtick a little; but not ſo moiſt, that the leaſt particle of it ſhould come off with your Fingers, but that it may be much like to thick Glew, when it is half dry.

III. When it is in this condition, it is the very juncture of Time wherein you muſt apply your Gold; then take a piece of ſoft, waſht Leather, or the like, wrap it about your Fore-finger, dip it into your *Gold Duſt*, and rub it, where the *Gold Size* is laid, for it will ſtick on the Size, and no where elſe.

IV. If

IV. If any Gold Duſt lies ſcattered about your Work, bruſh it all away into your Gold Paper, with a fine Varniſhing Bruſh which has not been uſed.

V. Then take your *Pencil* again, and draw that part which you deſign for the Copper, with Gold Size alſo: and when it is dry as the former, cover it with *Copper Duſt*, juſt in like manner as you did it with the Gold Duſt.

VI. This done, take your *Pencil* again, and lay *Silver Size* (in *cap.* 3. *ſect.* 5, 6.) and when it is dry enough, lay on your *Silver Duſt*, in like manner, as you did the two former.

VII. But this you muſt always obſerve, that you lay theſe Metaline Colors ſucceſſively one after another, letting each to be covered and throughly dry, before you begin a diſtinct Color.

VIII. After all theſe, lay your other Colors (not Metaline) if your deſign requires any, with *Gum-water*; reſerving the Rocks, *&c.* for the laſt part of your work.

IX. If you have mixed more Gold Size, than you can conveniently uſe at one time, or that you are called off from your buſineſs, that you cannot finiſh till the next Day, you will obſerve that your Size, even after 5 or 6 hours, will have a Skin upon it: to prevent this, put the *Size* with the Pencils alſo into fair Water, ſo as to be covered, till the next time you uſe them: and if your Size ſhould grow *too thick*, thin it with *Venice Turpentine*: But know, that oftner doing theſe things than once, will quite ſpoil your *Size*, and make it fit only to be caſt away.

X. Let your Size be ſo ordred, that being of a mean Conſiſtency, neither too thick nor too thin, it may run ſmooth and clear, and your ſtroaks be fine and even, ſo that you may be able to draw with it the moſt ſubtil and hairy Lines.

XI. If you would exactly imitate Japan Work, avoid filling and thronging your Black with Draughts and Figures: in true *Indian* Work the Ground is never crouded up with many Figures, Houſes or Trees, but a great ſpace is allowed to a little Work, for the Black adds Luſtre to the Gold; and the Gold gives an Excellency to the Black.

XII. In

XII. In these Works some Variety of Metals may be indulged, but in a very slender proportion to that of Gold, which is the general Ornament and Characteristick of the genuine or true Japan-work.

XIII. Be always careful and exact in tracing or drawing out your Design in Vermilion or Gold, that it may be done with an even hand: then your Gold Size being ready prepared, with a small Pencil make with your Size the outward Lines, the Boundaries of Rocks, and those things which seem to lye beyond the Buildings.

XIV. Begin also with those parts which are farthest distant from you, for then you will not be liable to the Inconvenience of rubbing or defacing any thing whilst it is wet.

XV. The farthest parts being done, work just according to your Pattern, (if you have any) and draw your Gold Size on the places answering to the black Lines of your Print or Pattern, and no where else, leaving the white for the black Japan or Ground of your Work.

XVI. *And in all respects use your Size, as if you were to Coppy the Print or Pattern on white Paper with Ink or black Lead*; only take care, that whilst you are working in one part, you suffer not that already done with Size, to dry so much, that it will not hold fast your Metals; for which cause you must often try what Condition your already sized Work is in.

XVII. For this Cause take, you must sometimes be Drawing; sometimes Gilding: and then be Drawing again, and then Gilding; continuing thus alternately till your whole piece is compleated.

XVIII. If you find it troublesome to draw the White, and over-pass the Black; or on the contrary to draw the Black and omit the White, on the tops of Houses, Foldage of Figures, Faces, or the like; then for your Ease, over-lay all those parts of Buildings, Foldages, Faces, *&c.* with Gold Size, lay your Metals thereon; and when well dryed, wash over those places only which you design to set off with Black, with your *Securing Varnish*.

XIX. Tho' in some Japan-work Silver is sometimes made use of; yet it is but very seldem, except in some raised Works, because the best and brightest Silver is too splendid a Metal for black Japan; and therefore we chuse

chuſe to uſe in place thereof a kind of dull or dirty Silver, which is *Ponder Tin.*

XX. *Laſtly*, You may ſet off your plain Metals when rubbed on Gold Size, either with Metals mixed with Gum-water or Gold-ſize, *viz.* when the plain Metals are laid and throughly dry, hatch or work in the Size for ſetting off, as you would do with Metals mixed with Gum-water; and without doubt you will find the Gold-ſize to be beſt.

CHAP. XIX.

Of Japanning with Gold and Colors.

I. DRaw or trace out your Deſign, and fill moſt part of your ſmall Works with Gold, paſſing by, notwithſtanding, ſome few of them to be reſerved for bright Copper, green Gold, *&c.* to be ſo added to the pieces, that they may grace and enliven the Work. It is uſual with the Japan Artiſts to fill frequently with dead Metals, and bind them in with Gold.

II. Suppoſe you have great Flowers; one of theſe Flowers you may fill the ſeeded part thereof with Silver, the Leaves with Vermilion, and in ſetting off, work it in Black Diamond-wiſe; and the little ſpots of Black which lye in the White, work with bright red Copper: then the part which is filled with Red, bind in with Silver, and vein it with the ſame.

III. Another great Flower; you may fill the Seed thereof with bright Copper; the Leaves with Silver: and in ſetting off, border the Seed with Black, the inſide with Silver, and compaſs in the Leaves with Gold, hatching them with Black.

IV. If any great Flower is partly hid with a large Leaf or Leaves of the Plant, let the Seed of this be green Gold: ſome parts bright Gold; and if any Spots are in thoſe parts, let them be done with pure Cinnabar; the Leaves of the Flower with Orange Tawney, and ſet off with Silver: and the Leaves of the Plant with yellow Green.

V. If

V. If there is another Flower, do it with green Gold, its Seed with bright Gold, ſquared with Black: other Flowers may be laid with Silver, ſeeded with bright Copper, and hatched and ſquared with Black: other Flowers with Cinnabar, the Seeds with tranſparent Green: encloſe them with Vermilion, and hatch in the Leaves with Silver.

VI. If another large Flower, let its Seed be red, bind it in, and chequet it with Silver; cover the Leaves with Blew, hatch and ſurround with Gold: other Flowers which are leſs, make them with Red; their Seed with Blew, and ſet off with Silver.

VII. Another great Flower may be laid with tranſparent Blew, bounded and wrought with Gold; the Leaves covered with Silver, and hatcht with pure fine Cinnabar. If there be another Flower like to the former, let it be laid in like manner with Blew, its Seed with dirty Copper, ſet off and encloſed with Silver, its Leaves with deep bright red Copper, and hatch with Black.

VIII. Other Flowers, lay their Seed in tranſparent Red, ſet them off with Silver, border with Black, make the Leaves Silver, and hatch with Black: or, make the Seed bright Copper, compaſſed and ſet off with Black; the Leaves red Copper, which you may hatch and encloſe with White.

IX. Theſe things we have given you for Example ſake, and thought good to make the Exemplar in that of Flowers, as being that in which the greateſt Nicety and Difficulty lyes, it not being ſo eaſily performed as other things; and yet in this very thing the *Licentia Picturalis* is very large, the Artiſt being left chiefly to his Fancy, only with this Caution, That every where he uſes Variety.

X. And tho' in what has been ſaid, filling and ſetting off has been mentioned together, for the more eaſy apprehending of the Matter; yet you muſt be ſure always to lay your plain Colors before you think of ſetting them off, becauſe you are more ready to ſet off with one Color before you undertake another, and your Fancy is more ready to adorn and furniſh or fill every ſingle Flower and Leaf.

XI. But the Flowers being filled, you are next to consider what is to be the Covering of the great Leaves: adorn them with Metaline Colors, generally such as are green, sullied Gold, pale, dull Copper; but intermixing here and there transparent Blew and Green: bound and vein them with such Colors as give the greatest Life, such as may be chearful, pleasant and delightful.

XII. Sometimes double the Borders in the Leaves with the Ground Black of your piece left between, as your Patterns will instruct you; and make all your Veins, finishing Lines, and the Stroaks you set off with, fine, clean, even and smooth.

CHAP. XX.

Of Raised and Embossed Works.

I. THO' they who live in great Cities, where there are variety of Artificers, have no need of some part of the following Discourse; because they can buy Embossed and Carved Frames, Boards, Tables, Pieces, *&c.* ready made to their hands: yet for those who live in the Country, and have not the opportunity or conveniency of procuring such, we thought good to add in this place a few Rules and Directions how they may do the same things, and supply those wants themselves.

1. *The first Way.*

II. *You must first make the Model of your Design; and that must be done with Clay.*

Take good tough, well tempred Clay, and with proper Tools model it, and work out any sort of Carving or Embossment which you fancy; then lay it aside to dry in the Shade, for either Sun or Fire will crack it.

III. When it is perfectly dry and hard, and you purpose to cast the Moulds on the Models, Oil your Models very well with Linseed Oil; and having wrought the Paste extreamly well between your Hands, clap it on and press it down close every where, that it may be a perfect Mould in all parts; which, when it is dry, it is finished.

IV. *To*

IV. *To make the Paste for making your Moulds of.*

Make a Glew-water stronger than any Size, yet something weaker than Joyners melted Glew: mix Whiting in fine pouder therewith, till it is as thick as Paste or Dough; knead it very well, wrapping it up in a double Cloth; in which it may lye and get heat from the Fire; for you are not to let it grow cold, for then it will harden, and so be made unfit for Use.

V. *To make the Mould of any Carved Frame, thereby to imitate it in Paste.*

Take some of the former Paste, according to the length and magnitude of the Leaves and Flowers you would take off; you need not take off a whole length, for possibly you may find one and the same thing many times over in one side, so that one Mould may serve all of that sort, they being well united or joined together. Work the Paste between your Hands, and clap it in that part of the Frame which you intend to take a Mould of. Let there be so much Paste as to make the back of the Mould flat and even: and whilst the Mould is warm, take it from the Frame, and at the same instant fix it to a Board which is larger than it self. After this manner you may take off any sort of Emboss-work or Carving from any part of your Frame; all which Moulds you may glew on little Boards, and so leave them to dry and harden.

