

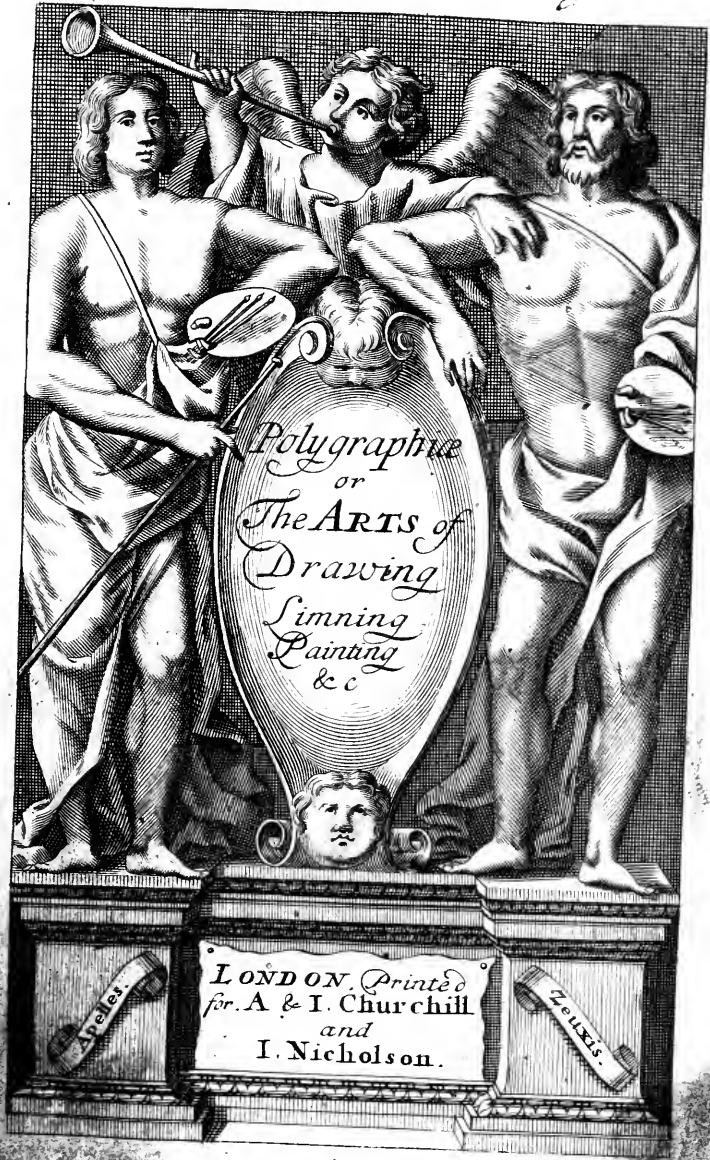


*M. J. Gucht. Sculp.*

GUILLIELMUS SALMON;  
*& Medicinæ Professor.*

Lib: Gulielmi Mofey

650



*Polygraphie*  
or  
*The ARTS of*  
*Drawing*  
*Limning*  
*Painting*  
&c

LONDON, Printed  
for A & I. Churchill  
and  
I. Nicholson.

Apelles

Zeuxis



# POLYGRAPHIC:

OR,

*The Arts of Drawing, Engraving,  
Etching, Limning, Painting, Ver-  
nishing, Japaning, Gilding, &c.*

In Two Volumes.

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- III. *Of Painting, Washing, Coloring, Gilding.*
- IV. *Of the Original, Advancement and Perfection of Paint-  
ing, 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.*
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- X. *Of Staining and Painting Glass, Enamel and Gems.*
- XI. *Of Vernishing, Japaning, and Gilding.*

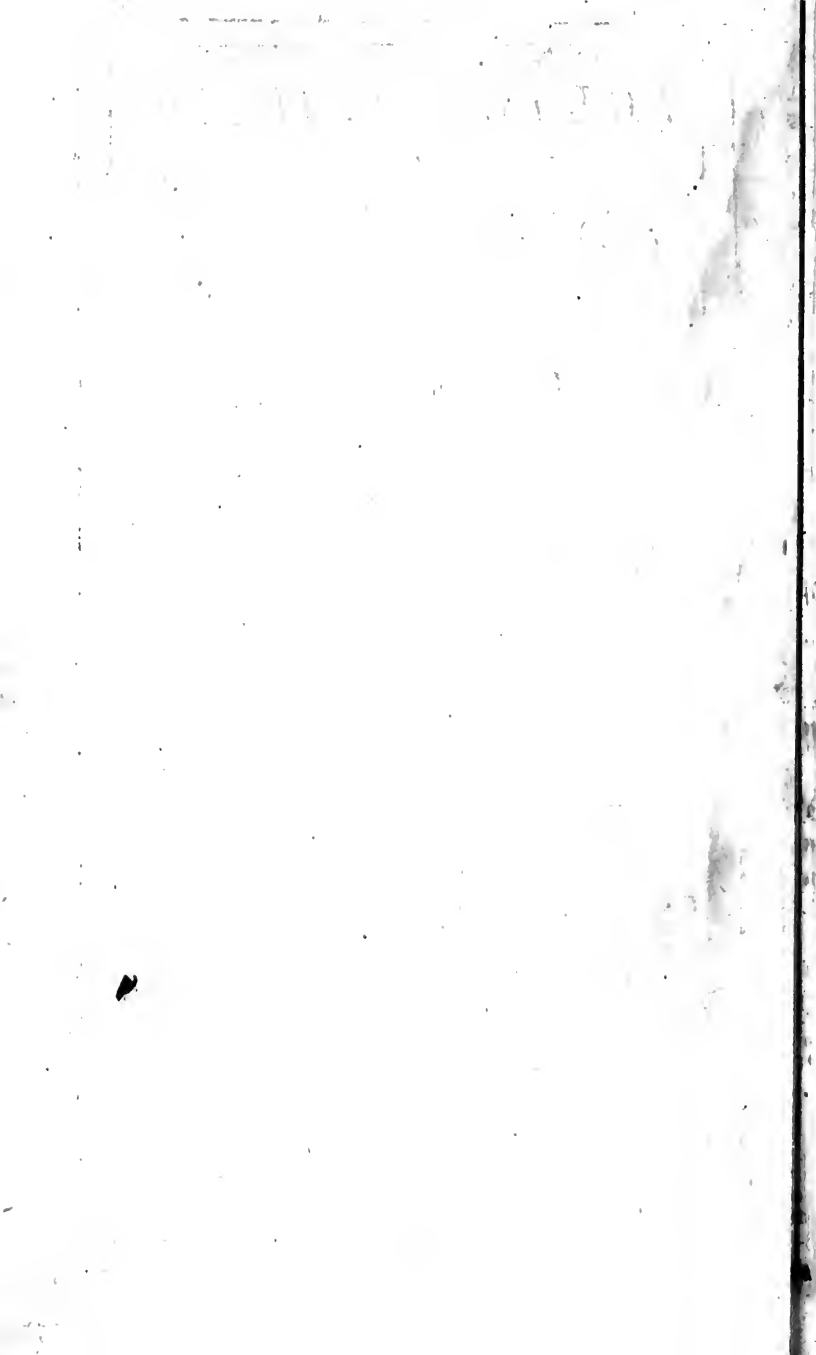
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By WILLIAM SALMON, M. D.

*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.





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To that  
G R E A T M A N  
S<sup>R</sup> *Godf. Kneller, Kt.*

S I R,



*It is Honor, as Ci-  
cero 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*

## Epistle Dedicatory.

*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 ;*

## Epistle Dedicatory.

*a Man as excellently Accomplish-  
ed to Determine, as you are ad-  
mirably Skilful to Perform.*

*The Work of it self is but as a  
Dead Body, but as a Body with-  
out a Soul; it is your Character  
and Name must give it Life and  
Spirit; and then with your Me-  
mory, I am sure it will be Conse-  
crated 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 Ex-  
cellently, 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 long-  
er; 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,

A N D

Humble Servant,

*William Salmon.*

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T H E

P R E F A C E.

I. **T**HE 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 persuade 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

# The PREFACE.

*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 persuade 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*

## The PREFACE.

*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*

## The PREFACE.

*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 Acciden's 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.**

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THE



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# Postscript.

I. **T**HIS 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

## POSTSCRIPT.

Eleven whole Chapters concerning the *Pbilosophick 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 Glafs, Cryстал, 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 *Alchymic*, 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

## POSTSCRIPT.

great Monuments behind him, as must convince the most Incredulous, that he knew the Secret, and did such mighty Works, at his own proper Colts 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 Purse, we offer you here the Valuable Additions which this Impression is enriched withal; which I  
am

# POSTSCRIPT.

am very confident, the Ingenious Artift 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.*

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## ERRATA.

P Ag. 44. lin. 29. and pag. 45. lin. 30. for *Redified*, read *Re-  
flected*. pag. 774. lin. 30. for *Centural*, read *Central*.

T H E

---

---

T H E

# CONTENTS.

---

---

*Liber Primus.*

---

---

Of Drawing.

Chap.		Page.
1	<i>OF Polygraphice in General.</i>	1
2	<i>Of the Instruments of Drawing.</i>	2
	<i>Of making Pastils or Crions.</i>	2, 3, 4, 5
	<i>Of using Pastils or Crions.</i>	6
	<i>Of using Indian Ink.</i>	7
3	<i>Of the Precepts of Drawing in General.</i>	7
4	<i>Particular observations in Drawing.</i>	10
5	<i>Of the Imitation of the Life.</i>	13
6	<i>Of the Imitation of Draughts.</i>	16
7	<i>Of Drawing the face of a Man.</i>	18
8	<i>Of Drawing the extream Parts.</i>	20
9	<i>Of Drawing the whole Body.</i>	21
10	<i>Of Drawing a naked Body.</i>	22
11	<i>Of shadowing a naked Body.</i>	24
12	<i>Of the way and manner of Shadowing.</i>	25
13	<i>Of expressing Passions in the Face.</i>	26
14	<i>Of human Proportion.</i>	28
15	<i>Of Drapery.</i>	35
		16 Of

# The CONTENTS.

Chap.	Page.
16 <i>Of mixed and uncertain Forms.</i>	38
17 <i>Of Landskip.</i>	39
18 <i>Of Diapering and Antique.</i>	41
19 <i>Of taking the true Draught of a Picture.</i>	42
<i>To take the shape of a Leaf, Herb, &amp;c.</i>	43
<i>To take the Picture of an Herb from an old Picture.</i>	43
20 <i>Of extending or contracting a Picture.</i>	44
21 <i>Of Perspective in General.</i>	44
22 <i>Of the Active part of Perspective.</i>	46
23 <i>Of the subject to be seen.</i>	47
24 <i>Of the general practise of Perspective.</i>	49

## A P P E N D I X.

25 <i>Of the Uses of Perspective.</i>	51
26 <i>Of the measures of human Bodies.</i>	53
27 <i>Of some General Observations.</i>	54
28 <i>Of Light, Shadow and Color.</i>	57
29 <i>Of the Explication of Terms of Art.</i>	63

---

## *Liber Secundus.*

---

### Of Engraving, Etching, and Limning.

1 <b>O</b> <i>F Graving and the Instruments thereof.</i>	69
2 <i>Of Polishing the Copper Plate.</i>	71
3 <i>Of holding the Graver.</i>	71
4 <i>Of the way and manner of Engraving.</i>	72
5 <i>Of Imitation of Coppies or Prints.</i>	73
6 <i>Of Engraving in Wood called Cutting.</i>	74
7 <i>Of Etching, and the Materials thereof.</i>	75
<i>To make the hard Varnish.</i>	76
<i>To make the soft Varnish.</i>	76
<i>To make the Aqua-fortis.</i>	77
8 <i>Of using the hard Varnish.</i>	79
9 <i>Of the way and manner of Etching.</i>	80
	Of

# The CONTENTS.

Chap.	Page.
Of Etching Landskips.	82
10 Of using the Aqua-fortis.	84
11 Of finishing the Work.	85
12 Of using the soft Varnish.	86
13 Of Etching upon the soft Varnish.	87
14 Of using the Aqua-fortis and finishing the Work.	88
15 Of Limning and the Materials thereof.	90
16 Of the Gums and their Use.	91
17 Of the seven Colors in General.	92
18 Of Colors in Particular.	94
Observations on Reds.	98
Observations on Browns.	99
Observations on Greens.	ibid
Observations on Yellows.	ibid
Observations on Blems.	100
Observations on Whites.	ibid
Observations on Blacks.	ibid
A glorious color of East-India Cakes.	101
19 Of mixt and compound Colors.	ibid
20 Of Colors for Drapery.	105
21 Of Liquid Gold and Silver.	107
Argentum Musicum.	ibid
Autum Musicum.	108
22 Of preparing the Colors.	109
Mixtures for shadowing Histories.	111
Mixtures for shadowing Faces.	ibid
Mixtures for shadowing Hair.	ibid
23 Of the manual Instruments.	112
24 Of Preparations for Limning.	114
25 Of Limning in Miniature.	116
26 Of Limning Drapery.	119
27 Of Limning Landskip.	124
28 Of Light and Shadows.	126
29 Of Colors more particularly.	130
30 Of making some Original Colors.	131
31 Of Limning to the Life in General.	133
The Dead coloring of a Figure.	136
To draw with Indian Ink.	138
32 Of Limning Landskip particularly.	139
33 Of the various forms or degrees of Coloring.	142
34 Of Limning the Skie, Clouds, &c.	144
35 Of Limning Towns, Castles, Ruins.	145