VI. *To place your Paste on Frames.*

The Joyner is to make your Frames according to your Design, which being ready, as also the Paste and Moulds, you are to Oil the Moulds very well with Linseed Oil, striking the Brush into every little Crevise and Corner, to prevent the Moulds sticking to the Paste: then take as much warm Paste as will fill up the Moulds; work it again between your Hands, and whilst thus warm and in good temper, put it into the Mould, pressing all parts of it with your Thumbs and Fingers; and then with a Knife cut off the superfluous Paste even with the top of the Mould. Turn out this new-fashioned Emboss or Carved work on your Hand, and before it cools brush it over with thin Glew, as also the place it is designed for, and immediately put it upon your Frame in the same place, where it must always abide, pressing it down or close gently.

VII. Now Oil your Mould again, and with fresh Paste prepare more Embossments or Carved-works in like manner, which cast off, and place it upon your Frame as the former: and this Work so often repeat till your whole Frame is filled with your Embossments according as you desire.

VIII. Let it alone to dry for 5 or 6 days; after which you may safely lay your white Ground, which you may Paint, Varnish, Japan, Gild in Oil, or Burnish, as the Nature of your Work requires.

II. *Another way to make Raised or Emboss Works.*

IX. Make a strong Gum-*Arabick* Water, twice as strong as that in *cap.* 3. *sect.* 11. take Whiting, fine Bole, *ana* ℥i. grind these with the Gum-water *q. s.* till they are as fine and soft as Butter, and so thin, that if a Stick pointed be dipt into it, the Mixture will just drop from it: if it is too thick, make it thinner with Gum-water; if too thin, add more of the Whiting and Bole.

X. Dip such a pointed or taper Stick into this Mixture, and drop on the Rock, House, Tree, Flower or Fruit which you design to Raise or Emboss, repeating this dropping of the Mixture so often till you have raised your Work as bold and as high as you think fit.

XI. *Sometimes you will find your Paste to bladder or swell, but this is caused from an insufficient grinding of the Whiting and Bole with the Gum-water.* These Bladders, if not prevented or cured, will make your piece, when dried, to be full of holes, and so spoil its Beauty. The preventive part we have taught you: but to cure it, (if it is past prevention) you must when dry, wet a fine Rag, and with your Finger rub it over and over again, till the holes and cracks are choakt and stopt up; and then being perfectly dry, Rush it well till it is very smooth.

XII. In the *Japan*, which is raised for Garments, Rocks, *&c.* some parts are elevated and higher than others, as in *Pleats and Foldings of Garments*, those which seem to lye underneath, are always at the greater distance. In *Flowers*, those which are first and nearest the Eye, are highest; and those Leaves which lye first, are higher than those which lye behind them. So in *Rocks*, the first and nearest you must always rise higher, and swell beyond that which is almost hidden, or seems to lye behind.

XIII. *This*

XIII. *This Rule holds firm in all things of like Quality*, and therefore you must raise your Design according to Nature, to its due height, whether Figure, Tree, House, Flower, Fruit or Landskip; and being well dryed, with a little Gum-water, Vermilion and a Pencil, you must trace out the Lines for the Face, Hands, Foldings of Garments, Leaves of Plants, Seeds of Flowers, Fruits, Houses, Trees, Rocks, *&c.* in their proper Shape, according to those Lines which were drawn as Boundaries, for laying the Paste in its proper Figures.

XIV. Then you must have several Instruments; as, 1. A *bending Graver*, such as Engravers use. 2. Several *small Chizels*, the broadest not exceeding a quarter of an Inch; all the other proportionably less.

XV. *With these your Raised or Emboss Works must be cut, carved, cleared and scraped, in height, shape and proportion to your Pattern, or what is agreeable with Nature and the Design:* in this case, your Instruments must be exquisitly sharp, and the Hand of the Artist very easy and gentle, lest the Work breaks off in any place, to the spoiling of the Piece: lastly, smooth it with a Brush, which has been often used before, to make it fit for Painting, Varnishing, Japanning or Gilding.

III. *Another way to perform these Raised or Emboss Works.*

XVI. 1. Strike or trace out your Design, as well the inside as the outside of Faces, Necks, Hands, Legs, the chief Stroaks of the Foldings of Garments, Leaves of Plants, Flowers, Seeds, Fruits, Houses, Trees, Rocks, Birds, Beasts, *&c.*

XVII. 2. Take your Paste before made in *sect. 9.* yet somewhat thinner, and with it raise the lower parts of all or any of the Particulars afore-named, which require the least height or raising; and let it dry throughly.

XVIII. 3. Then take the thickest *Seed-lac Varnish*, and with a very small or fine Pencil dipt therein, varnish just the edges of your Raised-work, for this Reason, that as you raise the other parts of the Work higher, it may hinder the fresh wet Paste from incorporating with the dry, which would make the Work look ill.

X. 4. *This Work of Varnishing the Edges, you must do as often as you raise one part above another:* and still as your Work grows higher, your Paste must be made thicker,

and each part raised in order, beginning with the lowest and ending with the highest.

XX. 5. When all is dry, smooth it (if need require) with a Rush, to make it in a posture to receive your Colors and Metals, or what else you are pleased to put upon it.

XXI. 6. Your Metaline Colors being ready, mix them with Gum-water, and lay them on the Embosments and places where they ought to lye; which being through dry, burnish with a Burnisher (in *cap.* 1. *sect.* 18.) till it is bright, and shines with a good Lustre.

XXII. 7. This done, with your fine *Seed-lac Varnish* and a proper *Pencil*, go over all your Embosments twice or thrice; and then set it off or shadow it, as the Reason of the Design requires.

XXIII. 8. Grind no more Paste than you can use at once, lest it be dry before you use it a second time: but if it be dry, you must grind it again, and it will be as fit as before: it ought not to be made too weak; if it be, it must be strengthned with more Gum-water, which by many Tryals and Experiences you will at length fully find out; and also see, that it is possible to make a Paste so hard or stiff and tough, that a violent blow with a Hammer shall hardly break or bruise it.

IV. *To set off Raised or Embossed Works with Black.*

XXIV. Your Work being Varnished and Burnished, with Lamp-black mixt with a little Gum-water, (hardly enough to wet it, and incorporated with a Brush-pencil, with so much fair Water added to it as with a small well pointed Pencil will make it to run in fine black Stroaks) draw the Lineaments and Features of the Faces, Foldage of Garments, Veins of Leaves, Flowers and Seeds, with the black Hatchments of your Flowers, Bodies of Trees, *&c.*

XXV. And if you would have any Rocks speckled, first pass them over with the said Black; and when dry, give them two washes with the *Securing Varnish*; and lastly lay on the Speckles: but if the places you would speckle should be too slippery, so as that there should be a hazard of their sliding off; in this case, you must remove this greasy kind of Slipperyness by a soft and gentle rubbing with a *Tripoli* Cloth.

XXVI. This

XXVI. This way of setting off is more used than that of a Tracing-pencil or breathing on it; not only for Raised or Emboss Work, but for Flat-work too: for your piece being dry, stroak it once over with the *Securing Varnish* (in *cap.* 4. *sect.* 8.) then with a black-Lead-Pencil hatch and vein at pleasure, and the same do with other Metals and Colors besides Gold.

XXVII. *For instance: If a red Flower is to be set off with Silver*; first secure your Red with Varnish; which being dry, hatch and vein it with Silver: this Rule you must observe in all cases, where you intend to work one thing upon another, whether *Color* upon *Metal*, or *Metal* upon *Color*; or *Metal* sometimes upon *Metal*.

XXVIII. Your Work being thus adorned and set off, if it is flat or plain Work, make use of white *Polishing Varnish* (in *cap.* 4. *sect.* 10.) to secure it both as to Draught and Ground-work, which will endure a Polishing.

XXIX. But if it is for Emboss or Raised Work, then you must use the *Securing Varnish* (in *cap.* 4. *sect.* 8.) because Emboss-work will not bear a Polishing as the other will; but must only be secured and cleared up: but withal you may note, that this last named Varnish may be used either for *Plain* or *Emboss-work*, whereas the former is only fit for *flat Work*.

XXX. *In working with Gum-water, be careful that it be not too stiff of the Gum, for then it will quite spoil the beauty and lustre of the Metaline Colors*: but when you have sufficiently mixed them in the beginnig, if you find the mixture too strong of the *Gum*, you may afterward weaken it, only with fair Water: and therefore strengthen them only so much with *Gum*, as may cause them to stick close to the Work, and endure *Varnishing* without coming off.

V. *To manage Rock-Work.*

XXXI. These we formerly told you were to be done last of all, because they could not be well finished, till all the rest were compleated, except only some few scattered Plants, suppos'd to grow upon them, that they might not appear naked: yet not too many of them neither, lest their number should interrupt the Shadow, and confound the Sight.

XXXII. *If these Rocks are to be covered with Metaline Colors*, then lay *Gold*, *Silver* or *Copper* with your *Pencil*, in a full body, round the outward Streaks (which were traced with your *Pencil*) in breadth about a quarter of an Inch: but take care it be not too wet.

XXXIII. Then take a *large Goose Quil Pencil*, cut off its Point, making it flat, and blunt at the End; and with this touch or dab your Metal: after which do the like to the black or brown part of the *Rock*, that so it may be strewed with some of the Metal too, and by little and little continue it, till the whole is strewed over: but these *Speckles* should be thicker towards the Sides and Top, than in or near the Middle.

XXXIV. *Lastly, Other Metals, Artificial and Adulterate, may be laid on, according to these Directions*, which you may dispose on and Work, both with your Finger, and the *blunt Goose Quil Pencil* aforementioned, according as your Reason shall inform you.

CHAP. XXI.

Of Bantam Work.

I. AS the *Japan Work*, is both *Plain* and *Embossed*, and is wrought most in *Gold* and other *Metals*: so the *Bantam Work* is also *Plain* and *Carved*, and is wrought most of it in *Colors*, with a very small scattering of *Gold* here and there.

II. The Wood is prepared for this, as it is for the *Japan Work*, and the *Priming* with *Whiting* is the same: and for the *flat Work*, it is done in *Colors* mixt with *Gum-water*, as the nature of the design requires, the ordering of which Colors with the *Gum-water* we have formerly taught you.

III. *The Carved Work is performed thus.*

Your Cabinet, Table, Boxes, *&c.* let be made of Deal, or some other course Wood: this Prime with *Size and Whiting*, letting it dry; this must be so often repeated till your Priming is almost a quarter of an Inch thick, letting it dry between every time.