# The CONTENTS.

Chap.	Pgae
36 Of Mountains, Hills and the like.	145
37 Of Trees, Boughs, Cottages, &c.	146
38 Of Limning naked Figures.	147
39 Of Limning Hair.	148
40 Of Walls, Chambers and the like.	149
41 Of Marble Pillars, Rocks, &c.	150
42 Of Coloring Metals.	ibid
43 Of Limning Flowers.	151
44 Of Radishes, Turneps, Melons, Cucumbers.	152
45 Of Limning Fruits.	153
46 Of Limning Birds.	154
47 Of Limning Beasts.	155
48 Of Limning Serpents.	157
49 Of Limning Waters and Fish.	158

---

## Liber Tertius.

---

### Of Painting, Washing, Gilding, Colors, &c.

1 OF Painting in General.	159
2 Of Painting in Oil and the Materials thereof.	161
3 Of Colors in General and their significations.	163
4 Of fitting colors for Painting.	164
5 Of Colors for Velvet.	165
6 Of Colors for Sattins.	166
7 Of Colors for Taffety, Cloth, Leather.	167
8 Of Colors for Garments in General.	168
9 Of Colors for Metals and Precious Stones.	169
10 Of Colors for Landskip.	170
11 Of Painting the Face.	171
12 Of cleansing old Paintings.	172
13 Of a Picture in General.	174
14 Of the choice of Coppies or Patterns.	176
15 Of disposing of Pictures and Paintings.	177
16 Of	



# The CONTENTS.

Chap.	Page.
16 Of Frescoe, or Painting of Walls.	178
17 Of Painting Sun dials; Timber-work; &c.	179
How Colors are to be set off.	185
To transfer the draught of a Dial upon the Plane.	186
To Gild the Figures of Sun dials.	187
18 washing Maps, Pictures, &c.	189
19 Of Colors simple for washing Maps, &c.	191
To make Verdigrise according to Glauber.	192
20 Of Colors compound for washing Maps, &c.	194
21 Of mixing Colors and Shadowing.	196
22 Of Colors for washing Landskips.	198
23 Of the Practice of Washing.	199
How to lay on your Colors.	200
24 Observations on Vegetable Colors.	202
25 Observations on Mineral Colors.	206
26 Of Metals.	209
27 Of the way and manner of Gilding.	215
28 Of making white Colors; and whitening Plaster Walls.	219
29 Of Mezzotinto, and taking off an old Print on white Paper.	220
30 Of making various sorts of Ink.	221

## Liber Quartus.

The Original, Advancement and Perfection  
of the Art of Painting: Exemplified in the  
various Paintings of the Ancients.

1 OF the Original of these Arts.	301
2 Of the Progress of these Arts.	307
3 Of the Perfection of the Art of Painting.	316
4 Of the Ancients depicting their Gods, and first of Saturn.	326
2 2	5 Of

# The CONTENTS.

Chap.	Page.
5 <i>Of the Ancients depicting Jupiter.</i>	327
6 <i>Of the Ancients depicting Mars.</i>	329
7 <i>Of the Ancients depicting Phœbus or Sol.</i>	330
8 <i>Of the Ancients depicting Venus.</i>	332
9 <i>Of the Ancients depicting Mercury.</i>	333
10 <i>Of the Ancients depicting Diana or Luna.</i>	335
11 <i>Of the Ancients depicting Janus.</i>	337
12 <i>Of the Ancients depicting Aurora.</i>	338
13 <i>Of the Ancients depicting Juno.</i>	339
14 <i>Of the Ancients depicting Ops or Tellus.</i>	340
15 <i>Of the Ancients depicting Neptune and Sea-gods.</i>	341
16 <i>Of the Ancients depicting Nemesis.</i>	343
17 <i>Of the Ancients depicting Pan.</i>	ibid
18 <i>Of the Ancients depicting Plato.</i>	345
19 <i>Of the Ancients depicting the Parcæ.</i>	346
20 <i>Of the Ancients depicting Minerva or Pallas.</i>	ibid
21 <i>Of the Ancients depicting Vulcan.</i>	347
22 <i>Of the Ancients depicting Bacchus.</i>	348
23 <i>Of the Ancients depicting Fortune.</i>	349
24 <i>Of Virtue, Truth, Peace, Honor, Fame, Opinion.</i>	352
25 <i>Of Night, Sleep, Silence, Pleasure, Fear</i>	353
26 <i>Of Philosophers, Law-givers, Kings, Queens.</i>	355
27 <i>Of the Painting of the Sybils.</i>	357
28 <i>Of Arts, Virtues, Passions, and minor Gods.</i>	359
29 <i>Of expressing the Powers.</i>	362
<i>Eternity.</i>	ibid
<i>Time, Fate, Fortune.</i>	363
<i>Equality, Victory, Peace, Providence, Concord, Fame,</i>	
<i>Destiny.</i>	364
30 <i>Of depicting Virtues and Vices.</i>	365
31 <i>Of depicting Rivers.</i>	367
<i>Tiber, Nilus, Tigris.</i>	ibid
<i>Ganges, Indus, Thamisis, Amus, Po, Danubius.</i>	368
<i>Achelous, Niger.</i>	369
32 <i>Of depicting the Nymphs.</i>	ibid
<i>Napæa, Dryades, Naiades, Thetis, Galatea, Iris.</i>	370
<i>Nymphæ dianæ, Aurora.</i>	371
33 <i>Of depicting the nine Muses.</i>	ibid
34 <i>Of the four Winds.</i>	372
35 <i>Of the Months of the Year.</i>	373
	<i>Liber</i>

*Liber Quintus.*

Of Beautifying and Perfuming.

Chap.	Page.
1 <b>O</b> F <i>Painting the Face and Skin.</i>	375
2 <i>Of Cosmeticks which beautify without Paint.</i>	380
3 <i>Of Cosmeticks for the Vices of the Skin.</i>	384
4 <i>Of other admirable Beautifiers.</i>	388
5 <i>Of cleansing the Teeth.</i>	391
6 <i>Of making a sweet Breath.</i>	393
7 <i>Of beautifying the Hair.</i>	396
8 <i>Of Perfuming in General.</i>	399
9 <i>Of the Mater of which Perfumes are made.</i>	ibid
10 <i>Of the Oil of Ben.</i>	400
11 <i>Of Sweet Waters.</i>	401
12 <i>Of Perfuming Oils and Spirits.</i>	404
13 <i>Of Perfuming Essences.</i>	406
14 <i>Of Perfuming Unguents.</i>	408
15 <i>Of Perfuming Powders.</i>	409
16 <i>Of Perfuming Balsams.</i>	414
17 <i>Of Perfuming Tablets.</i>	415
18 <i>Of Pomanders for Bracelets.</i>	416
19 <i>Of Perfuming Wash-balls.</i>	419
20 <i>Of Perfuming Soaps.</i>	421
21 <i>Of burning and boiling Perfumes.</i>	422
22 <i>Of Animal and Mineral Perfumes.</i>	425
23 <i>Of the Adulteration of Musk, Civet, Ambergrise.</i>	426
24 <i>Of Perfuming Cloth, Skins, Gloves.</i>	428

*Liber Sextus.*

Of the Arts of Dying and Staining.

Chap.		Page.
i	OF Dying Ash Colors.	431
	2 Of Dying Blacks.	433
3	Of Dying Blews.	436
4	Of Dying Browns.	438
5	Of Dying a Cinnamon Color.	440
6	Of Dying Clove Colors.	442
7	Of Dying Flesh Colors.	443
8	Of Dying Grey, Ruffet, or Lead Colors.	444
9	Of Dying Greens.	445
10	Of Dying Hair Colors.	449
11	Of Dying Mouse Colors.	450
12	Of Dying Pink Colors.	452
13	Of Dying a Rose Color.	453
14	Of Dying Red Rose or Carnation Color.	454
15	Of Dying Red Colors.	455
16	Of Dying a Red Blush Color.	458
17	Of Dying Scarlet and the Bow-dye.	459
18	Of Dying Sand Colors.	461
19	Of Dying Snuff Colors.	462
20	Of Dying Violet and Purple Colors.	463
21	Of Dying yellows and orange Tawny.	465
22	Of Watering Stuffs, taking out Spots.	467
23	Of Dying Paper, Parchment, Leather.	469
24	Of Dying Wood, Horns, Bones, &c.	472
25	The Conclusion.	474

*Liber Septimus.*

Of Alchimy, and the Philosophers Elixir.

Chap.	Page.
1 <b>O</b> F Alchimy in General.	477
2 Of Saturn or Lead.	479
3 Of Jupiter or Tin.	481
4 Of Mars or Iron.	483
5 Of Sol or Gold.	484
6 Of Venus or Copper.	485
7 Of Mercury or Quick-silver.	488
8 Of Luna or Silver.	490
9 Of the Accidents of Metals.	491
10 Of the great Philosophick Work.	503
11 Of the grand Elixir from an old Hermit.	509
12 Of the Qualities of the Philosophers Stone.	513
13 Of the Matter of the Philosophers Stone.	517
14 A continuation of the former Discourse.	520
15 Of the Preparation of the Philosophers Stone.	525
16 Of the Practick part of the Preparation.	529
17 The former Discourse continued.	532
18 Of the Instruments of this Work.	536
19 Of the Fire; and first the Ignis Externus.	537
20 Of the Ignis internus.	540
21 Of the time for doing this Work.	542
22 Of a Profitable Particular Work.	544

A P P E N D I X.

23 Of certain natural Experiments.	548
------------------------------------	-----

*Liber Octavus.*

Faber's Arcanum's.

Chap.		Page.
1	<b>T</b> HE highest Tincture of Sol, fixed for Luna.	557
	2 The way of fixing Luna.	558
3	The white fixed Tincture for Venus.	559
4	The fixed Oil of Mercury.	ibid
5	The red Cinnaber of Antimony.	560
6	A fixed Tincture to project on Venus.	561
7	The fixing of Oil of Tartar.	ibid
8	To fix the Oil of Sal-Armoniack.	562
9	A wonderful red Tincture from Vitriol.	563
10	To make the aforesaid Oil of Gold.	564
11	To encrease Gold and Silver.	565
12	A fixed Tincture for Venus.	ibid
13	The purgation of Venus for the former Tincture.	567
14	To Congeal or Harden Mercury.	ibid
15	With Regulus of Antimony to make Gold.	568
16	For making Sol.	569
17	For the whitening of Copper.	570
18	The Cementation of Sol.	ibid
19	Oil of Sulphur Vive.	571
20	A Tincture for Sol.	272
21	To extract Mercury from Antimony.	ibid
22	An Elixir of the Golden Work.	573
23	The extraction of the Virgins Milk.	574
24	For the whitening of Copper.	575
25	A secret from Antimony and Mercury.	ibid
26	A Tincture of Luna upon Venus.	577
27	A Tincture of Sol upon Luna.	ibid
28	Another Tincture of Sol upon Luna.	578
		29 A

# The CONTENTS.

Chap.		Page.
29	<i>A Tincture of Sulphur and Mars for Luna.</i>	278
30	<i>A Tincture from Sulphur Vive, and Argent Vive upon Luna.</i>	580
31	<i>A preparation of Arsenick to whiten Venus.</i>	581
32	<i>A fixed Tincture to change Luna into Sol.</i>	582
33	<i>Mercury Water.</i>	ibid
34	<i>To Tinge Luna into Sol.</i>	583
35	<i>Crocus Martis more noble for the former secret.</i>	584
36	<i>To turn Water into good Wine.</i>	585
37	<i>To turn the fusible Oil of the Golden Marchasite into Gold.</i>	586
38	<i>The Oil of an Alkali for the former secret.</i>	587
39	<i>To Tinge Luna into Sol.</i>	ibid
40	<i>To make the Mercury of Antimony.</i>	588
41	<i>To extract Mercury from Metals.</i>	589
42	<i>To transmute Antimony into Sol.</i>	ibid
43	<i>Mercury of Luna and with it a great Elixir.</i>	590
44	<i>To tinge and fix Venus into good Luna.</i>	591
45	<i>To fix and tinge Luna into good Sol.</i>	592
46	<i>To fix Mercury into fine Luna.</i>	ibid
47	<i>To fix Mercury into fine Sol.</i>	593
48	<i>To fix Mercury into fine Sol.</i>	594
49	<i>To fix Mercury into fine Luna.</i>	ibid
50	<i>To fix Mercury into true Sol.</i>	595
51	<i>To make the Oils of Sol and Luna.</i>	596
52	<i>To fix Luna into Sol.</i>	597
53	<i>To extract Mercury from Sol.</i>	ibid
54	<i>To fix this Mercury into fine Sol.</i>	598
55	<i>To fix the Mercury of Luna into Luna.</i>	599
56	<i>To cement Luna into true Sol.</i>	ibid
57	<i>To make Aurum Potabile.</i>	600
58	<i>To make Argentum Potabile.</i>	601
59	<i>To transmute Luna into Sol.</i>	602
60	<i>To transmute Venus into Luna.</i>	603
61	<i>A Silver Mine which will never decay.</i>	604
62	<i>A Golden Mine to transmute Luna into Sol.</i>	602
63	<i>A tinging Water, to tinge Luna.</i>	605
64	<i>To multiply Luna.</i>	606
65	<i>To tinge Luna into Sol.</i>	607
66	<i>To make the true Red Oil of Antimony.</i>	ibid
67	<i>To fix Luna.</i>	609
		63