IV. *But*

IV. *But this you must note*, that your *Whiting and Size must be made thinner than for Japan Work*, but for that reason it must be done so much the oftner: for if it is too thick, it will not only lie rougher, and be apt to Crack, and fly off; but it will not so easily penetrate to the bottom of any Crack, nor go into every little Crevice, Notch and Hole, as it will certainly do, if it is pretty thin.

V. *Your Piece now Primed to its due thickness, and through dry*, is then to be Water plained, *viz.* to be rubb'd with a fine Rag, and a little fair Water; after which, being dry. *Rush* it as smooth as you can.

VI. *Then lay on your Black, and Varnish it up with a good Body*; and after 6 or 7 days time of drying, Polish it with *Tripoli*, Water and a fine Rag, rubbing it with an even, easie and gentle Hand.

VII. *This done, trace and draw out your design with Cinnabar and Gum-water*, in the very same manner in which you intend to Cut and Carve it, with all the circumstances and exactness Possible.

VIII. *Make your humane Figures, Birds, Beasts, Insects, Houses, Trees, Flowers, Rocks*, &c. *in their due Measures and Proportions*: The foldings of Garments, leaves of Trees and Plants, withal other things, draw them so, as if they were so to remain without the least Alteration.

IX. *Then having a sharp Graver, and other cutting Instrumen s, of differing Forms*, cut out your Work deep or shallow, as you think best, but never Carving deeper than the Whiting lies, for the Wood it self, ought not to be touched with the Graver.

X. *Leave also black Stroaks for the Drapery, and foldings of Garments, and for the distinguishing of one thing from another*, Carving where the white is, and leaving the black untouched, according as your Exemplar or Pattern may be, taking instructions also from a variety of *Bantam Pieces*, which differ vastly from those of *Japan*, in the very manner of the Daughts, as well as in their other performances and finishing.

XI. *Your Carved Work being cut out clean and smooth, and finished*, and your Colors well mixed, with fine and clean *Pencils* lay them into your Carved Work, as

Your

your Reason, and the Nature of the thing shall direct you.

XII. *The Colors being laid on and finished*, then lay the Gold on those places you design it for, which may be *Pouder Gold*, or *Brass Dust*, mixt with *Gum-water*; but rather *Leaf Gold*, because it not only looks Richest, but is that which the *Bantam Artists* always use.

XIII. *But it must be laid with something a stronger Gum-water*, and to be laid on with a Pencil, and whilst it is moist, your Gold is to be laid on, being first cut with a very sharp, smooth, edged Knife into little Pieces, either on your *Leather Cushion*, or on a piece of Leather straightly nailed to a Board.

XIV. *Take up the Gold with a little Cotton, and with the same Dab it close upon your Work*, so (if your Gum-water is strong) it will look Rich and Beautiful: otherwise (if weak) it will appear as it were Hungry and Starved when dry.

XV. *All this done, see you carefully clear up your black with Oil, but without touching your Colors, lest you should rub them off, or sully them*; for this is not secured as the *flat Bantam Work* is; if any wet should come to them, the Colors will be spoiled and come off. In this case, it is best to leave out the *Tarnishing Colors*, and only use such, as you may apply the *Securing Varnish* to, without loss of their Splendor and Beauty.

CHAP. XXII.

Of taking off Japan Patterns.

I. *YOUR black or other Colors being Varnished, then Polish, and make it fit for drawing:* but you must have your draught or design before you, in Paper, either drawn or printed.

II. *This Draught or Print*, let be rubbed all over the back side with Whiting or fine Chalk, wiping off all that Whiting or Chalk, which lies rough and dusty upon the Paper.

III. *Then*

III. *Then lay this Paper, Draught or Print, upon your varnisht Table or Box*, with the whited side next to it, and upon the very same place where you design the Draught should be made, and with a piece of small Wire, or a Needle fixed in a small Wooden Handle, round (not sharp Pointed) which is called a *Tracing Pencil*, go over, and Trace as much of the Print as you see convenient.

IV. *Take the most material and outward Stroaks with all the rest*, which you think will be hard and difficult to draw without the Pattern or Draught.

V. *Thus by the help of the Whiting or Chalk*, you will have the gross Fashion of your Print or Draught, and such other lines, which will be a direction to you, how to perform that which you would have done on your Table or Box.

VI. *Having thus finisht your Draught with Whiting*, if you draw in *Gold Size*, use *fine Cinnabar* mixt with *Gum-water*, and with a *small Pencil* dipt in it, go over all the lines made by the *Whiting*; for this will cause it, that it shall not easily come off, but you may work upon it with your *Gold Size* at pleasure.

VII. *If you work Metals or Colors in Gum-water*, then trace or draw over your design with *Gum-water*, *mixt with Gold or Brass Dust:* by either of these ways when it is dry and finished, *viz.* either in *Gum-water* or *Gold Size*, you may compleat and finish your Work.

CHAP. XXIII.

Of Gilding and Lackering in Oil.

I. *TO mix and lay on the Gold Size.*

First Prime the Piece with due priming in *cap. 2. sect. 23.* ℞ Then the best Gold Size, fat Oil, *ana.* so much of each as you think the piece may require: Grind them well upon a Porphyry, and put all into a Gally-pot. Dip a clean Brush into the Size, and pass over all the Piece very thinly, jobbing and striking the point

point of the Pencil into the hollow places of the Carved Work, so that no part may escape.

II. If *any place be untoucht with the Gold Size*, the Gold will not stick upon it, but it will be full of faults, and look very ill.

III. *Let it rest 24 hours or more, so as it may be but clammy enough to hold the Metals:* breath upon it, if your breath stays upon it like a mist, you may then lay on your Gold: or if it is so dry, that it does not discolor nor stick to your Finger, but is clammy, and not very willing to part with your Finger; it is then in a good Condition.

IV. *Should you Gild before the Size is dry enough*, it would as it were drown, and deprive your Gold of its Gloss and Lustre, and if you stay till the Size is too dry, you have then lost your opportunity, for the Gold will not stick.

V. *To lay on the Leaf Gold.*

Upon your Cushion (in *cap.* 1. *sect.* 13.) you are to cut the *Gold* and *Silver*, with a thin, broad, sharp, smooth edged Knife. Then take your *Pencil*, *Cotton*, or *Pallet*, (made of a *Squirrels* Tail) breath upon it, and therewith touch, and take up the *Gold*; lay it upon the place you intend, pressing it close with the said *Pencil* or *Cotton*.

VI. *Then cut some Leaves into small Pieces, to cover several other parts of your Work, which may have escaped Gilding:* and thus must you proceed till the whole is over-laid and finished: after 24 hours, with a fine large Hogs-hair Brush, jobb down, and press over the Work gently, that the Gold may be made to stick upon all the uneven and hollow parts of the Carving: then with fine soft shammy Leather, as it were, Polish and rub it over smoothly.

VII. *This being well done, your Gold will appear of an admirable Lustre*, and its beauty will be so durable, that tho' exposed to the Wind and Weather, it will not receive any damage for many Years.

VIII. *To Lacker in Oil, such things as are to be exposed to the Weather.*

You must observe the same method here, as in the former, excepting in this, that your *Priming* ought to be

whiter

whiter than the laſt, which is done by mixing a little *white Lead*, which has been Ground a long time with the former *Gold Size*.

IX. *Alſo your Silver Size ought not to be ſo dry as that of Gold, when the Leaves are laid on:* If theſe things be rightly obſerved, you cannot poſſibly Err in performing your Work.

X. *To Gild Carved Worked in Oil which is not to be expoſed to the open Air.*

Take Size, melt it, and put in ſo much Whiting as will only make it of a white Color: with this Size over your Frame once.

XI. *Then add more Whiting, till it is of a convenient Thickneſs:* and with this lay it over 3 or 4 times or more, as you find the Work requires it, letting it dry throughly between every time.

XII. *Being now dry, with a piece of* Fiſh Skin, *or* Dutch Ruſhes, *rub and ſmooth your Work:* after which, with a fine Rag, dipt in Water, Water plain it, rubbing it gently till it is very ſmooth, and ſo let it dry; and then Size it with ſtrong Size.

XIII. *When the Size is dryed, Lacker over your Piece twice, by a gentle heat*; and laying on your Gold Size, perform every thing, as is before directed.

CHAP. XXIV.

Of Gilding Wood with Burniſht Gold and Silver.

I. Take *Parchment Size* (in *cap.* 3. *ſect.* 8, 9.) and manage it as there directed, for the *Priming* or *Whiting* of your Piece, which repeat 7 or 8 times over, letting it dry between every time.

II. *But if it is a Carved Frame, and you intend Gilding of it*, then take yellow Oker, and grind it finely with Water, adding a little Weak Size to bind it: with this when warmed color over your Frame, and let it dry leiſurely.

III. *Take*

III. *To Gold Size your Piece.*

℞ Either of the Gold Sizes (in *cap.* 3. *sect.* 3, 7.) yet rather *the First* of them, melt it, making it Blood warm, but so as it may be somewhat thin; stir it well with a *fine Brush*, and therewith Size over your Piece twice, without touching the hollows, or deepest part of the Carving; because the yellow Color first laid on, is near in color to the *Gold*, and a fault in that kind will not so easily be discovered, because of the shadows.

IV. *After* 5 *or* 6 *hours drying*, try if your Gold will Burnish upon it, if not, alter your Gold Size, and do it over again.

V. *To lay on your Gold for Burnishing.*

Having fixt your Work almost upright in a little reclining Posture, that the Water may run off, and not settle in any of the Cavities; lay some *Leaves of Gold* on your *Cushion*, which hold in your left Hand with your *Pallet* and *Pencil*: have also a Bason of Water by you, and *dry Whiting*, to rub your Knife sometimes with, that the Gold may not stick to it.

VI. *Then with a Swans Quil Pencil, or a large one of Camels-hair, being dipt into the Bason of Water*, wet so much of your Work, as will take up 3 or 4 Leaves, begining at the lower end, ascending and Gilding upwards, laying on whole Leaves, or half Leaves, or lesser pieces as your Work requires; and your interest also, which is to lay them on without waste.

VII. *This done, wet such another part of your Work*, laying on your Gold Leaves, with your *Pencil*, *Cotton*, or *Pallet*, and gently pressing it close: and this method pursue till the whole Piece is finished.

VIII. *Now view over your Work, and see what parts have escaped your Pencil or Gilding:* In this case cut some *Leaves of Gold* into small Pieces, and with a *small Pencil*, wet the ungilded Parts, and apply the bits of Leaves as before directed: all this being done, let it stand 24 hours and no longer, and then come to burnishing of it.

IX. *To Burnish your Work.*

This is to be done with the *Burnisher*, (in *cap.* 1. *sect.* 18.) by rubbing it smoothly thereon, till it attains a Gloss: now having burnished so much of your Work as you design, leave the Ground of your Carving untoucht,

toucht, and ſome other parts which you ſhall think fit, which being rough in reſpect of the other, will ſet off and beautifie that which is Burniſhed.

X. *That which is not Burniſhed muſt be clothed or ſecured with Size, Seed-lac Varniſh,* or *Lacker,* if you would have it to be deep colored: but you ought to touch theſe parts only, and not that which is Burniſhed.

XI. *Then the Work muſt be ſet off with Lacker Varniſh, mixt with* Sanguis Draconis *and* Saffron, *or with* Ornatto: with which and a fine Pencil touch the hollowneſs of the Carving, hollow veins of Leaves, and foldings: if you do not think it deep enough, go over it again, with the aforeſaid *Lacker.*

XII. *To lay on your Silver Size.*

Take Silver Size new ground, and mixed with weak Size: warm it, and with a clear Pencil fit for the Work, Size it over once or twice: let it dry to a juſt Temper: and if your *Silver* will *Burniſh,* it is well: *if not,* you muſt Size it again, with ſome Alteration in the Size.

XIII. *Then wet your Work, and lay on your Leaf Silver, in the ſame manner as you laid on the Leaf Gold without the leaſt Alteration,* and to Burniſh it all over; if it be not froſty Weather, theſe things may be done, but if it is in time of hard Froſt, your Priming will be apt to Peel off, and the *Gold* and *Silver Size* will Freeze in laying on.

XIV. *Let your Parchment Size be ſomething ſtrong and new; for if ſtale it looſes its force:* nor grind any more *Gold* or *Silver Size,* than will ſerve the preſent Occaſion: *Laſtly,* keep your Work clean and free from Duſt, both before and after it is Gold Sized, and Gilded, otherwiſe in Burniſhing it will be full of ſcratches and look ill.

CHAP.

CHAP. XXV.

Of Gilding of Metals.

I. *TO prepare the Gold for this Work.*

℞ Leaf Gold, or Ducket Gold beaten very thin, and cut into little bits *q. v.* put it into a Gally-pot, and put ſo much *Quick-ſilver* to it, as will juſt cover it: ſtir them with a Stick, and make an *Amalgama:* which done, ſtrain them thro' a piece of *Shammy* Leather, ſqueezing the Leather hard with your Hand: that which remains behind in the Leather (and looks like *Silver*) is the *Gold Amalgamated*, and that which we muſt uſe in this deſign.

II. *To Gild Silver, Braſs, Copper, or Princes Metal.*

Firſt ſcrub the thing you would Gild with a *Wire Bruſh* and a little fair Water, and continue ſcrubbing and wetting it, till it is perfectly clean.

III. Take Quick-ſilver ʒj. put it into a little Viol, and drop into it 3, 4 or 5 drops of *Aqua-fortis:* with this mixture and a Rag, rub over your Metal, till it is every where as white as Silver.

IV. Now take your prepared or *Amalgamated Gold*, and with a little Knife, ſpread it over the whole Piece, not miſſing any part of it; and give it a heat over a Fire, to force the *Quick-ſilver* to evaporate or fly away, ſo will the *Gold* be left ſticking cloſe to the Piece.

V. But before you give it a through Heat, let it have 2 or 3 little Heats, that you may with a ſmall *Hair Bruſh* almoſt like that of a *Comb*, dab and ſpread your Gold, which you may the eaſier do, becauſe the warmth you give it, makes the *Quick-ſilver* the more ready to ſpread: after which give it the through Heat as aforeſaid.

VI. Take it from the Fire, and with a Hair ſcrub Bruſh, which has never touched *Quick-ſilver*, rub and cleanſe it, as you did in the beginning. Where Note, if there be any ſpot left ungilded, you muſt after it has been cleanſed with the *Wire Bruſh*, proceed again as aforeſaid.

VII. *If*

VII. *If you would have the Work more rich and lasting*, besmear it again with *Quick-silver* and *A. F.* and lay on the Gold again after the former Method: and this you may repeat so often, till your *Gold* lies as thick as your Nail upon the Metal to be Gilded.

VIII. *To heighen the Color, if you see convenient.*

℞ *Argal, Salt, Sulphur, ana q. v.* mix them, and put to them as much fair Water, as will cover the thing when put into it: boil them over the Fire, and having tyed your gilded piece to a String, put it into the boiling Liquor for a little space, viewing it every minute; and when it has obtained the Color which pleases you, put it immediately into cold Water and it is done.

IX. *Another way to heighten the color of your Gold.*

℞ Nitre, Sal-Armoniack, Sandiver, Verdigrise, white and green Vitriol, *ana*, grind them with white Wine Vinegar, which lay over all your Work, then lay it on a Fire, and give it a small Heat, that it may Smoak: and so take it off, and quench it in Urine.

X. *Another way to Gild Silver, Brass*, &c. First cleanse your Metal with *A. F.* then quicken your work with *Mercury*; then take of the afore *prepared Gold at Sect.* 1. and lay it on with a little Knife, spreading it every where, and do in all things, as in the other method.

XI. *To Silver over Brass or Copper, as Clock-makers do their Dial plates.* Having Leaf or burnt Silver in a readiness; put to it as much *A. F.* as will cover it: having stood an hour or two, decant off the *A. F.* as clean as may be: wash the Silver 3 or 4 times with fair Water, and then let it dry; *and then mix it with j. part of fine Argal to iij. parts of the Silver*, with a little fair Water.

XII. *Then when you make use of it, rub it on the work with a Cork, till it is silvered all over, and lies very fair:* after which dry it well with a Linnen Cloth, and having made it warm, wash it over 3 or 4 times with the best white Varnish (in *cap.* 4. *sect.* 1.) which will preserve it from *Tarnishing*, and other injuries of the Weather.

XIII. *To Gild Brass, Copper, Iron or Steel with Leaf Gold or Silver.*

If it is *Braſs* or *old Iron* cleanſe it very well with a *Wire Bruſh*; but if it is *new Iron* or *Steel*, having firſt made it very ſmooth, hatch your work all over very neatly with a *hatching Knife*, (which is a Knife with a ſhort Blade, and a long Handle.)

XIV. *Then give it an heat ſo as to make it look Blew on a Charcole Fire*; from whence take it, and lay on your *Gold* or *Silver*; and with a Blood-ſtone, or *Burniſher*, Burniſh it down a little: then give it the ſame heat again, and Burniſh it all over.

XV. *This work of Gilding, you may repeat* 6, 8 *or* 10 *times*; ſtill obſerving to give it the ſame heat, before you lay on your *Gold* or *Silver*, and then *Burniſh* it as afore-ſaid.

XVI. *To refine Silver.*

If you have ſome Silver which is courſe, and you are loth to looſe it, and are willing to make it ſerve for this Occaſion; firſt melt it in a Crucible, then caſt it into Water: when cold take it out and dry it; then *take Nitre* ℔ſs. *Antimony* ℥ſs. *mix and make a Pouder. Lay ſome of this Pouder and your Silver in a Crucible, S. S. S. cover it with another Crucible, luting them very cloſe together: being dry, put them into the Fire, which at firſt let be gentle, and encreaſe the heat Gradatim, to a melting Heat: after a while remove them to a cooler Place; and when cold, break the Crucible, and you will have the fine Silver at bottom; but the Scoria or Droſs in the upper part, which caſt away.* After the ſame manner *Gold* may be ſeparated from *Copper.*

CHAP.

CHAP. XXVI.

Of Gilding and Painting Mezzotinto *Prints.*

I. *These kinds of Prints, are to be preferred for this purpose, before those of Graving*; because that the former, if done with a neat and careful Hand, and on a good and fine grounded Print can scarcely be distinguisht from Limning: whereas, in all those that are Engraved, all the stroaks of the Graver are plainly Visible.

II. *Of* Mezzotinto *Prints, some have a course Ground; others have a fine and soft*: the first are Rough, and look as if they were the pricks of a Pen: whereas the other has soft and fine Shadows, like a piece neatly drawn with *Indian* Ink, or a black Lead Pencil.

III. *Before you chuse your Prints to work upon, see to the Paper they are Printed on*: if it is too thick, you may easily see it, by wetting a Corner of it with Water, or your Tongue; where, if it passes not thro' the Paper presently, 'tis not for your turn; but Paper which is thin and spungy, is that which you must chuse.

IV. *The Glass you make use of, ought to be true ground Looking-Glass, white, well Polisht, and not thick:* all other sorts of Glass whatever, will spoil your Work: if you Paint on Window Glass, your Colors will never appear Fair and Beautiful.

V. *The Frames for Glass Painting are commonly made of stained Pear-tree, either Square or Oval, with narrow mouldings for little Pieces*, which increase in breadth, according to the largeness of your Picture, and are made with *Rabbets*.

VI. *But the Frames for those Prints which you Paint without Glass, are called straining Frames*; you may have them Plain or Carved, Gilded, or Black, Flat, or with a half round; and flat without a *Rabbet* on the back side, half an Inch less than the Edge of the Cut, every way: and the reason of this is, because the Edge of the Cut

almoſt breaks the Paper in pieces round about; ſo that ſhould not the Frame come in, upon the Cut, every way beyond its Edge, it would hazard Tearing.

VII. *The next thing we come to is the painting of the Print, and this is done with Colors either Tranſparent or Opake.* The *Tranſparent Colors* are chiefly *Carmine*, *fine Lake*, *brown Pink*, *fine Smalt*, *diſtilled Verdigriſe* and *Ultramarine*,. The chief *Opake Colors* are *Flake white*, *yellow or Dutch Pink*, *light and brown Red*, *Terra-vert*, *Umber*, *Cologne Earth*, *Ivory-black*, *Blew-black*, *Vermillion*, *blew Bice*, *Maſticot yellow* and *pale*, *red Orpimennt*.