# The CONTENTS.

Chap.	Page.
68 <i>A Tincture of Mars for tinging Luna.</i>	609
69 <i>To reduce Sol into Mercury, with Mercury.</i>	610
70 <i>To make a Golden Mine.</i>	612
71 <i>To make the aforesaid Mine tinge Luna in Sol.</i>	613
72 <i>To transmute Mercury into Sol.</i>	614
73 <i>To transmute Mercury and Luna into Sol.</i>	615
74 <i>To tinge Venus into Luna.</i>	616
75 <i>To tinge Venus into Luna.</i>	ibid
76 <i>To tinge Luna into Sol.</i>	617
77 <i>To tinge Luna into Sol.</i>	618
78 <i>To make a Water of Mercury.</i>	619
79 <i>To tinge Venus into Luna.</i>	620
80 <i>Another way to make Aq. Mercurij.</i>	ibid
81 <i>Aq. Mercurij, another way.</i>	621
82 <i>An Elixir of the Spar Saturni.</i>	ibid
83 <i>An Elixir from Pearl.</i>	623
84 <i>To make small Pearls into great Ones.</i>	625
85 <i>To make Malleable Glasß.</i>	627
86 <i>To make Carbuncles of Crystal.</i>	628
87 <i>To make Trees bear three times a Year.</i>	ibid
88 <i>To fix Mercury with Salt of Tin.</i>	630
89 <i>To fix Mercury into a white Oil for Transmutation into Sol.</i>	631
90 <i>To fix Mercury into a white Oil for Transmutation into Luna.</i>	632
91 <i>To make a Red Tincture with Nitre.</i>	633
92 <i>To make a White Elixir.</i>	634
93 <i>To make a Red Elixir for Sol.</i>	635
94 <i>Spirit of May-dew for the former secret.</i>	635
95 <i>The fixing of Arsenick.</i>	636
96 <i>To resolve Sol into its first matter.</i>	637
97 <i>To make Spiritus Mercurij.</i>	638
98 <i>Spirit of Lime to dissolve all things.</i>	639
99 <i>To transmute Jupiter into Luna.</i>	ibid
100 <i>A White Elixir to transmute Metals into Luna.</i>	640
101 <i>A Red Tincture of Mars for Sol.</i>	642
102 <i>An Elixir of Tin for the white Work.</i>	643
103 <i>A lesser Tincture for the white Work.</i>	644
104 <i>The Physical Stone made of Dew.</i>	645
105 <i>To fix Mercury.</i>	646
106 <i>To Congeal Mercury into Luna.</i>	647



# The CONTENTS.

Chap.		Page.
107	To make the Mercury of Antimony.	647
108	To convert Lead into Mercury.	648
109	A Tincture of Sol for transmuting Luna.	ibid.
110	A Tincture of Luna for other Metals.	650
111	A Red Oil of Virriol, a Secret.	651
112	A Red Tincture from Arsenick.	652
113	The Conclusion of this Eighth Book.	653

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## Liber Nonus.

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### Of Chiromantical Signatures.

1	<b>A</b> Demonstration of Chiromantical Signatures.	656
2	Whether right or left Hand to be judged by.	662
3	Of the Planetary Mounts.	664
4	Geneneral Judgments of the Hand.	670
5	Of the Line of Life.	673
6	Of the Epatick or Natural Line.	676
7	Of the Cephalica or Head Line.	680
8	Of the Mensal, or Line of Fortune.	682
9	Of the Restricta, or Cauda Draconis.	685
10	Other Observations on the Hand-Wrist.	887
11	Of the Saturnia, or Line of Saturn.	690
12	Of Linea Solaris, or Stomachica.	692
13	Of the Cingulum, or Girdle of Venus.	693
14	Of the Via Lactea, or Milky Way.	695
15	Of the Mount of Saturn.	697
16	Of the Mount of Jupiter.	699
17	Of the Cavea Martis, and Via Martis.	703
18	Of the Mount of Sol, and Via Solis.	707
19	Of the Mount of Venus.	710
20	Of the Mount of Mercury.	712
21	Of the Mount of Luna.	716
	22 Of	

# The CONTENTS.

Chap.	Page.
22 <i>Of the Mensa, Quadrangle or Table.</i>	717
23 <i>Of the Fingers.</i>	720
24 <i>Of the Thumb.</i>	721
25 <i>The Good and Evil Lines, and Characters.</i>	723
26 <i>Certain Chiromantical Aphorisms.</i>	724

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## *Liber Decimus.*

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### **Of Painting and Coloring, or Staining *Glass,* *Enamel,* and *Gems.***

#### **S E C T. I.**

##### **Of G L A S S.**

1 <b>O</b> <i>F Salts for Glass Works.</i>	730
2 <i>Of making Frit for Crystal.</i>	734
3 <i>Of Artificial Crystal.</i>	737
4 <i>Colors for tinging Glass and Crystal in General.</i>	740
5 <i>Colors from Lead.</i>	748
6 <i>Of Colors from Iron.</i>	755
7 <i>Of Colors from Copper or Brass.</i>	758

#### **S E C T. II.**

##### **Of G E M S.**

8 <i>Of Cements, Mineral Colors, and Gems.</i>	767
9 <i>Of Artificial Gems in general.</i>	774
10 <i>A Paste for a Beryl, or Sky-Color.</i>	778
11 <i>To make a Chalcedony.</i>	778
12 <i>Paste for an Oriental Chrysolite.</i>	783
13 <i>Of making fair Oriental Diamonds.</i>	ibid
	14 <i>Pastes</i>

# The CONTENTS.

Chap.	Page.
14 <i>Pastes for an Oriental Emerald.</i>	787
15 <i>Pastes for an Oriental Granate.</i>	789
16 <i>Pastes for an Oriental Jacynth.</i>	790
17 <i>Pastes for making Artificial Pearls.</i>	791
18 <i>Other various ways of making Artificial Pearls.</i>	794
19 <i>Pastes for Oriental Rubies and Carbuncles.</i>	801
20 <i>Pastes for an Oriental Saphir.</i>	804
21 <i>Pastes for an Oriental Topaz.</i>	805
22 <i>Pastes for an Oriental Turcois.</i>	807

## S E C T. III.

### Of ENAMELS.

23 <i>Of Enamels in General.</i>	ibid
24 <i>The way of Enamelling.</i>	809
25 <i>To Enamel on Metals.</i>	811
26 <i>Of Painting on Enamel.</i>	813
27 <i>Of Milk White Enamel.</i>	814
28 <i>Of Black Enamel.</i>	815
29 <i>Of fine Bleu and Turcois Enamels.</i>	816
30 <i>Of Green Enamels.</i>	817
31 <i>Of Purple Enamels.</i>	818
32 <i>Of Rose colored Enamels.</i>	819
33 <i>Of Red Enamels.</i>	820
34 <i>Of Yellow Enamels.</i>	822
35 <i>Of making China, to Enamel, Paint and Gild it.</i>	823

## S E C T. IV.

### Of Painting GLASS.

36 <i>Of Painting Glass in General, and of the Colors.</i>	826
37 <i>Preparations of Vegetable Colors.</i>	830
38 <i>Preparations of Mineral Colors.</i>	833
39 <i>Coloring or Staining Glass from Randolphe Holme, and Gerard Wane.</i>	841
40 <i>Some other Colors for Painting Glass.</i>	842
41 <i>The way of Painting on Glass.</i>	844
42 <i>The</i>	

# The CONTENTS.

Chap.		Page.
42	<i>The way of Gilding upon Glass.</i>	448

## A P P E N D I X.

43	<i>A Discourse of Looking-Glasses.</i>	849
----	--	-----

### *Liber Undecimus.*

#### Of Varnishing, Japanning and Gilding.

1	<b>O</b> <i>F Instruments and Uensils for those Works</i>	854
	2 <i>Of Materials necessary for these Works.</i>	857
3	<i>Of Sizes and Gum Water.</i>	863
4	<i>Of making Varnishes.</i>	866
5	<i>Of some other kinds of Varnishes.</i>	871
6	<i>Of making Japan Varnishes.</i>	876
7	<i>Of making Lackering Varnishes.</i>	878
8	<i>Of the way and manner of Varnishing.</i>	880
9	<i>Some general Observations in Varnishing.</i>	881
10	<i>Of Varnishing Wood without Colors.</i>	883
11	<i>Of Dying or Staining Wood, Bones, Ivory, Horns.</i>	885
12	<i>Of Varnishing Prints.</i>	887
13	<i>Of Preparing Woods for Japanning.</i>	889
14	<i>Of Japanning Wood with Colors.</i>	890
	1 <i>Black Japan.</i>	ibid
	2 <i>Another Black Japan.</i>	891
	3 <i>White Japan.</i>	892
	4 <i>Blew Japan.</i>	893
	5 <i>Common Red Japan.</i>	894
	6 <i>Deep Red Japan.</i>	ibid
	7 <i>Pale Red Japan.</i>	895
	8 <i>Olive Colored Japan.</i>	ibid
	9 <i>Chestnut Colored Japan.</i>	ibid
	10 <i>Lapis Lazuli Japan.</i>	896

# The CONTENTS.

Chap.		Page.
15	Of Marble and Tortoise Shell Japan.	897
1	Marble Japan.	ibid
2	Another Marble Japan.	898
3	Tortoise Shell Japan.	899
4	Another Tortoise Shell Japan.	900
5	Another Tortoise Shell Japan.	901
6	Another Tortoise Shell Japan.	ibid
16	Of laying Speckles or Stremings on Japan.	902
17	Of Japanning Metals with Gum Water.	904
18	Of Japanning in Gold Size.	905
19	Of Japanning with Gold and Colors.	908
20	Of Raised and Embossed Works.	910
	The First Way.	ibid
	The Second Way.	912
	A Third Way.	913
	To set off Embost Works with Black.	914
	To manage Rock Work.	915
21	Of Bantam Work.	916
22	Of taking off Japan Patterns.	918
23	Of Gilding in Oil.	919
24	Of Gilding Wood with burnisht Gold and Silver.	921
25	Of Gilding of Metals.	924
26	Of Gilding and Painting Mezzotinto Prints.	927
27	Of laying Prints upon Glass.	930
	To Paint Mezzotinto, or Engraved Landskip.	931
	To Paint a Humane Body.	933
	To Paint Drapery.	934

## A P P E N D I X.

28	Of making Sealing Wax and Glens.	936
----	----------------------------------	-----

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## The Characters Explained.

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

ʒβ. Half a scruple. *Containing 10 grains.*

ʒ A scruple. *Containing 20 grains.*

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

ʒ A dram. *Containing 3 scruples.*

ʒβ. Half an ounce: *Containing 4 drams Troy.*

ʒ An ounce. *Containing 8 drams Troy.*

℥β. Half a pound. *Containing*  $\left\{ \begin{array}{l} 7 \text{ ounces Troy.} \\ 8 \text{ ounces Averdupois.} \end{array} \right.$

℥ A pound. *Containing*  $\left\{ \begin{array}{l} 14 \text{ ounces Troy.} \\ 16 \text{ ounces Averdupois.} \end{array} \right.$

℞ Recipe. *Take or Receive.*

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

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

P O L Y-

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POLYGRAPHICES  
LIBER PRIMUS.  
OF  
DRAWING.

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CHAP. I.

*Of Polygraphice in General.*

I. **P**olygraphice 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 *Κραματική*, 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. *Sanderfon* 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.

## C H A P. II.

### *Of the Instruments of Drawing.*

I. **T**HE *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 sharpened 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 Tobacco-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 Tobacco-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 Completion.*

Grind on your stone Ceruse, Red Lead, or Vermilion, English Oker, and a little Pink; to this add a proportionable quantity of Plaster of Paris burnt and finely sifted, or Tobacco-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; remembering that where you are to temper soft or firm Colours, as Umber, Oker, Indico, &c. you are to take the less *Plaster of Paris*; but where the Colours are loose, there bind them stronger and faster, by adding more *Plaster 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 Tobacco-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 thoroughly 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 extremely 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 Sponge, 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 Artit 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 Tobacco-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 overhard, must have a little Water added to them in their grinding.

XXI. To

XXI. *To draw with Indian Ink.*

The Our-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.

## C H A P. III.

*Of the Precepts of Drawing in General.*

I. **B**E 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 Measurements.

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, Hysop, &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 foregoing 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,*  
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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 Wrestler, 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.

## C H A P. IV.

*Of Particular Observations in the Art of Drawing.*

I. **I**N 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 *Foreshortning*, 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 Plaster 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 flooded 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  
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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 Plaitter, 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 Pyramidal-wise, 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.

## C H A P. 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 Matter-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 Artift.

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 Wrestlers, fighting at Cuffs, Stage-players, Fencers, the enticing 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 Carelessness and Looseness, 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, Wrestling, Leaping, &c. be sure you do not so much overdo Nature, as to express a Posture which cannot be imitated with his natural Body.

## C H A P. VI.

### *Of the Imitation of Draughts.*

I. **T**He 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 Strokes, 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

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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 Stroakes; 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.

## C H A P. VII.

### *Of Drawing the Face of a Man.*

I. **I**N 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 stroke 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 carelessly, 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.

## C H A P. VIII.

### *Of Drawing the Extreme Parts.*

I. **I**N 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.

## C H A P. IX.

*Of Drawing the whole Body.*

I. **F**irst 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 extubérance 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, Jestling 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 Artift.

## C H A P. X.

### *Of Drawing a Naked Body.*

I. **I**N 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 extremely advantageous to draw very much after the Life, and after good Prints of Anatomy, and Statues and Anatomies made of *Plaster 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 crowded, 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.

## C H A P. XI.

*Of Shadowing a Naked Body.*

I. **T**HE 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 Breast-Bone and the Flank: The Brawns 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.

## C H A P. 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 obscured.

*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,

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.

## C H A P. XIII.

### *Of expressing Passions in the Countenance.*

I. **L**ove 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 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.

## C H A P. XIV.

### *Of Human Proportion.*

I. **T**He 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

judgerh 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 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 remembering 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 lies 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 express:) 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. 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 Waist 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 Waist 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 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 Nose and 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 joint 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 Privities 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 extremely various in her Representations.

XXXI. Having drawn the head, there remain seven parts more from the bottom of the chin to the sole 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 *Grecians* 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 *Sibyls*, Prophetesses and suchlike, 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.

## C H A P. XV.

## Of Drapery.

I. **D**raw 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 fits 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; shadding 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 fits close to the body must not be folded at all, but only sweetly shadded, 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 shadow 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. 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 Apparell 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 pliability, 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 plially 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 *olds*, 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.

## C H A P. XVI.

*Of mixed and uncertain Forms.*

I. **F**OR 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 pini-on 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, grasshoppers, 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 tuft or wart in the middle; as in a Rose or Marigold, with the yellow tuft, 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.*

## C H A P. XVII.

### *Of Landskip.*

I. **L**andskip 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 bare 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 additional 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.

C H A P. XVIII.

*Of Diapering and Antique.*

I. **D**iapering, 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 διαπερω, 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 whercon 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.*

## C H A P. XIX.

*To take the perfect draught of any Picture.*

I. **T**AKE 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 vermilion 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. *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 sponge 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.

## C H A P. XX.

*To extend or contract a Picture keeping the proportion.*

I. **E**Ncompass 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 thoroughly dry, rub it over with the crum of white-bread, and it will take off all the black-lead strokes, so will your draught remain fair upon the paper.

## C H A P. XXI.

*Of Perspective in general.*

**O**ΠΤΙΚΗ 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, conveying 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 intellectual 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.*

## C H A P. XXII.

*Of the Active part of Perspective.*

I. **T**He 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 Angles* 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.

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.

C H A P. XXIII.

*Of the Subjects to be seen.*

I. **T**He 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. 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.

C H A P. XXIV.

*The General Practice of Perspective.*

I. **L**et 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 Angles 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 angles: 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 Angles 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 angles 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 *Catoprick* 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.

## A P P E N D I X.

### C H A P. 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.

C H A P. XXVI.

*Measures of Humane Bodies.*

I. **T**He 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 Fore-head. 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 Ankle is two faces.

VIII. From the Ankle 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 *Cbitus* 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.

## C H A P. XXVII.

### *General Observations.*

I. **I**N 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 the 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 uncomely 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*, with 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. 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 light, 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.

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## C H A P. XXVIII.

### *Of Light, Shadow and Colour.*

I. **T**He 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. 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 strengthened 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



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

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

XIII. Those parts of a Picture vvhich are placed foremost or nearest to the View, should alvways 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, Billovs 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 shadowvs, 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, whose whitencfs is allayed, and the fields are gilded (as it vv ere) by the sun beams; or that vvhich appears after a shower 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 vv ere sparkling: but the parts more remote from the sight, tovwards the borders, more faintly touched.

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

work: 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, *viç.* 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 Scerches 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 carelessness, 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 Scerches 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 spite 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 thoroughly weigh'd 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.

C H A P. 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. foregoing.

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 Pastes, to draw withal upon coloured paper

or parchment. 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 Grottesco.** 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*, *Clefses*, *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*, *Foyners*, *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 *Ingin*e 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 Straight beams, which pass between the Eye and the Object. 2. *Catoptricks*, which are reflected Radiations, or Beauty upon any polished body as Globe, Prism, 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 thro' the Convex center of both Eyes.

*LIV. Scenographie.* It is the description of an Oblique upright, inclining, or reclining plain, declining from the Orthographic 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 thro' 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 stiffness 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 Glw, 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 Gluc.

*LVI. Stiff.* It is a needle like Instrument used to draw thro' 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 Copied and enlarged in *Oil painting*.

*LIX. Stucco-Work.* It is a Piece made of figures of all sorts, in a kind of Plaster, 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-Iack, &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.*

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# P O L Y G R A P H I C E S

## L I B E R S E C U N D U S.

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### O F E N G R A V I N G, E T C H I N G, and L I M N I N G.

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.

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#### C H A P. I.

*Of Graving, and the Instruments thereof.*

I. **G** *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 strokes 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 steadfast 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 strokes 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 strokes 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 softened, 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 sharpened 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. 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.*

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## C H A P. II.

### *Of Polishing the Copper Plate.*

I. **T**AKE 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 search 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.

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## C H A P. III.

### *Of holding the Graver.*

I. **I**T 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 strokes, 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.

## C H A P. IV.

### *Of the way and manner of Engraving.*

I. **H**AVING 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 loosely shadowed, left by imitating the more dark, you should not know where to begin or end.

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 strokes; 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 Bras-wire or Hogs bristles.

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## C H A P. V.

### *Of the Imitation of Copies or Prints.*

I. **H**AVING 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  
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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 ungun'd Ink, and clap the paper over the waxed plate as before.

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

## C H A P. VI.

### *Of Engraving in Wood, called Cutting and Carving.*

I. **T**HE 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 bignets of the figure you grave.

III. To draw the figures upon the wood.

*Grind white lead very fine, and temper it with fair water; disp a cloth therein, and rub over one side of the wood and let it dry thoroughly: This keepeth the Ink (if you draw therewith) that it run not about, nor sink. and if you draw with Pastels, 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 tick or swallow's quill, trace or draw over the stroaks of the figure



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 thoroughly: 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.

## C H A P. VII.

### *Of Etching, and the Materials thereof.*

I. **E**Tching 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 crosswise 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 crosswise 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. Lastly, if yet there remain any small strokes 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 Pouders, 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 thin on with a Larn 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. 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*) *Resin*, *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 *Rolls*, 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 *Powder*, then make it into *Balls* or *Rolls* 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 waimes 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 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 sewing 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 strokes 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 *Scife* 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.*

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## C H A P. VIII.

*The way and manner of using the Hard Varnish.*

I. **H**AVING 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 handsweaty.*

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 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.

## C H A P. IX.

### *The way and manner of Etching.*

I. **I**N 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 strokes 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. The manner of holding the needle with oval points (which are most proper to make large and deep strokes) 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 stroke, 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 strokes firmly and freely, for that will add much to their beauty and clearness.

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

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 hatch 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 Stiff, 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 Stiff, 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 darkeft, 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 darkeft, 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 darkeft 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 height 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 ruffled) 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 ungun'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.

## C H A P. 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.* 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.*

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## C H A P. XI.

### *Of Finishing the work.*

*I.* **A**LL 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 cloth.

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.

## C H A P. XII.

### *The way of using the soft Varnish.*

I. **T**He 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 smok, 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 Squirrelstails) 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 smok may melt into the ground, so that you rub it not off with your hand.

## C H A P. XIII.

*The way of Etching upon the soft Varnish.*

I. **T**He 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 stroaks: *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 whitening, which then wash with common water and dry it; and thus have you the plate prepared for the *Aqua fortis*.

## C H A P. XIV.

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

I. **P**Ut 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 thoroughly 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. 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 deep 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*.

## C H A P. XV.

### *Of Limning, and the Materials thereof.*

I. **L**imning 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 Grindstone 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 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 readines, a several Pencil at least, for every several Colour.

## C H A P. XVI.

### *Of the Gums, and their Use.*

I. **T**He 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 skreds 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 sponge 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. 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 Garlic 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 dried, 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.

## C H A P. 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 λευκός of λεύω, video to see, because λευκότης ὅτι 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 ; soul 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, so 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 νεκρός, which signifies dead, because putrefied and dead things are generally of that colour. Lamp-black is the smok, 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* πρὸς τὴν ροὴν ἀ corticibus vel granis mali punici; from the Rinds or Seeds of Pomegranates, as Scaliger saith.

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

IX. This Colour is called in Latin *Viridis* from *Vires*: in Greek χλωρὸν ἢ χλοῖν, 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 ξανθός, which is Homer's Epithete for Menelaus, where he calls him ξανθός Μενελάου.

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

XIII. This colour is called in Latin *Caruleus*, in Greek Κυάνειον ἢ Κυάνιον, 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 σκιάται, from darkning the Light, in Greek φάβος.

XV. This is to be noted, that of the aforesnamed colours, Vermillion, Verdigrise, 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, Reset, Brasil, Logwood, and Saffron, are more fit for washing Prints, than curious limning.

## C H A P. XVIII.

*Of Colours in Particular.*

I. **C**eruse, 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 readines 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 washd 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 Gumwater, 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 extremely coarse 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. *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 Cersue: 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 Litmole-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 heat, 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. *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 thiff 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 Roser, 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 fairest 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 powder of white Sugar-candy with it, which will preserve it from crackling; then may

you spread it thinly with your finger about the shell.

**XLII. Indian Red.** It makes a dark Red, because this colour is very coarse, you may use *Umber*, and a little *Lake* tempered, which is as good.

**XLIII. 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.* foregoing; 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 thew like changeable *Taffaty*, 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 *Fine*, 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 Powder in *Vinegar* mixt with *Beer* adding a little *Alum* to heighten the Color: boyl it till it tastes strong on the Tongue, then strain it out, and keep it close stoppt 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. *Masticore*. 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. *Ceruse*. 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 cleaned 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 thoroughly 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 squeeze 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.

## C H A P. XIX.

### *Of mixt and compound Colors.*

**I. M**Urry, 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 *Cerule* 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* πορφυρε from πορφυρα, 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* *Γλαυκός* and *τερράδης*.

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 *Masticor*, 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 powder four ounces, mix it with *Quick-silver* a pound, put it into a *Crucible* well luted, 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 powder 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 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 powder, 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 Roser 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-

de or end of November, their juice mixt with Alom-water yields a good Purple color.

XXVII. To make a Purp'e 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 Glais close stop 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 *Powder* 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 powder of a Silver Color.

## C H A P. XX.

### *Of Colors for Drapery.*

- I. *For Yellow Garments.* Take Masticot deepned with Brown-Oker and Red-Lead.
- II. *For Scarlet.* Take Vermilion deepned with Cinnaberk-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 stroaks 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 shadow 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 heightened 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.



## C H A P. XXI.

*Of Liquid Gold and Silver.*I. **L**iquid 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 thoroughly 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 Missicum.*

Take fine Crystal, Orpiment, of each one ounce, beat each severally into a fine powder, 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 powder 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. This powdered 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 Batæana*, lib. 1. cap. 9. sect. 28. § 2. ad. 10. pag. 339. where you have five other several ways of making it.

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## C H A P. 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 skine, 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 powder 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 stop't 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 putting 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 powder, 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 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 Colours.*

White is shaded with Black, and contrariwise: Yellow with Umber and the Okers: Vermillion with Lake: Blue-bice with Indie: Black-coal with Roser, &c.

XVIII. *The severall 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 severall 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. Yellowv Oker vvith Indico. 6. Red-lead vvith Pink and Indico. 7. Red-lead vvith Roman Oker and Indico. 8. Red-lead vvith Pink, Yellowv 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, Masticot, and Pink. 12. Pink with Roman Oker.

XX. *The severall 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.

## C H A P. XXIII.

### *Of the Manual Instruments.*

I. **T**He 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 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 thoroughly.