VIII. *Carmine* is the fineſt and moſt excellent Red, and is ſometimes ſold for 3 *l.* an ounce or more. *Fine Lake* is alſo an admirable Red, and is worth about 2 *s.* or 2 *s.* 6 *d.* an ounce. *Brown* or *Glazing Pink*, is a Color much about the price of fine Lake. *Fine Smalt* is a good Blew, and worth 4 or 5 *s.* a pound. *Diſtilled Verdigriſe* Ground may be had at the ſame rate with fine Lake, or brown Pink. *Ultramarine* is the richeſt Blew in the World, but of ſeveral Prices: the deepeſt and beſt is worth 6 or 7 *l.* an ounce; a mean ſort is ſold for 3 or 4 *l.* an ounce, and this is very good and fit for this Uſe: another ſort is worth 20 *s.* an ounce, which may ſerve for *Painting*, but is too courſe for *Glazing*.

IX. *The Opake Colors.*

Flake White, finely Ground with Nut Oil, is worth about 2 *s.* the pound. *White Lead* Ground in the ſame Oil, 12 *d.* a pound. *Yellow* or *Dutch Pink* when Ground, 3 *s.* 6 *d.* a pound. *Light* and *brown Red*, which are *yellow* and *brown Oker*, Burnt and Ground 4 *s.* the pound. *The ſame* finely Ground in Linſeed Oil, 3 *d.* an ounce. *Terra-vert* is but now and then uſed in this Painting, but much in all others. *Umber*, *Cologne Earth*, *Ivory-black*, and *Blew-black* when Ground, 3 *d.* an ounce. *Vermillion* finely Ground is now worth 10 *s.* a pound. *Blew Bice* only uſeful for making green Colors, 4*d.* or 6*d.* an ounce. *Maſticot*, the fineſt and free from Grit, which is of the brighteſt Color is beſt, and is worth 2 *s.* an ounce. *Red Orpiment*, which muſt be mixed with drying Oil, 2 *d.* an ounce.

X. *All*

X. *All the transparent Colors muſt be Ground with Nut Oil*: ſee *cap.* 2. *ſect.* 36. *Opake Colors* are ground moſtly with *Gum-water*, ſome with *Gold Size*, and ſome with *Linſeed Oil* and *drying Oil*.

XI. *To prepare your Prints without Glaſs or ſtraining Frames.*

Firſt ſteep your Print in warm Water flat ways, for 4 or 5 hours or more, if the Paper be thick, when it is ſufficiently ſteeped, lay it ſmooth on a wet Table, with the Print ſide downwards, and rub it carefully and lightly with a bit of *Spunge*, rubbing it off, and peeling it ſo long, till the Print appears tranſparent on the back-ſide: this done, with common Paſte do the back of your Frame, and Paſte your Print upon it whilſt it is wet.

XII. *Let it now dry, and then Varniſh it on both ſides, 4 or 5 times with Maſtich or Turpentine Varniſh*, till it is ſo tranſparent, that you may ſee the Picture as plain on the back-ſide, as on the fore-ſide.

XIII. *To Varniſh, Poliſh, and finiſh Pictures not laid upon Glaſs.*

They are done as thoſe on Glaſs, but if you have a mind to adorn, Embroider, Fringe, or the like, with *Gold* or *Silver*, touch then the fore-ſide of your Picture with *Shell Gold* in *Gum-water*, or elſe after you have Varniſht it 2 or 3 times with the *beſt white Varniſh*, or ſome other; take the *beſt Gold Size*, with which hatch, and lay it over with *Gold Duſt*: and with Judgment touch and heighten all the ſtrongeſt lights, and deepen your ſhadows too, on the fore-ſide.

XIV. *This gives ſo much life to your Work, that Artiſts themſelves have ſometimes been deceived, and took it for a piece of real Painting.*

If now you would Varniſh and Poliſh, any of theſe kinds of Prints, lay on the Colors fine and ſoft, and very even on the back-ſide, and after a Weeks time Varniſh them.

XV. *As to the diſpoſing and laying on of Colors, it is the part of a Limners work to do that, and therefore is not our work to teach here:* but if you would be fully inſtructed in the method of doing it, have recourſe to *Lib.* 2. *Cap.* 25, 26, 27, 28. where you cannot miſs of all the directions

rections which are neceſſary for this purpoſe: ſee alſo, *Cap.* 27. *Sect.* 8, *ad* 31. following.

XVI. *To Varniſh theſe Prints.*

Take the *beſt white Varniſh* (in *cap.* 4. *ſect.* 1.) Maſtich Varniſh (in *cap.* 4. *ſect.* 15.) *ana:* mix them together, and with a fine *Camels-hair Bruſh*, Varniſh over your piece 4 or 5 times carefully by the Fire, as is formerly taught, and you will find it to have a very good and firm Gloſs.

XVII. *But if you would Poliſh them after Varniſhing*, you muſt uſe only the *beſt white Varniſh*, without any *Maſtich Varniſh* mixt with it, and therewith waſh over your Picture or Print, 5 or 6 times, directly obſerving all the methods for *Japanning:* after 4 or 5 days, lay the Picture on the Cuſhion, on which you cut your *Leaf Gold*, and with *Tripoli* and Water Poliſh it, and then clear it up as you do *white Japan.*

CHAP. XXVII.

Of laying Prints upon Glaſs.

I. *TO prepare the Prints, whether Mezzotinto or Engraved.*

Steep your Prints flat-ways in warm Water 4 or 5 hours, or more if the Paper is thick; then with a thin pliable Knife ſpread *Venice* Turpentine thin and even over the Glaſs; and with your Fingers dab it all over, that it may appear rough.

II. *Afterwards take the Print out of the Water*, lay it on a clean Napkin very ſmooth, and with another Napkin preſs every part of it lightly to ſuck and drink up the Water.

III. *This done, lay the Print on the Glaſs by degrees, beginning at one end*, ſtroaking outwards that part which is juſt faſtning to the Glaſs, that no Wind or Water may lye between it and the Print, and which you muſt be always careful to ſtroak out.

IV. *Then wet the back ſide of the Print, and with a bit of Spunge*

Spunge or your Finger rub it lightly over, to rowl off the Paper by degrees; but carefully avoid rubbing it into holes, eſpecially in the Lights which are moſt tender.

V. *When you have peeled it ſo long, till the Print appears tranſparent on the backſide,* let it dry for 2 hours; after which Varniſh it over with *Maſtich Varniſh* (in *cap.* 4. *ſect.* 15.) or *Turpentine Varniſh* (in *cap.* 4. *ſect.* 14.) 4 or 5 times, or ſo often till you may ſee clearly thro' it, and after 24 hours you may work or paint on it.

VI. *Another way to do the ſame.*

Soak the Print in Water, and dry it with Cloths as aforeſaid; and ſpread the Glaſs with Oil of Maſtich and ſome Turpentine, or with *Maſtich Varniſh* (in *cap.* 4. *ſect.* 15.)

VII. *Then lay on the Print upon the Glaſs exactly as before; and when it is almoſt dry, roul or rub off all the Paper, leaving only the Shadow or Figure behind:* you may bruſh it off with a Bruſh till you ſee none but the inky and ſhadowed part remains, then Varniſh it over with *Maſtich Varniſh*; which keep to dry, and from Duſt, till you begin to Paint it.

I. *To Paint Mezzotinto or Engraved Landskip.*

VIII. Whether in Landskip or other Prints, the firſt thing to be done in this Work, is to *Glaze* all thoſe places which require it: but do your Work ſitting, not ſtanding, becauſe you will the more ſteadily move the Hand and Pencil: beſides, you ought then to have a Table Eaſel, almoſt like to a Reading Desk, ſaving that whereas there is a Pannel or back Board for the Book, here the Painting Desk is all open, only with 3 or 4 Wyres to keep the Picture from falling through, and a narrow Ledge at bottom to ſupport it, and little holes made equally diſtant on both ſides thereof, as in Painters Eaſels, that by Pegs or Pins, and a Ledge laid upon them, you may raiſe your Picture higher or lower as beſt agrees with your Conveniency: lay alſo a Sheet of pure white Paper behind the Picture on the Table, and you'll find it better for your Purpoſe; than placed againſt the Window.

IX. *If you would have your Glazing to lye thin and dry quickly, mix Varniſh when you lay it on the Pictures, and in 4 or 5 hours time they will be fit for to receive other Colors:*

and in *Landskips* you should first Glaze the neareſt and great Trees, grounding them well with brown Pink; but if you would have them greener, add diſtilled Verdigriſe.

X. *Trees which you would have of a lively and beautiful Green, as alſo Leaves and Weeds,* muſt be Glazed with *Dutch* Pink and diſtilled Verdigriſe: but the Trees farther off with Verdigriſe alone.

XI. *Hills, Mountains and Trees at the greateſt diſtance of all* are to be Glazed with fine Smalt, a little Lake and Verdigriſe, all thinly mixt with Varniſh.

XII. *For the Sky, take Ultra-marine,* or for want of it, fine Smalt: mix it thin with Varniſh, and Glaze it over 2 or 3 times with a clean large Pencil, and a very ſwift Stroak, for if you are tedious, 'twill dry ſo faſt, that you cannot poſſibly lay it even.

XIII. *If your Landskip is furniſhed with Figures, Buildings, Rocks, Ruins,* &c. *they require finiſhing firſt of all, before any thing elſe is done:* the Mixture of Colors for theſe things conſiſts chiefly of *Blacks, Whites* and *Yellow,* with ſometimes a little *Red:* but the Mixture, Compoſition and Proportions of them muſt always be left to the Experience and Practice of the Artiſt, with this Conſideration, that all the Colors for this kind of Painting, ought to be very light.

XIV. *Now, to finiſh the Trees, Ground and Sky, with the reſt of the Picture,* begin as before with the neareſt or greateſt Trees: and with yellow Pink and white, Paint over the lighteſt Leaves: but with a darker color of Pink, and a little Smalt, go cleverly over the darkeſt and outward Leaves with a ſmall Pencil dipt in Varniſh.

XV. *Theſe Trees you would have beautiful, Paint with a Mixture of yellow Maſticot, White and Verdigriſe:* the darker parts with *Pink, Verdigriſe* and *White;* as alſo thoſe Trees which you Glazed with Verdigriſe only, they being mixed very light with White.

XVI. *But to finiſh the Sky and Foreskip, if any Clouds appear, touch them with Verniſh and light Color, made of White, yellow Oker and Lake:* and with theſe likewiſe touch the lighteſt parts of Hills and Towns, at remoteſt diſtances: mix alſo Smalt and White as light as you can to Paint over the Sky: and to theſe add a Tincture of Lake,

Lake, to ſhadow over the darkeſt Clouds, letting all your Colors lye thin and even.