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 *Fzly* about Rivers sides; but the next to these are small Muscle shells, or instead thereof little glase 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 Masticot, or English Oker.* But note that your ground ought always to be fairer than the face you draw: for it is an easy 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 Pallar.

## C H A P. XXIV.

*Of Preparations for Limning.*

I. **H**AVE 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 sullyng 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 dipping 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 Rech-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.

## C H A P. 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 readines (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 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 brighten 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 brighten 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, extremely 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 Parchment 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.

## C H A P. 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 Lakeland 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 Weefels 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 be-

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* alloyed 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 bigness 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 *Verd'grise*, and a little *Turmerick* root, first scraped, with *Vinegar*, drying it, grind it to fine powder and mix it.

XVI. For *Saphires*, mix or temper *Ultramarine* with pure *Turpentine*, which lay upon a ground of liquid *Silver* polish: 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 Gallstone 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. 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 sute 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 sit 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 fit 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 fit streight and close; as the Breasts, Knees, Thighs, &c. which beat them out, and therefore in such places ought always to fit 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, Bras-Pots and Kettles, or any Gliftring 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 Weefels 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.

## C H A P. XXVII.

### *Of Limning Landskip.*

**A**LL 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. 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 Iinglafs in small pieces half an ounce, fair Conduit-water two quarts, boil it till the glafs 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. foregoing.

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.

## C H A P. XXVIII.

*Of Light and Shadow.*

I. **L**ights 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 darknes, 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 darknes, 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 Pattern: 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,) lest your work shew hard and rough.

VIII. In heightning, 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 apparent 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 enlighten 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 occur 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 *Angle* 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. 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 opaque 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 *à contrario*, so much the darker.

## C H A P. XXIX.

### *Of Colors more particularly.*

I. **O**ker 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 fairest 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 coarse and gross body, that in many things they will be useles, 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 coarse 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 thoroughly dissolved, which being dry will lie very fast, without danger of cracking or peeling.

## C H A P. XXX.

### *Observations of making some Original Colors.*

I. **T**O 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 powder, 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 Sapphire color.*

The same, viz. Verdigrise mixt with Ultramarine, makes a glorious Sapphire.

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.

V I. *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 Sapphire.*

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 pinfers 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.

C H A P. XXXI.

*The sum of the Observations of Limning to the life in general.*

I. **L**ET 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<sup>r</sup> together somewhat thick.

IV. If swarthy or brown, mix with the former a little fine Matticot or English Oker, or both, always<sup>r</sup> 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 stroke 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, lefty, 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. 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 disperd, lying soft and smooth, like smok 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 liknels 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 likenets; 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. I. To temper a flesh color somewhat lighter than you intend it to be after it is wrought down by the Variety of *shadwing 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 sized 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. 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 neat, 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 these 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.



## C H A P. XXXII.

## Of Limning Landskip, more particularly.

## I. TO make the Tablet for Landskip.

Take a piece of Vellum 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, Aqueducts, 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 a far 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, Piak, 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 exprest 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. Epod. 16.*

Vos, quibus est virtus, muliebrem tollite luctum,  
 Etrusca præter & volate littora.  
 Nos manet Oceanus circumvagus; arva, beata  
 Peramus arva, divites & insulas:  
 Reddit ubi Cererem tellus inarata quotannis,  
 Et imputata floret usquè vinea.  
 Germinet & nunquam fallentis termes olivæ,  
 Suamque pulla ficus ornat arborem.  
 Illis injussæ veniunt ad mulctra capellæ;  
 Refertque tenta grex amicus ubera.  
 Nec Vespertinus circumgemit Ursus ovile;  
 Nec intumescit alta Viperis humus:  
 Pluræque felicès mirabimur: ut neque largis  
 Aquosus Eurus arva radat imbribus,  
 Pinguis 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 Ulyssæi.  
 Nulla nocent pecori contagia, nullius astri  
 Gregem æstuosa torret impotentia.  
 Jupiter illa piæ secrevit littora genti,  
 Ut inquinavit ære tempus aureum.

*You nobler spirits, hence with womens tears,  
 Sail from Etruscan confines free from fears:  
 The Earth-encircling 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 infect.*

Nor the fat seeds are parcht in barren land.  
 The powers above both temp'ring with command.  
 No Bark came hither with Argonaut 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 droughtry power of any star.  
 When brass did on the Golden Age intrude,  
 Jove for the pious did this place seclude.

## C H A P. XXXIII.

### *Of the various Forms or Degrees of Coloring.*

I. **T**Here 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 express'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. *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 extrem 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 extremly 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 besit 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.*

## C H A P. XXXIV.

*Of the Limning of the Skie, Clouds, &c.*

I. **F**OR 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 heightened 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 stroaks, with Minium and Masticot, or Minium and Saffron; so that the scattering upwards may appear faint; and below, as far 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 stroaks like the Sun-beams upon the blew Sky, with which, let fall some purple stroaks, 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.

## C H A P. XXXV.

### *Of the Limning of Towns, Castles, and Ruines.*

I. **T**Hose 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.

## C H A P. XXXVI.

### *Of Mountains, Hills, and the like.*

I. **T**Hose 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 Masticor, 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 Masticor, 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.

## C H A P. XXXVII.

### *Of Trees, Boughs, Cottages, and the like.*

I. **T**Hose Trees of divers colors which stand upon the foreground, must be laid with divers colors, as with Verdigrise, mixt with other green, or with Masticor, and Bergh-green mixt, and then shaded with Sap-green; which you may heighten with Masticor, mixt with White-lead.

II. If they appear yellow, use Verdigrise and Masticor 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 moss upon them, give them the appearance of green and yellow, which comix 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.

## C H A P. XXXVIII.

### *Of the Coloring of Naked Figures.*

I. **F**OR *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 Vermillion 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.

## [C H A P. XXXIX.

### *Of the Coloring of Hair.*

I. **T**He 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. 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.

## C H A P. XL.

### *Of Walls, Chambers, and the like.*

I. **F**OR 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.

## C H A P. XLI.

*Of Marble Pillars, Rocks, and the like. .*

I. **M**arble 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 heightened 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.

## C H A P. XLII.

*Of the Coloring of Metals.*

I. **F**OR 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*.

## C H A P. XLIII.

*Of the Coloring of Flowers.*

I. **T**HE *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 shadowv it, according to the nature of the flower.

III. So that being finished it may be like flame, *Red*, *Bleuv*, *Lake*, *Purple*, *Spotted*, or othervvise, in imitation of the life.

IV. The *Damask Rose*, lay vvith *Lake* mixt vvith vvwhite, shadowv vvith the same mixt vvith thin *Lake*; and heighten vvith vvwhite.

V. The *green leaves*, are done vvith *Verdigrise* mixt vvith some *French berry green*, shade it vvith *Verdigrise* mixt vvith *Sap-green*; the stalks lay some vvhat browvner vvith browvn-oker.

VI. *Red Roses* do vvith fine *Lake* mixt vvith vvwhite, shade it vvith browvn *Lake*, and heighten it vvith *Lake* mixt vvith vvwhite.

VII. *White Roses* color vvith *Flake Lead*, shade it vvith white and black (but the chief shadowvs vvith a stronger black) and heighten vvith vvwhite.

VIII. The little *thrums* (vvhich some erroneously call seeds) in the middle of the *Rose*, lay vvith *Masticot*, and shadowv vvith *Minium*, and heighten vvith vvwhite.

IX. *The Clove gilliflower* is done almost like the Red-rose: the speckling or spotting of it is, done vvith Lake; those vvhich are lighter, vvith a lighter red upon a pure vvwhite; those like flames vvith Vermillion and Lake, vvhich shade vvith a stronger Lake; and speck the vvwhite 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 yellowv Orpiment and Minium, shadovv vvith Vermillion and Lakemixt vvith Minium; and heighten vvith vvwhite and Mastigor.

XII. *Corn-flowers* lay vvith blevv mixt vvith some vvwhite, shadovv vvith Indico, and shadovv vvith blevv and vvwhite.

## C H A P. XLIV.

*Of Radishes, Turneps, Melons, Cucumbers, and Cabbage.*

I. **R**adishes are done vvith vvwhite, shaded vvith Lake, and as it vvwere behind sweetned 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 vvwhite, shaded vvith foot; the leaves as the Radish leaves.

IV. *Yellow Melons* vvith yellowv, shaded vvith brovvv-oker, the veins vvith a stronger brovvv-oker, and then heightned vvith vvwhite.

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 yellowv, the middle vvith green, sweetned the one into the other, and shaded vvith Sap-green; but the vvwhole fruit vvith brovvv-oker, the specks lay vvith red and black to the life.

VII. *Cabbage vvwhite* vvith very thin yellowv, 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.

## C H A P. 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 foot.

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.

## C H A P. XLVI.

### *Of the Limning of Fowls.*

I. **T**he *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 foot 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 yellow vvith a black round in the middle; from vvhich falls a blackish vein, descending to the bill.

V. *The Goose* vvith more vvwhite than black, viz. a light gray, heighten it vvith a gray vvwhite; the legs vvith black: the bill like the *Svan*.

VI. *The Duck* vvith a light grey, the head vvith a dark blevv, and dark green neck sweetly entervvoven, the belly vvith vvwhite, the legs vvith black mixt vvith a little vvwhite, &c. but be sure to imitate the life.



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 foot.

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 brest; 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 foot, shadowed with foot, and heightned with yellow-Oker and white, sometimes white alone, the eyes yellow, circled with white, the legs of a brovv yellow.

## C H A P. XLVII.

### Of Limning of Beasts.

I. *Sheep* lay with a thin white, shaded vvith Indico and foot, and heightned vvith ywhite.

II. *Hogs* lay vvith brovv-oker, shaded vvith foot, 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, vvith heighten vvith Masticot, his mouth vvith Indico, or vvwhite and black, shaded vvith black.

III. *A Bear* vvith brovv-oker, red-oker, and black mixt; shadovv vvith foot alone, or mixt vvith black, and heighten vvith brovv oker and vvwhite.

IV. *A Woolf* vvith brovv-oker and foot, shadovv vvith more foot.

V. *A gray Woolf* with black, white, and brown-oker, shaded with black and foot, or black only; the mouth with black and red-oker, shaded with black and foot heightned with red-oker and white.

VI. *The Elephant* (which is of a Mouse gray) with black and white mixt with foot, and shaded with black and foot, 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 foot, which sweetly drive towards the belly, and shade over again with a stronger foot.

XI. *The neck and belly* with white, the mouth and ears a little reddith, the hoof black, the horns with foot, and shaded with foot 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 whitith; shade it on the back with foot, 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 foot, shaded with black and Pink mixt with a little red-oker.

XVI. *Cats* if gray and brownish, or rabby, with Indico<sup>2</sup> blew and white, heightned with pure white, and shaded with Indian<sup>2</sup>.

Indian-blew and black mixt: in other colors use your discretion.

XVII. *The Asps* with black mixt with white like grey; if the As be of a mingled brown, black and white mixt with brown-oker, shaded with black in the mouth; heighten with white.

XVIII. *The Leopard* 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 vwith vwhite.

XXIV. *If spotted*, by mixture of the aforesaid colors and discretely putting every one in its proper apartment or place.

## C H A P. XLVIII.

### *Of the Limning of Serpents.*

I. **T**he *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 downwards to the belly.

IV.

IV. *Below the belly* with Masticot, so that the yellow and green may melt, or vanish away into one another; shadow 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 towards the belly vvith green mixt vvith Masticot, svveetned vvith green speckled: the eyes vvith Saffron, and black round them, the back heightned vvith Saffron.

## C H A P. 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 gristed, some black, &c. in all which to conserve in Figure the true Idea, you ought to take directions only by the life.

Libri Secundi F I N I S:

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# P O L Y G R A P H I C E S

## L I B E R T E R T I U S.

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Of Painting, Washing, Coloring, &c.

*Containing the Description and Use of all the chief Instruments and Materials, and the way and manner of Working.*

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### C H A P. I.

#### *Of Painting in General.*

I. **T**HE Art of *Painting* (which is the imitation of Nature) consists in three things, to wit, *Design*, *Proportion*, and *Color*: all which are express'd 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, Subtily, 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 strengthened, 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 possess'd.

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 perturbation 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.

## C H A P. II.

### *Of Painting in Oyl, and the Materials thereof.*

I. **P**AINTING 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 cut.

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; Fewilling pencils, and bristle 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 supra*) 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 Glem, 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.



## C H A P. III.

*Of the Colors in General, and their significations.*

I. **T**He 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, Masticor, 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, Masticor, 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 burat, 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*, jealousy.

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, Subtily and Deceit: *Purple*, Fortitude and Strength.

XVII. *Willow Color* signifieth forsaken: *Poppingjay-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 *Septuagesima*: and between *Pentecost* and *Advent*.

## CHAP. IV.

### *Of the fitting of Colors for Painting*

I. **U**Pon the Pallet dispose the severall 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 oft-est 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, *Vermilion*, *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. 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 blower or grayer, add more black: thus shall the *Palet* be fitted with colors.

## V. For a brown or swarthy complexion.

The single colors being laid on the *Palet* as before, and tempered: to the *white*, *Lake* and *Vermilion*, put a little burnt *Oker* for a *Tawny*; and for beightning 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 beightning 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 *Palet* and tempered serve for shadows for all complexions; and that all deepnings ought to be with black, *Lake* and *Pink* tempered together.

## C H A P. 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 *Ruffet Velvet*, and let it dry; then draw it over with *Verdigrise* tempered with a little *Pink*.

III. *For Sea-green.* Take only *Verdigrise*, and lay it over *Ruffet*: If a *Grass-green*, put a little *Masticot* to it; shadow these greens with *Ruffet*, which lay according to the deepness of the green.

IV. *For Red.* Take *Vermilion*, and shadow it with *Spanish-brown*; and where you would have it darkeft, 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 *Vermilion*, 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 darkett, shadow it with *Umber*.

VIII. *For Tawny.* Take *Spanish-brown*, *White-lead*, and *Lamp-black*, with a little *Verdigrise*, 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 *Ruffet* 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 *Velvet* you must at first work it somewhat sad, and then give it a sudden brightness.

## CHAP. VI.

### *Of Colors for Sattins.*

I. **F**OR *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 *Verdigrise ground* alone and mixed with *white-lead*; adding *Pink* where you would have it brightest: to the deepest shadows add more *Verdigrise*.

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.

## C H A P. VII.

### *Of Colors for Taffaty, Cloath and Leather.*

I. **T***Affaties* 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.

## C H A P. 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 blue.** 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.

## C H A P. IX.

### *Colors for Metals and precious Stones.*

I. **F**OR *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 darkeit, use more Charcoal; work Silver somewhat rusty, 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 darkeit, 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.

## C H A P. X.

*Of Colors for Landskip.*

I. **F**OR 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.



## C H A P. XI.

*Of the Painting of the Face.*

I. **H**Ave your necessary pencils in readiness, as two pencils ducks quill fitted; and two ducks quill pointed; two Goose quill fitted, and two pointed: two bristles both alike; one Swans quill fitted, and one pointed; one larger pencil in a Tin case fitted; 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 *moltick* 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 height, 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 faint 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 fitch, 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.

## C H A P. 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 Sponge 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. 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 Wainscoting, or any other Joinery or Carpentry Work, you may take the Woodashes (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 aforesaid 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 rawny, 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.

## C H A P. XIII.

*Of a Picture in general.*

I. **I**N 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 Antiquities, 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, Armour, 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, arrogance or scorn ; hanging on the neck, languishing ; 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.

## C H A P. XIV.

*Of the Choice of Copies, or Pattern.*

I. **H**E 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 Nereides 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 *gradation* in breaking the Colors, by insensible change from the more high to the more dull.

*In the Rainbow this mixture is perfect; the variety of Colors are thoroughly 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. 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.

## C H A P. XV.

### *Of the Disposing of Pictures and Paintings.*

I. **A** *Antique* works, or *Grottesco*, 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 heightened: 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-walks*, put Castles, Churches or some fair building: In *Terraces*, put Boscage, and wild works. Upon *Chimney-pieces*, put only Landships, 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.

## C H A P. XVI.

### *Of Frescoe, or Painting of Walls.*

I. **I**N 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 rabbish 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 plaistering over, whilest it is wet, so will your Painting unite and joynt 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.

## C H A P. XVII.

### *Of Painting Sun Dials, Timber-work, &c.*

I. **I**F the Dial be not drawn upon the Wall it self ; you must have a Dial Plain, which you may make of the firmest and clearest 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, shote 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 dried, 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.

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 dries 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 dries 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. 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 dries 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 foregoing Colors are now to be either Burnt, Ground, or Washt, as they severally require, and as we have taught in Chap. 22. foregoing 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. Orthus.** 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 *Ver-million* 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 Figures.

**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 besit 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 dried, 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, stiffly 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.** 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.

## C H A P. 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, poulder 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. 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-foot, Kinds 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-foot.*

XXVII. 5. *Some are to be boyled, as, Brazil, Logwood, Turnsole, Green Walnut Rinds, Wood-foot. How these Operations are to be performed we have taught at large in lib. 2. cap. 22. to which I refer you.*

## C H A P. 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 powder 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 Cochinele, 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. 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. *Lstmuse*. 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 Masgold color: of it self it is between Red and an Orange color.

XXI. *Rosset* 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, it will 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 Rosset, makes a deep Violet.

XXX. *Ultramarine.* If you would have it deep, grind it with Litmose water; it is the best and dearest 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 Reddish 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 Walnuts.* 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.

## C H A P. XX.

### *Of Compounded Colors for Washing of Maps, &c.*

I. **O** *Range 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 instead thereof 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 powder 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 Sapphire.

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. **I**N 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. 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*, *Roffet* & *Braſil* are ſhadowed with *Spaniſh brown* mixed with *braſil-water*.

XVI. *Verdigrife* is ſhadowed with *Indico* mixed with *yellow berry water*.

XVII. *Wood Soot* and *Walnut-shells* are ſhadowed with *Umber*.

XVIII. From the various mixtures of the foremention'd 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*, *Verdigrife*, *Wood Soot*, *green Walnut shells*: of theſe you may by mixture make ſeveral compounds, as.

XX. *A Compound Green*. Mix *verdigrife 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. **G**reen 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.*

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## C H A P. XXIII.

### *Of the Practice of Washing.*

I. **W**ith 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 softened: 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 Manner, 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.

## C H A P. XXIV.

*Experimental Observations on Vegetable Colors.*

I. **A** strong Infusion of Galls filtered, 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 whitened 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. 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 Tarrar, 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 Tarrar, 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 *Cochenele* being mixed with an ounce of *Saccharum Saturni*, makes a most glorious purple color: and so accordingly, as the quantity is either diminished or increased, 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 *Fasmin* and snow drops, by a strong *alkaliate* solution, was (although of no color) turned into a deep greenish yellow.

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 powder, 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 opacous: 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, lest the color be so deep, as to be opacous.

XXIV. Spirit of *Sal-Armoniack* will turn syrup of *Viols* 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. 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 employed any more than these five. White, Black, Red, Blew, Yellow : for these being variously compounded and decomposed, 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-sawnies : 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 *Alcalazate* salts with many bodies that abound with Sulphureous or oily parts will produce a red, as is manifest in the Tincture of Sulphur, made with *Lixivium* of Calcin'd 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.

## C H A P. 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 powder 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 Tanny*. 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. 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 blanch'd both within and without.

VII. Fine powders 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* fus'd together in the flame of a Lamp, being strongly blow'd 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 corpuscles (which resid'd) 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) shaken about, or dropt on paper gives a yellow stain.

XII. If Brimstone and *Sal-Armoniack* in powder, of each five ounces, be mixed with quick-lime in powder 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 ardent Air will lose its whiteness.

XIV. *Sublimate* dissolved in a quantity of water and filtered, till it is as clear as Crystal, mixed (in a Venice glass) with good oyl of Tartar *per deliquium* filtered, (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 shaken, the whole liquor will (to admiration) be colorless without sediment. And if the filtered 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 sponful) 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 powder called *Minium*: *Copper* a dark or greyish powder: *Iron* a dirty yellowish color, called *Crocus Martis*: and *Mercury* a red powder.

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 powdered glass in three or four hours fusion, gave a lovely *Saphirine* 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 *Manganese* 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.

I. **T**O 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 powder 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 powder of Crystal glasse, 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; ponder them, melt the gold, and put to it a little of this powder, and it will be soft.



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 powder, 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 melted, 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, Ver-nix, of each a like in powder.

Or thus, Quench the Gold or Silver in water of Sal-Armoni-ack, 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 powder it very fine; of which powder 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 Alkali in powder, 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' Shamou 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, *Lap̄ Calaminarij*, of each four drachms: Tutty two drachms: heat the Copper red-hot twice, quenching it in piss: doing the like by the *Lap̄* 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 *Lap̄* 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 digestiv; 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 *Vesica*, and cast the remaining powder 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 one-powder; 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 powder 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 powder: lay the prepared plates of Iron and this powder *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 Cerase; 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 oily cloth; Lastly, with a dry wollen cloth dipt in powder of *Lapn 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.

## C H A P. 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 Brasse 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 Brasse or Silver, and it will cleave unto it, then put the said Brasse 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 bruse.*

VI. *Another water to gild Iron, Steel, Knives, Swords, and Armour with.*

Take Fire-stone in powder, 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 powder, 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 penny weight, Sugar-candy one penny 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, *flor Aris* 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, Turmeric 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 powdered 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 simmer 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 Linteed oyl, and put thereto *Lapis Calaminaris* the quantity of a halse-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 Linteed 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-fertis* 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 rot out with any Water.*

Take Oker calcined, Turpice stone, of each alike, Tartar a little: beat them with Linteed-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. XXVIII.

Of making White Colors, and Whitening Plaster Walls.

I. *A 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 plaster Walls.*

1. The wall is to be very well Plastered, with very fine Plaster and well layed, which being thoroughly 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 Whitening 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 here 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 dried, 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 wash'd over three or four times, and then the last doing of it, ought

to be with Milk of unslack'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 slaked Lime, or rather of Whiting; which done the first time the Wall is wash't over, the Lime Milk ought to be thin, the next time somewhat thicker: the third time it'll 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.

## C H A P. XXIX.

*Of Mezo-tinto: and the taking off, an old Print on White Paper.*

I. **T**AKE 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. Take a clean piece of Paper, lay it over the former Print; lay them both upon a polish'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.

## C H A P. XXX.

### *Of making various sorts of Ink.*

I. **T**O make good black writing Ink.

Take ponderous galls three ounces in powder, 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 powdered, 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 ounce, 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 Bra sil 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-glats 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 or 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. 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 pouders 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 pouders 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 pouders, 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: Pomegrante 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 faces will serve again for the same quantity of Liquor, or Logwood Infusion. 2. That the Pomegranate Peels 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 faces 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 powder 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.

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# P O L Y G R A P H I C E S

## LIBER QUARTUS.

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*Containing the Original, Advancement and Perfection of the Art of Painting : Particularly exemplified in the various Paintings of the Ancients.*

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### C H A P. I.

#### *Of the Original of these Arts.*

I. **T**HE 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 accustom our minds to such a steadfast 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 half 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 Ivo-



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, softened, forged, and beautified, by a continual meditation: our poor and needy Life, perceiving some casual things to fall out prosperously, whilst 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 Inventors 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 differed very 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*, *Polyclerus*, *Lysippus* have been excellent, yet did one very much differ from another: *Zeuxis* did surpass all other

Artizans in Paintꝑng 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; *Arestdemus* 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*, *Alexus*, 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, *Platarch* 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,

faith, 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 Inventors 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 signify Diligence, Strength and Swiftnes: 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 Heavens in their vast and full extent, enter at once through the Apple of the Eye, without any straitness of passage: the Sight is a Sense, which comprehends that which no other Sense is capable of; it judgeth and distinguisheth between two contraries in an instant, it considers the excellency and beauty of every Object: the spangled Canopy of Heaven by night, the wandering Clouds by day, the wonderful Form of the Rain-bow, the glorious matutine appearance of *Phabus*; the meridional Exaltation, the golden Rays which surround him, the mutability of his Shadows, his versatile Setting: the lofty tops of Mountains, unaccessible and ridgy Rocks, profound Valleys, large Plains, which

“ which seem to meet Heaven, green Trees, and ple-  
 “ fant 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.

## C H A P. II.

### *Of the farther Progress of these Arts.*

I. **A**S 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 Metamorphos'd into Stone, apt to be melted, keeping her old posture in that Salt-stone Image; her Comeliness, 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* Portrait 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 *Amassa*, 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 comeliness 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 *Gafserel*, 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 Aemilius* 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, *Adaus, Mylenaus, Alcetas, Alexis* the Poet, *Anasimenes, Antigonus, Aristodemus, Carinus, Artimon, Callixenus, Christophorus, Democritus, Ephesus, Duris, Eupherion, Euphranor, Isthmius, Hegesander Delphicus, Hippias Eleus, Hypsicrates, Iamblicus, Juba Rex Mauritanix, Malchus, Bizantius, Melanthius, Menachmus, 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 *Lacedemonians* 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 Swiftnes, 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 *Tactics*, 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*, *Proloanus* 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, wherby he brought them to affect him, being now a King, who was of an ignoble and base Parentage; the wooden *Elephants* of *Persens*, 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 Caesar's* Image in Wax, hidcous 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 *Aesop* a most goodly Statue, saith *Phedrus*, 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*, wherfore 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 *Polycleus* 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 *Polycleus* for one of his. *Apelles* had for Painting the Picture of *Alexander the Great* 3500 Pounds, given him in Golden Coin. *Cesar* 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 *Thesens* of the one so infinitely excelled the *Thesens* 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

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 tie 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.