XVII. *If you would have the Picture look more lively*, ſet it againſt the Light or on the Eaſel, and tho' it is Painted all over, yet you will perceive the Lights and Shadows through it; if not, what was before Painted will direct you; your Skie and Foreſight then are to be Limned with the ſame, but lighter Colors than the former, and every part beſides reſpectively.

II. *To Paint a Humane Body; and firſt the Face.*

XVIII. Glaze and touch the deep Shadows thinly with Lake, brown Pink and Varniſh; and the white Speck and black Ball of the Eye, as the Print ſhall direct you: alſo the round white Ball of a convenient color. Make the Lips of a fine Red with Carmine or red Lake: the dark ſide of the Face ſhadow with Vermilion, yellow Pink and white. Give ſome touches on the ſtrongeſt Lights of the Face, as top of the Noſe, Forehead, by the Eyes, Mouth and Chin, with a Color made of white, pale Maſticot, or yellow Oker, and a little Vermillion, mixt as you ſhall ſee fit. Then mix it a a little darker, and lay it all over the Face not painted before; but the Mouth and Cheeks make ſomewhat redder. Then with a fine clean Pencil, a little worm Hatch, and ſweeten all your Colors and Shadows, cleanſing the Pencil as oft as it requires. If any part is too pale, you may help it whilſt your work is moiſt.

XIX. *Now here is to be noted, that you muſt uſe no Varniſh in painting of fleſh Colors, except what is uſed in Glazing the Shaddows*; for ſhould you mix *Varniſh* with them, you will meet with this inconvenience, that the Colors will dry ſo faſt, that you cannot be able to ſweeten the Shadows with the Fleſh.

XX. *A ſwarthy Complexion.*

Mix the Fleſh color with white, yellow or brown Oker, and light Red, with Shadows fitting. The like obſerve in Painting Necks, Shoulders, Breaſts and naked Bodies, as in the Face. When any of them are dry, you may go over with them again, by which ſecond Operation, you abſolutely mix your Colors to your deſire. Let your Hand be ſteady, and let not your Pencil traverſe or go over upon Lines of a differing Color.

XXI. *For*

XXI. *For the Hair.*

Uſe not Varniſh nor Colors near ſo dark as the Life, for the Print will darken it; for black Hair, mix white, black, red Oker, with a touch of Lake or light Red, all which produce an Aſh-color, and the Hair being colored with it, will repreſent a natural Black. To make the Curles ſhew ſtronger, touch the lighteſt parts with a lighter Color, and the darkeſt with the contrary, all which may be ſeen through, if not laid too thick.

III. *For Drapery.*

If the Color is broken, take care of its mixture, ſo as to make 3 degrees of the ſaid Color; one the very Color, another more Light, and the third Darker, which is for the darkeſt Folds, as the lighteſt is for the lighteſt parts; and the Color between both, for the other parts of the Garment. Embroidery or Fringes are done with Shell, or poudred Gold or Silver. Mix your Metals with Gum-water, and with a fine Pencil Hatch, or Embroider your Flowers, and touch the Fringes or what elſe you deſire, before you either Glaze or Paint the Drapery deſigned.

XXIII. *Changeable Drapery.*

If you would have the ground Purple, and the lights yellow; take a fine Pencil dipt in Varniſh, and with yellow Maſticot, touch thinly all the lighteſt part of the Folds, and if need be repeat it, for your Color muſt be very thin with Varniſh: when dry, glaze it over with Lake and Ultramarine, or Smalt, with Varniſh, once or twice, letting it dry. Then mix 3 degrees of a purple Color, of Lake, Smalt, and White, and lay them on, as directed in the laſt Section.

XXIV. *Yellow Drapery.*

For the lighteſt Folds, mix yellow Oker, and White: and brown Oker for the Shadows; or Umber, if you would have it darker: but do the other Folds with yellow Oker; or with white mixt with yellow and brown Pink.

XXV. *The moſt beautiful Yellow.*

Glaze your Drapery, or what you would have look pleaſant with brown Pink, once or twice, and the darkeſt parts oftner: being dryed, touch the lighteſt Folds

Folds with pale Maſticot, then with yellow Maſticot; and if any part requires a darker Color, with yellow or brown Pink, and a little Umber: when dry, Paint all with white except the Shadows.

XXVI. *The beſt Blew.*

Mix with thick Nut Oil Ultramarine: or, if you cannot wait the drying, inſtead of Nut Oil, uſe Varniſh, and glaze the Garment 3 or 4 times over, letting it dry between every time: when dry, mix three degrees of Smalt and White, very light, and with the cleareſt white, do the lighteſt Folds, and the reſt as the reaſon requires. If Ultramarine be too dear, you may by the ſame method Glaze with fine Smalt, and Varniſh it as often as the former, and Paint it with White and Smalt. An ordinary Blew, is made with White and Smalt, mixt in ſeveral degrees, but without Glazing.

XXVII. *Purple without Glazing.*

Make a mixture of Lake, Smalt, and White, with which perform your Drapery: heightning and darkning the Folds, as before directed.

XXVIII. *Purple Drapery, Painted and Glazed.*

Let it be thin Glazed once, with Carmine or Lake; and when dry, Paint it every where with Smalt and White, lighter or darker as you deſire; letting ſtill the lighteſt Folds, have ſtill a Color more light than the other Parts. On the contrary you may have a Purple by Glazing your Figure over with Ultramarine or Smalt, and Painting it with Lake and White.

XXIX. *Ordinary Red without Glazing.*

Paint the ſtrongeſt Lights with White mixt with Vermillion; but the dark Shadows, with a dark or light Red, and the reſt with Vermillion: for the lighteſt Folds mix light Red and White: for dark Folds, brown Red: for the other Parts light Red only.

XXX. *Another Red, almoſt as good as the fineſt.*

Grind red Lake finely in Oil, temper it well with drying Oil and Varniſh, and with this Glaze over your Garments 2 or 3 times; and when dry, Paint the lighteſt with White; the darkeſt with light or brown Red; and the reſt of the Drapery with light Red only.

XXXI. *The*

XXXI. *The fineſt of all Reds.*

Take Carmine and mix it with Varniſh alone, with which once Glaze over your Garment, and if you would have it very beautiful, two hours after do the ſame again: when dry, Paint all (except the dark Shadows which ſhould have Red) with Vermillion and White, or with Vermillion only. If you can (when dry) ſee thro' the Colors, touch the lighteſt Folds over with clear Whites, and they will appear yet more Beautiful.

APPENDIX.

CHAP. XXVIII.

Of making Sealing Wax and Glews.

I. *TO make an ordinary Red ſoft Sealing Wax.*

℞ Common Bees Wax, ℔j. Turpentine, ʒiij. Oil Olive, ʒj. melt all theſe together, then add there to red Lead, ʒiij. boil a little, and ſtir till almoſt Cold: caſt it into fair Water, and make it up into Rouls or Cakes.

II. *The beſt Red ſoft Wax.*

℞ White Bees Wax, ℔j. *Chio* Turpentine, ʒiij. Oil Olive, ʒj. mix and melt: then add pure Vermillion in fine Pouder, well Ground *q. ſ.* or ʒj. mix and boil a little, ſtir till almoſt Cold, caſt it into cold Water, and then make it up into Rouls or Cakes.

III. *To make Green ſoft Wax.*

℞ Bees Wax. ℔j. Turpentine, ʒiij. Oil Olive, ʒj. mix and melt: then add fine Verdigriſe, ʒj. mix and make the Wax up as the former.

IV. *To make Yellow ſoft Wax.*

℞ Yellow Bees Wax, ℔j, Turpentine, ʒiij. Oil Olive, ʒj. mix and melt: then add Cambogia in fine Pouder,

Pouder, ʒij. Auripigment finely ground, ʒj. mix and make the Wax as before.

V. *To make Black ſoft Wax.*

℞ Bees Wax, ℔j. Turpentine, ʒiij. Oil Olive, ʒj. mix and melt them together: to which add black Earth, or Lamp-black, or Ivory-black finely ground, ʒj. mix, *&c.*

VI. *To make Perfumed ſoft Wax.*

This is done by mixing with ʒxx. of any of the former Compoſitions, Oil of *Rhodium*, ℥j. Musk in fine Pouder, ϑj. *Civet*, ϑſs. mix them well.

VII. *After the ſame manner you may make ſoft Wax of all Colors*, having what Scent you pleaſe, by mixing the perfume intended either with the Oil Olive before Hand; or elſe by working it into the Compoſition of the Wax, after it is made.

VIII. *To make fine Red hard Sealing Wax.*

℞ Pure fine Shell-Lac, melt it in an Earthen Veſſel; and put into it a ſufficient quantity of the Color you deſign your Wax to be of; to every ℔j. of Gum-Lac, put of purely fine ground Vermillion, ʒiij. to ʒiiij. melt, ſtir, and mix them well over the Fire: then take it off, and when it is of a fit heat, make it up into Rolls or Sticks: *upon which you may ſet a Gloſs by gently heating them over a naked Char-cole Fire, and rubbing them with a cloth till they are cold.*

IX. *To make fine hard Sealing Wax of other Colors.*

Blew Sealing Wax, is made after the ſame manner, and in the ſame proportions, with Ultramarine, or fine blew Smalt. *Green Sealing Wax*, with fine Verdigriſe. *Yellow Sealing Wax*, with finely ground Auripigmentum, or yellow Maſticot. *Purple Sealing Wax*, with Vermillion mixt with Ivory-black, or Lamp-black. *Black Sealing Wax*, with Ivory-black.

X. *To make courſe hard Sealing Wax.*

℞ Shell-Lac, ʒxij. Roſin, ʒvj. fine Vermillion, ʒvijſs. melt and mix them together, and when in a due heat make it up into Sticks or Rouls. Upon which you may ſet a Gloſs as directed in *ſect.* 8. aforegoing.

XI. *To make mouth Glew.*

Diſſolve *Iſing-glaſs* in fair Water, in a gentle *B. M.* then ſtrain it thro' a wide Hair Sieve whilſt it is hot, upon

upon another course, and close Hair Sieve ; when it is cold it will be thick like Gelly. Cut it into long handsome Pieces, which put on a String, so they touch not one another, and hang them in the Sun, till they are dry. You may give it a fine taste and smell by mixing sweet and odoriferous things therewith.

XII. *A strong Glew for Pipes and Aquæducts.*

Take Tobacco Pipe Clay, dry and make it into Powder : mix with it good store of short Flocks, and beat it up with Linseed Oil to a stiff Paste, like kneaded Dough. This makes a long and lasting Cement for Pipes and Aquæducts: and being put upon Pipes (though long a drying) is very stanch and lasting.