## C H A P. III.

*Of the Consummation or Perfection of the Art of Painting.*

I. **A**S 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. Ease 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 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 Refupination: 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 *Anthemus*, *Hercules* in the Temple of *Antonia*, &c. An Artificer, saith *Philostratus* in *Proemio Iconum*, must understand the Nature of a Man thoroughly, 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 *Anapanomenos* 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; *Appelles* 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.*



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 determin'd 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 flavish Matters, to bring forth any thing which might deserve the admiration of succeeding 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*, *Virivius*, *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.* II. 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 *Porphyrus*) 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 *Proemio 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 *Zenxide*; 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

is altogether necessary, seeing there can be no shade without it: Light and Shadow cannot subsist afunder, 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 Darknes 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 hollownes; 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 mixture Painters call *Harmoge*, but is nothing else save an undiscernable piece of Art, by which the *Artizan* stealthily 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, fullen, 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 עוני על שבר בת עמי *palge majim terrad gneni, gnal sheber bat gnammi*, which *Tremellius* renders, *Rivus aquarum perfluit oculus meus, propter contritionem filia populi mei*: and again עני נגרה ריה הרמה *gneni 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, Spitefulness, 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 Breast: 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 Order;

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 uphelden 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 subtilty, that the whole may represent one entire Body. *Secondly*, That the frame 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 delightful for its Equality, grave for its Simplicity, and graceful for its univerial 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 Concorde) 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

### Chap. 3. *The Perfection of Painting.*

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 Phantasia; 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.

## C H A P. IV.

*How the Antients Depicted their Gods; and first of Saturn.*

**W**E 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 expelled 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. *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 *Cælum*, 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 Cæstial, and therefore called the time in which he lived, the Golden Age, it being replete with Quietness, Concord, and true Content.

## C H A P. 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 Tralucēt 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. *Porphyrinus* 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

*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-sommanding 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 *Lacedaemonians* 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 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.

## C H A P. VI.

### *How the Antients Depicted Mars.*

I. **M**acrobins 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* 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 fate *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 ruined by the Tyranny of War.

## C H A P. 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 *Crocodile*: 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 whence 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, in-chased with multitudes of precious Gems; three of which  
beau-

beautifie his Fore-head; fix 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 Fire-brand: 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.*

## C H A P. VIII.

### *How the Ancients Depicted Venus.*

I. **H**ER 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. *Par-*

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. *Laëtantius* 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.

## C H A P. IX.

### *How the Ancients depicted Mercury.*

I. **T**HE 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 Ambassadors, 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 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 dulcist Streams ; whose Pen distilled Crystalline drops of delicious Sweetness ; whose Works and Fruits so compleatly adorned with Golden Sentences, asswageth the malice of Time, and mitigateth and allayeth the spight of Forgetfulness, that his Perpetuity is In-graven 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.

## C H A P. X.

### *How the Ancients depicted Diana or Luna:*

I. **D**iana, 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 glittering 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 Bulls, (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 ocher 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 engirded,  
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 *Arçadia*, 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 depicted 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.

## C H A P. XI.

### *How the Ancients depicted Janus:*

I. **J**anus 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 ostentimes 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.

## C H A P. XII.

### *How the Ancients depicted Aurora.*

I. **H**omer 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 downfall of *Bellerophon*.

IV. She is as it were the Herald and Messenger of *Phæbus*, 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.

## C H A P. XIII.

*How the Ancients depicted Juno.*

I. **S**HE 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, incased 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 fable 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.

## C H A P. XIV.

### *How the Ancients depicted Ops and Tellus.*

I. **M**Artianus 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, overladed 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.

## C H A P. XV.

*How the Ancients depicted Neptune, and the Sea Gods.*

I. **N***ep*tune 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 Shoulders, 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 carelessly 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. *Aeolus* is depainted with swoln blub Checks, 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.



## C H A P. XVI.

*How the Ancients depicted Nemesis.*

I. **S**HE was by *Macrobius* described with Wings on her Shoulders ; hard by her side the Rudder of a Ship, she herself 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.*

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## C H A P. XVII.

*How the Ancients depicted Pan.*

I. **P**AN ( 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 Brest 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-car'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 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.

## C H A P. XVIII.

*How the Ancients depicted Pluto.*

I. **M***Artianus* 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-favoured 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.

## C H A P. XIX.

*How the Ancients Depicted the Parcæ, or Sisters.*

I. **T**HE 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*.

## C H A P. XX.

*How the Ancients Depicted Minerva, or Pallas.*

I. **M***inerva*, (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 *Sphinx*; 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*.

## C H A P. 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*.

## C H A P. 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.

## C H A P. 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 finites such as Offend her, slight her Kindness, or are not nimble enough to receive them. An old Poet thus sung:

Oh cruel Fortune, Seplame 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' assuage 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 wilt, 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 noeful 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 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 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, unadvisedly, 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.*

## C H A P. XXIV.

*How Vertue, Truth, Peace, Honour, Fame and Opinion, were depicted.*

I. **V**ertue 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. I. Chap. 30. of this Book.*

Hæc angusta via horrendis scatet undique monstis,  
 Et vita innumeris est interclusa periculis.  
 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 safety 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 Supercription 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 Goddesses 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.

## C H A P. XXV.

*How Night, Sleep, Silence, Pleasure and Fear, were depicted.*

I. **N**ight (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 fowre, lowering 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.

Ev' t! Garment is signified Night and Day; by the Seed, Rest, Ease and Quiet.

III. *Harpocrates* (the God of Silence) called in *Greek*, *Sigcleon*, 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 pourtraiect 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 *Pausanitus*, 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.

C H A P. 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 *Zenophanes* 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 : *Dio- genes* 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, קֶרֶן *Keren*,  
 “*Cornu*, an horn, and קָרָן *Karan*, *Luceo*, to shine. The  
 “vulgar Translation (of *Exodus* 34. 29. 35.) agrees with  
 “the former, to wit ; *Ignorabat quod cornuta esset facies*  
 “*ejus. Qui videbant faciem Mosi esse cornutam.* The  
 “Translation of *Paulus Fagius* is otherwise, *viz.* *Moses*  
 “*nesciebat quod multus esset splendor gloriae vultus ejus. Et*  
 “*viderunt filii Israel, quod multa esset claritas gloriae faciei*  
 “*Mosi.* *Tremelius* and *Finius* have it thus, *Ut ignoraret*  
 “*Mosche splendidam esse factam cutem faciei suae. Quod*  
 “*splendida facta esset cutis faciei Moschi :* agreeing with  
 “the *Septuagint*, *δοξασαυ η οφλις τε χρωμασθ τε προσωπου*,  
 “*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 Hoariness, 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 batel 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. *Aeneas* 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 *Græcian 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.

C H A P. XXVII.

*The Painting of the Sibyls.*

I. *Sibylla Agrippina*, a Woman in Years, in a Roseal Garment. She is by divers Authors called *Aegyptica*. *Suidas* writes, that she Prophesied in *Aegypt* 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 *Emripides* : *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 radiant 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 is 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 *Apollo-*  
dorus

*dorus Erithreus* says) was a Citizen of *Erethrea* 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 Isle of *Samos* in the *Aegean* 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 Hellespanica*, 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*: *Heracledes 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 thence, 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 *Tarquinius 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; *Boyardus* 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.

## C H A P. XXVIII.

### *The Painting of Arts, Vertues, Passions, and Minor Gods.*

I. **A** *Rithmetick* is painted in cloth of Gold: *Geometry* fallow faced, a green Mantle fringed with Silver, and a Silver wand in her right hand: *Astronomy* with a Silver

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, trim-  
med with Silver : *Graces* all alike, as Sisters, in Silver  
Robes.

XV. *Tellus*, the Goddess of the Earth in a green Man-  
tle : *Ceres*, with yellow hair, and a straw-coloured Man-  
tle trimmed with Silver : *Vesta*, daughter of *Saturn*, in  
white Garments filled with flames.

XVI. *Flora* in a black Mantle, of divers colours : *Proser-  
pine* in a black Mantle trimmed with Gold flames : *Echo*,  
( the Goddess of the Air, and Daughter of Speech, the in-  
tirely beloved of *Pan* ) is an invisible Goddess.

XVII. *Ansonus Gallus* reporteth that she hath often-  
times dissuaded, and reprehended such, who would un-  
dertake to depaint her, and repeats the same in an Epi-  
gram, whose sense in *English* is this :

*Surcease thou meddling 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 opprest, 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.*

## C H A P. XXIX.

*To express the Powers.*

I. **E**Ternity, 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 Sphæar, 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 obfuscate 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 recalls 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 unknown out of the Cælestial 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 Scythe 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.

XII. *In Egypt 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 Concorlia. 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, Incharmed and Conjured, as having no Power, Efficacy or Vertue.

C H A P. XXX.

*Of Vertues and Vices.*

I. **V**ertue 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 κλεῖς, Junonis gloria : vel quia κλησῆ τις ἥρας 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 σῆρν, 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.



## C H A P. XXXI.

## Of Rivers.

I. **H**erein 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 από τῆς κροκότου δελιάς, 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 bore 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 *Rhinosceros*.

*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 *χαμαί*) 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 *Cesar'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 Pallerona 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, Aufonius saith,*

Danubius perit 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.*

## C H A P. XXXII.

### Of Nymphs.

I. **N**ΥΜΦΗ *Nympha*, a Bride (from νύμφη and γαμήλια 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 Nurfes 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 Honeyfuckles, Wild-roses, Tyme, and the like; their actions, dancing in a Ring, making Garlands, or gathering Flowers.

*They are so called from Νάπης 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 Moss, and their Attire of a dark green.

*They are so called from Δρύς 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-creffes, with red leaves: their actions pouring out water.

*They are so called from Νέω 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 carelessly 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 sponge 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 Cælo misit Saturnia Juno.*

IX. *Nymphæ Diana* ; 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.

## C H A P. XXXIII.

*Of the Nine Muses.*

I. **C***Lio*, 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. *Enterpe*, Is crowned with a Garland of Flowers, holding in each hand fundry 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 majestick 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 beautiful 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 Cali motus scrutatur & Astra*.

IX. *Caliopé*. 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, μαρξ τὸ μαῦν, which is to instruct, because they teach the most honest and laudable disciplines.*

## C H A P. XXXIV.

### *Of the four Winds.*

I. **E***Urus*, 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 φέρον, 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. *Aut-*

IV. *Auster*, the South-wind, is drawn with Head and Wings wet, a Pot or Urn pouring forth Water, with which descend Frogs, Grasshoppers, and the like Creatures, which are bred by moisture.

C H A P. XXXV.

*Of the Months of the Year.*

I. *January* 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. *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 *Sagittarius*; 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 Iceicles; 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.



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# P O L Y G R A P H I C E S

## LIBER QUINTUS.

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### *An Idea of the Arts of Beautifying and Perfuming.*

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#### C H A P. I.

##### *Of Painting of the Face and Skin.*

I. **T**WO ways there be of adorning of the Face and Skin ; the first is by Painting : the second is, by application of excellent Cosmetics, 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-looking 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 rose 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 up-*

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*; left 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 powder, 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 powder it, by beating of it in a hot Mortar, to the powder 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 powder 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 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.

## C H A P. II.

*Of Cosmeticks which Beautifie without any thing of Paint.*I. *AN excellent Cosmetick or Liquor of Talck.*

Take powder 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 Morphen.*

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 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 powder, 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 powder 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 Powder; the whitish Vinegar by inclination separate, rejecting it, and put on other Vinegar: the powder at bottom keep so for some days: which labour you must so often reiterate, till you have abundance of that white powder, 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 Tetter. 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*  
F f crystal-

crystallized one ounce, mix them, and then wash with the water, being settled : the fine white Powder 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 Rholium, 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.*

Befmear 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 Mariae*, 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.

## C H A P. III.

*Of Cosmeticks, which remedy the various Vices of the Skin:*I. **T**O 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 powder, 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 Nicotiana* 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 Tettors and Ring-worms.*

Diffolve *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, powder 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, powder 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 bath 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 greafe 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 Medicina*, 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 greafe four ounces, and Salt of Tartar one ounce is very good; so also a Cataplasin 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 fore, powder of Bolc, 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 powder 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 powder 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 Cattle 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 Cataplasim ) 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, Morpew, 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.

## C H A P. IV.

*Other Admirable Beautifiers.*

I. **T**O remedy the evil colour of the Green Sickness.

Take Crocus Martis aperitive, Harts horn calcined in fine powder, 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 Damask 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, Tetter, Ring-worms, Scabs, &c. being in these latter 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 powder 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, Tettors, 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 powder (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, Tettors, 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<sup>o</sup> xvij. Goats Milk two Gallons; Shells of Eggs N<sup>o</sup> xvij. 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<sup>o</sup> 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 powder, 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 Cati*, 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, filtered 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 Sun-burnt Skin.*

Take Barley Water, the second water made of hull'd Barley, and filtered 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, Redness, Itching, Ring-worms, Tettors, Scurs, Morpew, and other like Deformities of the Face and Skin.*

Take choice White Wine Vinegar, a Gallon: Juice of Limons filtered 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 aforementioned.