XIII. *To make a very strong Glew.*

Soak the finest *Ichthyocolla* or *Ising-glass* 24 hours in Brandy, then boil all very gently together, continually stirring of it, that it burns not, so long till it becomes one liquor or body (save some Strings not dissolvable) which strain whilst hot, thro' a course Linnen Cloth, into a Vessel where it may be kept close stopt. A gentle heat will melt this Glew into a transparent Liquor, with which you may Glew things so strongly together, that they will break rather in any other Part, than in the place glewed. *This much exceeds common Glew.*

XIV. *To make the best and strongest Glew, for Glewing the Joints of Boards.*

℞ Scummed Milk which has stood so long, that no more Cream will arise from it : Scum it very clean, and set it over the Fire in a Leaden Pot, letting it boil a little ; and if any Cream arise take it off. Then put into it a sufficient quantity of Joyners Glew cut into small bits, which will soon melt : boil it to a good body, that it may be neither too thick, nor too thin, (for in this boiling lies much of the Art ;) take it from the Fire, and keep it for use, as other Glew.

XV. *This Glew binds beyond belief, and will not be subject to resolve with any ordinary moisture of the Weather :* and the reason is because the *Curdy Part* of the Milk, freed from its Oil, is joined with the *Glew.* Now you must take care, that it burns not to the sides of the

the Pot, for then it will be deprived of its ſtrength: To prevent which, (both in its firſt making, and in your after melting of it) you had beſt both to make and melt it in *B. M.* or a boiling Veſſel of Water, ſo will you prevent burning, and by thoſe means boil it more ſafely to what body you pleaſe, without danger of hurting the Glew.

Libri Undecimi & Ultimi:

FINIS.

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DR. SALMON's FAMILY PILLS, *prepared and made by himself at his House near* Black-Fryers Stairs, London.

The Price of each Box (containing 12 *Pills, being* 2, 3, *or* 4 *Doses) is* 1 *Shilling, with a Printed Paper of Directions.*

I. *These* Family Pills *are peculiar for the Cure of the Scurvy,* Dropsy, *and* Gout. *They Cure the* Scurvy, *(the chief Reigning Disease in this Kingdom) when it is grown so bad, as to become Scandalous, so that many People think it to be some ill Disease.*

II. *For the Scurvy often causes great pains in the Head, Nose, Shoulders, Arms, Legs, and Bones, with other pains all over the whole Body: It causes also Dulness and Heaviness, with rediſh or blueish Spots, and breakings out in the Skin, with Spots, Stains, Pimples, Pushes, Boils, Scabs, Scurff and Morphew, scattered up and down in many places.*

III. *The Scurvy also causes a bad Stomach, and sometimes loss of Appetite, looseness and soreness of Teeth, Throat and Mouth, weakness in the Back and Loins, with a general weakness and faintness all over the whole Body, insomuch, that at last it gets into the Bones, and infects the very Marrow of them. This Cruel Disease these* Family Pills *Cure at a few times taking.*

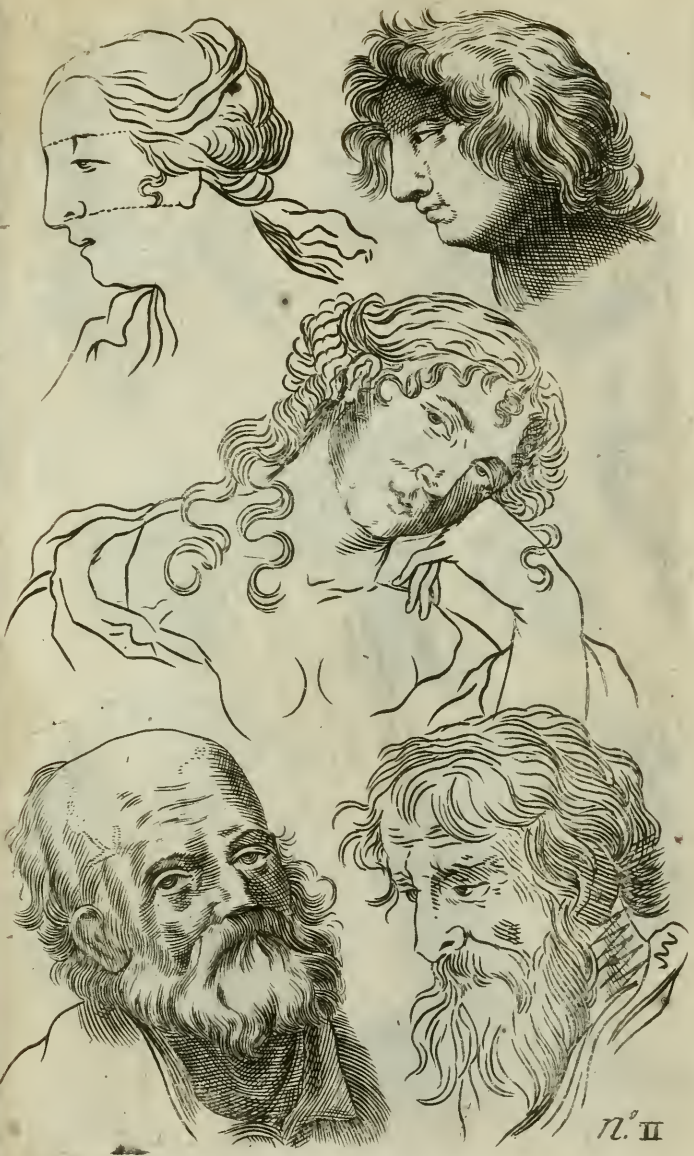
IV. *They Cure after an admirable manner the* Dropsy *and* Gout, *taking away the Water in one, and the Pain in the other, tho' never so great, beyond expectation, giving present Ease, Relief and Comfort: They work gently by Stool and Urine, (rarely by Vomit, unless the Stomach be very foul) curing thereby most curable Diseases, even when the Patient has been given over by others as uncurable,*

V. *They kill all sorts of* Worms *in Old or Young; and utterly root out the* King's-Evil *tho' of many Years standing: They excellently Cure Wind, Vapours, Fits of the Mother, Cloggings, Stuffings, Gnawings, and illness at Stomach, Jaundice, Lingring Disease, Melancholy, Catarrhs, Vomiting, Surfeits, and restore in deep Consumptions, where are Coughs, Wheezings, Hoarseness, and faint Sweats, with loss of Complexion.*

VI. *They Cure the Cachexia in Virgins, Greensickness, Head-ach, Lethargy, Megrim, Vertigo or Giddiness, stoppage of the Courses in Women, Rickets in Children, Fluxes of the Bowels, dimness of Sight, pain in the Ears, difficulty of Hearing, Rheums, Stinking Breath, the Sciatica or Hip Gout, carrying off all salt, sharp and evil Humors.*

VII. *They cleanse and cure a Gonorrhea, are good in the foul Disease, with all its Symptoms, being duly taken for some time: They quicken the Senses, clear the Sight, add a good Colour to the Face, and make the Body able to withstand Diseases; being of a Friendly quality, and performing all their operations as nature her self requires, with much safety and ease, and without Griping or making Sick, being fitted for all Persons of what Age, Sex, or Constitution soever.*

N.° 1

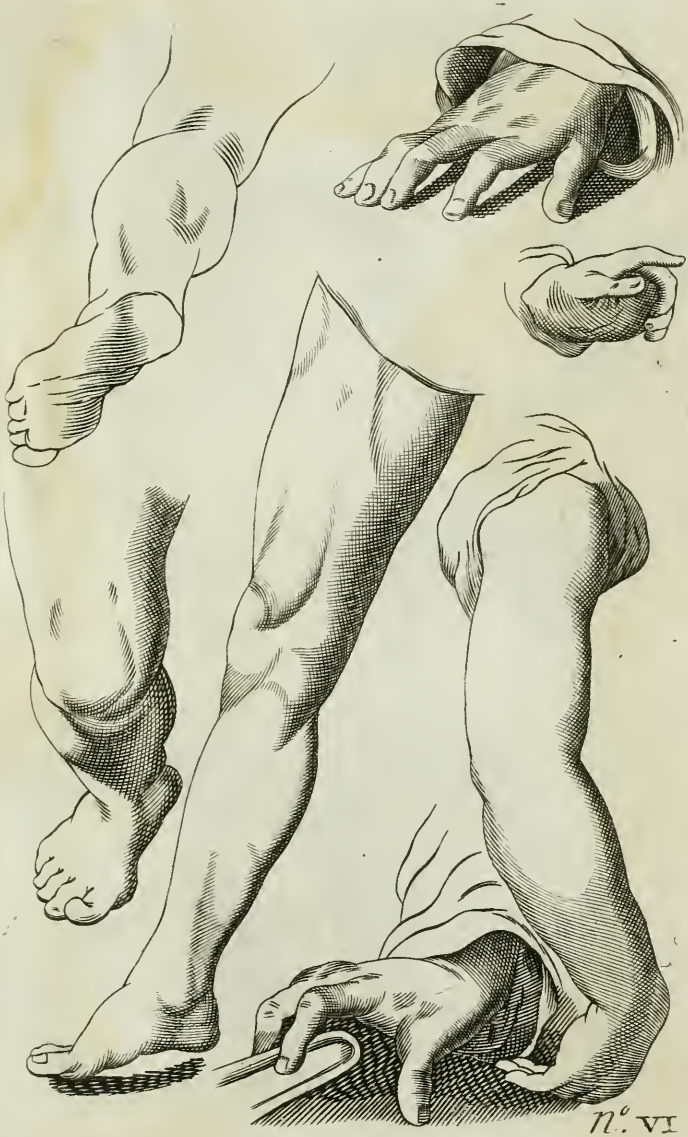


N.° II

N.º III

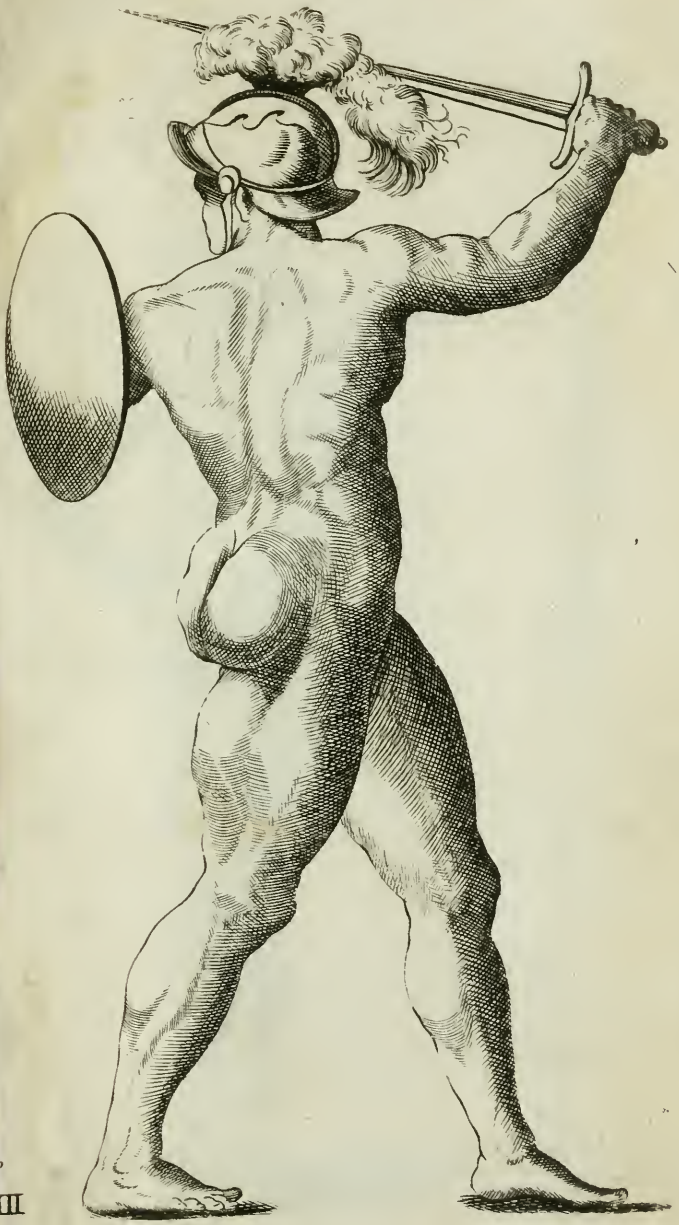
N.° IV

n.° V



N.° VI

II.° VII



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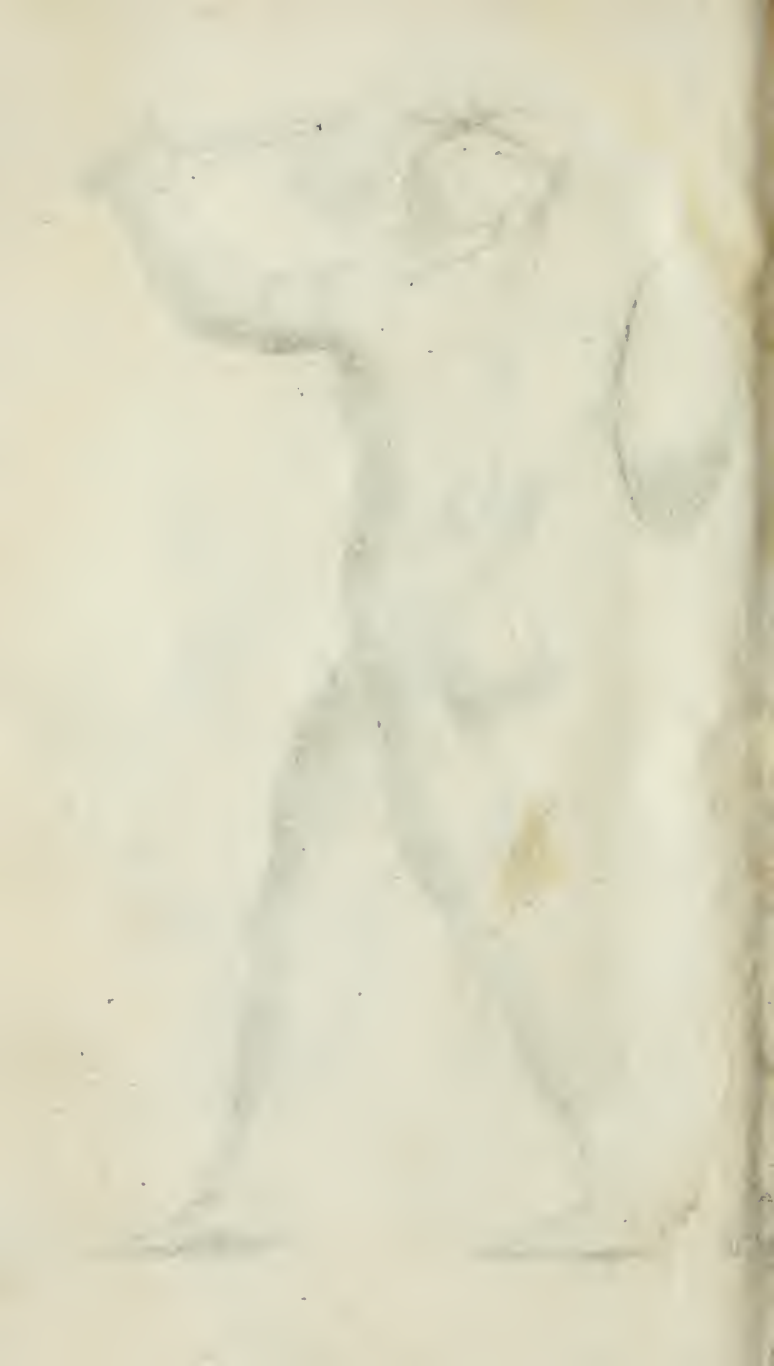
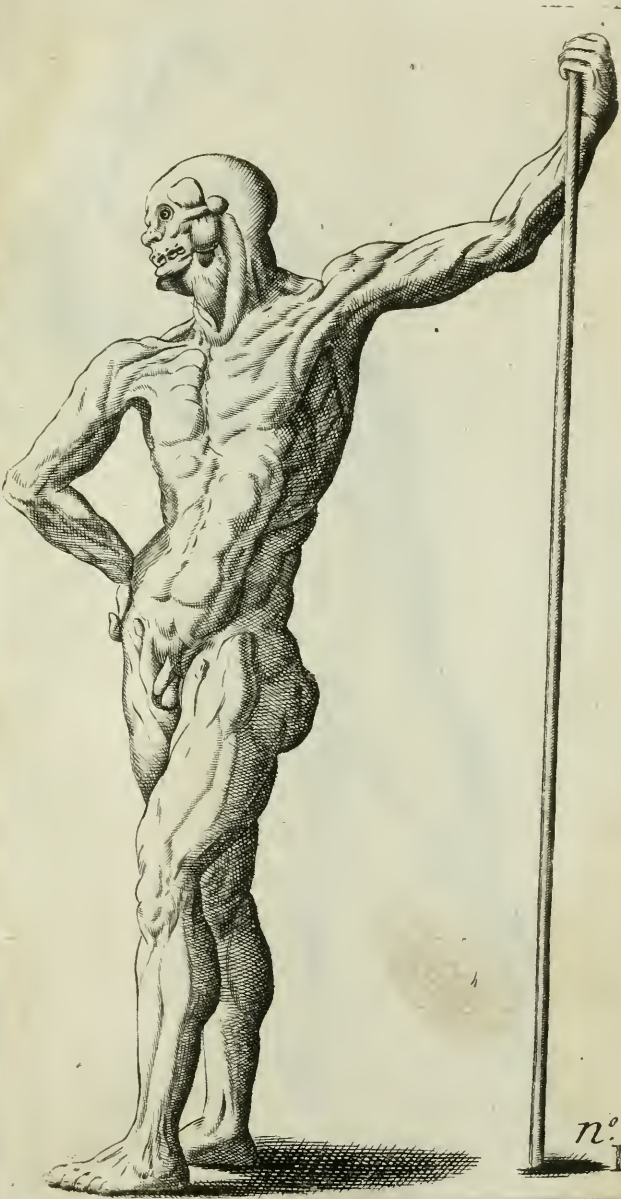




n.° IX

n.° X

N.° XI

n°. XII

N.° XIII

N.° XIII

n.º XV

TAV. N.° II

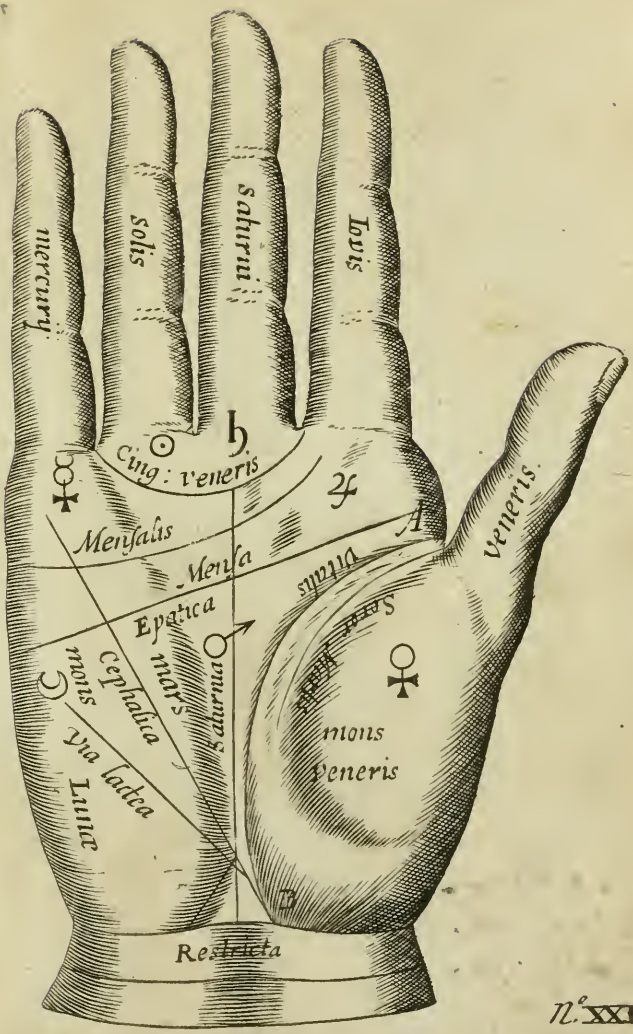
ΠΛΑΧ. 21

N.°
XVIII

N.º XIX

n.° XX

N.° XXI



N.° XXII.

Iobi 37. 7.

Qui in manu omnium hominum signa posuit, vt cognoscerent opera ejus singuli.

Jovis.
Saturni.
Solis.
Mercury.
Veneris.
Anni
Anni
Restricta
A
B

N.° XXIII

This Book is of an Exceeding