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.

## C H A P. V.

### *Of Cleansing the Teeth.*

I. **T**O *cleanse Teeth which are furred over.*

Rub them every Morning, and every time after eating with *Cremor Tartari* in fine powder ; 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 Ponder to cleanse the Teeth when furr'd.*

Take Red or White Coral, which beat to Powder 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 powder 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 powder to rub your Teeth with.

VI. *Another for the same.*

Take levigated Powder of Crabs Eyes and Claws, and of red Coral, Powder of burnt Harts-horn, *ana* four ounces ; Salt of Wormwood one ounce : mix them, and make a Powder.

VII. *Another Powder for the Teeth.*

Take Pumice-stone in fine Powder, Coral levigated, Brick-dust, of each a pound ; *Catechu* twelve ounces ; Orrice Root, eight ounces : mix and make a Powder 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 Ber, perfumed with a few drops of Oil of Cinnamon.

IX. *To lessen loose Teeth.*

First rub the Teeth with this Powder. Take *Catechu*, *Roch-Alum*, of each alike quantity in fine Powder, mix them, and rub the Teeth with the same. Then wash with this : *Rx* 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 powder 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 Liguor 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 them 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 Lemons; 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.

## C H A P. 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 Brest 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 *Antihæcticum 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 powder, Nutmegs in powder, 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 Chestnut at a time: and at Night let him take this. R Venice Turpentine two ounces; Catechu in fine powder 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 Emerick*, or some other *Antimonial Vomit*, or with *Vinegar* or *Wine*, or *Oxymel of Squills*: 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. Russi*, or three drams of *Elixir Proprietatis* for ten or twelve times, either every day, or eve-

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 *Pilula 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 mithal:* 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 ounces: 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.

## C H A P. VII.

## Of Beautifying the Hair.

I. **T**O 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 Sponge: 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, <sup>Succo</sup> Emblick Myrobalans, of each alike, boil them in Oil <sup>myrtle</sup> 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 greafe: 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 Micedung, and Pouders 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 *Turbit* one dram (in pouders) Bears-greafe 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 afore-said Unguent, and in a quarter of an hour it will do the work, when the hairs are falln 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 powder it well with Sweet Powder, putting it up every Night under a Cap: if the party be naturally of a cold and moist Constitution, the washing, anointing and powdering must be perpetually used once or twice a Week during Life, the Hair being put up every Night.

VI. *To make Hair lank and slag 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 Silver 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 Matrefs, 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 stoppt. 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: powder 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.



C H A P. VIII.

*Of the Art of Perfuming in General.*

- I. **I**N 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.
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C H A P. IX.

*Of the Matter of which Perfumes are made.*

- I. **T**HE 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, Carraways, 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, Cranges, 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 Myressica*; 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 powder, therinto, 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, (Halle 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 squeeze 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.

## C H A P. XI.

### Of Sweet Waters.

#### I. THE first Sweet Water.

Take Cloves in powder 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 powder 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 powder, *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, *Scorax 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 powder 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, *Scorax 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 eleventh Sweet Water, called Aqua Nanfa, 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 grossly 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-savour'd.*

XIII. *The thirteenth Sweet Water.*

Take a quart of Orange-flower water, and as much Damask Rose-water : add thereto Musk-willow seeds, grossly 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 powder, 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 powder, *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 powder, 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 powder 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, *Syrax 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 powder a scruple, mixt with double refined Sugar half an ounce; the ingredients being each a part made into fine powder, mix altogether, and digest in a gentle Sand heat for forty 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.

## C H A P. XII.

### *Of Perfuming Oils and Spirits.*

I. **T**O *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 grossly bruised in spirit of Wine, sharpened 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 aquae rosaceae stillatitiae, quantum satis fuerit, ut optime madeant: appositaeque pileo vitreo caco, stipatisque optime rimis cera gummata, quindecim diebus equino simo macerantur: sic tamen, ut mutato, cum frigescere coeperit, simo, calor equalis servetur. Apposito mox matula rostrato pileo, igne moderato cinerum, aqua omnis elicitur: quae rursus in eadem matula, optime prius à fecibus mundata ablutaque ponitur, & calentis aquae balneo lentissimo igne elicitur, dum tota in vas recipiens abeat. Nam in fundo matula 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 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 powder, 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 grossly 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 powder) 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.

## C H A P. XIII.

### *Of Perfuming Essences.*

I. **T**HE 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 Effence, and a watry *Menstruum* for an oily Effence.

III. If the Effence 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; *Virriol* and *Alom* are very difficult to be separated by reason of their earthy substance.

IV. *To extract the Effence 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 Effence 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 Effence and water ascend, (the Oil remaining at bottom without any scent) that effence and water distil in *Balneo* in a glass vessel, till the water be come off, and leave the Effence 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 Effence 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 Effence remaining expresse in a press: which being a week fermented in dung, will yield the perfect scent, colour and vertues of the matter desired.

VII. *To extract the Effence 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.

## C H A P. XIV.

### Of Perfuming Unguents.

#### I. TO make Unguentum Pomatum, or Ointment of Apples.

Take Calves Suet three pound, Oil of Ben one pound, Sheeps Suet 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) *adepts 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.*

C H A P. XV.

*Of Perfuming Powders.*

I. **T**O make Ponder of Ox dung.

Take red Ox dung in the Month of *May* and dry it well, make it into an impalpable Ponder 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 Ponder.*

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 powder and searce it; of which take one pound, Musk one ounce, Ambergrise half an ounce, Civet two drams, yellow Sanders in powder two ounces, mix all well together in a Marble mortar.

III. *Another way to make the same.*

Take of the aforefaid Powder of Oak-moss one pound, Benjamin, Storax, of each two ounces in fine Powder; Musk, Ambergrise and Civet, of each three drams, mix them well in a mortar.

IV. *A Sweet Damask Powder to lay among Cloaths.*

Take Damask-rose leaves dyed one pound, Musk half a dram, Orrice root, sweet Marjoram, yellow Sanders, Wood of Aloes, Saffras, 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 dried one pound, Cloves in powder 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. *Powder of Sweet Orrice, the first way.*

Take Florentine Orrice-root in Powder one pound, Benjamin, Cloves, of each four ounces in powder, mix them.

VII. *Powder of Florentine Orrice, the second way.*

Take of Orrice-root six ounces, Rose leaves in powder four ounces, Marjoram, Cloves, Storax in powder, 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 grossly powdered, put them into bags to lay amongst linnen: but being fine, they will serve for other use, as we shall shew.

VIII. *Powder 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, powder and mix them for bags. This composition will retain its strength near twenty years.

IX. *Pow-*

IX. Powder of Orrice, the fourth way.

Take Orrice roots in powder one pound, *Calamus Aromaticus*, Cloves, dried 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, powder 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 powder, which put in bags for Linnen.

XI. Another of the same.

Take *Calamus Aromaticus*, Florentine Orrice roots, of each two ounces, Violet flowers dried one ounce, round Cyprius roots two drams; *adeps Rosarum* one dram and a half, reduce all into a very fine powder: it is excellent to lay among Linnen, or to strew in the Hair.

XII. An excellent perfuming Powder for the Hair.

Take Orrice roots in fine powder one ounce and a half, Benjamin, Storax, Cloves, Musk, of each two drams; being all in fine Powder, mix them for a Perfume for Hair Powder. Take of this Perfume one dram, Rice-flower impalpable one pound, mix them for a powder 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 Powder for the like intention.

Take Damask Roses, yellow Sanders, *Lignum Aloes*,  
of

of each four ounces; *Benjamin*, Spicknard, Cyprefs, 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 thoroughly dry.

XVII. *A Powder for a Sweet Bag.*

Take Orrice, Cyprefs, 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 Powder 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, Cyprefs, *Benjamin*, *Calamus*, of each two ounces; Musk, Oil of Savin, of each one dram, mingle them.

XIX. *White Damask Powder very fine for Hair.*

Take Orrice in powder, 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 Powder in Gross.*

Take Damask Roses two ounces and a half; *Calamus*, Orrice, Cyprefs, *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 Powder.*

Take Orrice four ounces; Cloves two ounces; *Labdanum*, Cyprefs, *Benjamin*, of each one ounce; *Calamus*, *Storax Calamita*, of each half an ounce; Civet, Musk, of each ten grains, mix them.

XXII. *Another Sweet Powder.*

Take Orrice six ounces; Cloves four ounces; yellow Sanders, *Storax Calamita*, ana two ounces, *Labdanum* one ounce, Musk a scruple, make a Powder.

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 powder eight ounces, Cinnamon in powder four ounces, Cloves in powder two ounces, mix them for a bag.

XXIV. *Another Powder for Sweet Bags.*

Take Damask Roses four pounds, shavings or raspings of *Lignum Rhodium* three pounds, Florentine Orris in powder 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 powder, and sift it thro' a hair Sieve, &c.

XXV. *A Cypress Powder.*

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 powder; to which add yellow Sanders in powder eight ounces, Musk in powder four drams: Ambergrise two drams: Civet a dram: mix them all well together in a Marble Mortar.

XXVI. *A Perfuming Powder.*

Take Musk-seed eight ounces, Musk four ounces, Ambergrise two ounces, Cloves two ounces, *Virginia Snake-root* one ounce; make each apart into fine powder, 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 Powder, Sweet Bags, and other like things.

XXVII. *To make Grounds for White Powder.*

Take Cuttle-bone in fine powder twelve pounds, white Starch eight pounds, Orrice powder, fine bone Ashes, of each one pound; each being in fine powder, mix them together, and pass them through a fine hair Sieve.

XXVIII. *Another for the same.*

Take pure white Starch, Rice, each in fine powder, of each twelve pounds; Florentine Orrice, in fine powder three pound: mix them.

XXIX. *A Ground for Grey Powder.*

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 powder, pass it through a hair Sieve, and keep it for use; and to be perfumed as you shall see fit.

XXX. *Another Brown Powder.*

Take Rotten Wood, beat it to a small powder, and pass it through a hair Sieve, and then perfume it.

XXXI. *A Perfume for ordinary Powder.*

Take Florentine Orrice in fine powder two pounds; Damask Roses in fine powder, Musk-seeds, in powder, of each one pound; Benjamin four ounces, yellow Sanders in powder three ounces, Storax two ounces, Citron peels in powder one ounce, Cloves in powder half an ounce; mix them: this will serve for forty pounds of white Starch in fine powder, being mixt together, by passing them through a hair Sieve.

XXXII. *An excellent Amber Powder.*

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 powder, and mix them. Then take Machaleb, or Musk-seeds in powder two ounces, Musk ten grains, Ambergrife six grains, both in powder; mix these three things together, and then put them to the former mixture, and keep it in a glass close stopt for use.

## C H A P. XVI.

### *Of Perfuming Balsams.*

I. *Natural Balsams perfumed.*

Take *Balsamum verum* one ounce, Musk, Ambergrife, 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 perfum'd 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.

## C H A P. XVII.

*Of Perfuming Tablets.*I. **T**O *make red Muskardines or Tablets.*

Disolve 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 powder, 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,  
H h 2 Cinnamon,

Cinnamon, Nutmegs, Ginger, of each two ounces, *Cochenele* one ounce, all being in fine powder, 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 powder, 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* dried 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 powder 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.

## C H A P. XVIII.

### *Of making Pomanders for Bracelets.*

I. **T**HE first sort. Take Orrice powder, Cloves, Mace, Cinnamon, of each half an ounce; yellow Sanders, *Styrax*, sweet *Assa*, of each two drams; Ambergrise, Musk,

## Chap. 18. Of Pomanders for Bracelets. 417

Musk, of each one dram ; Balsam of *Peru*, Oil of *Rhodium*, of each one scruple ; Civet two drams, all being in fine powder ( 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*, *Syrax 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 Malmsfey, 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 powder of black fallow Charcole.

X. *The tenth sort.* Take strong Mucilage of Gum *Tragacanth*, in Rosewater, which make into paste with Musk and Ambergrise in fine powder, 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 dried, keep them close from the Air, till you have occasion to use them.

XI. *The eleventh sort.* Take Cloves four ounces, powder 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 powder, of each four ounces; Musk in fine powder, Ambergrise in fine powder, *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 powder four ounces, Cloves in powder, Storax liquid, of each two ounces; *Lignum Aloes* in fine powder one ounce: Musk, Ambergrise, of each one dram in fine powder: beat all in a mortar to a paste, adding more Storax as you see occasion; and so make it up into Beads.

## C H A P. XIX.

## Of Perfuming Wash-Balls.

I. **T**O make Barbers Wash-Balls.

Take purified *Venetian Soap* six ounces, *Macaleb* four ounces, *Ireos*, *Amylum*, of each seven ounces; *Cloves* two ounces, *Labdanum*, *Anniseeds*, of each one ounce; *Nutmegs*, *Marjoram*, *Cypress powder*, *Geranium Moschatum*, *Camphire*, of each half an ounce, *Storax liquida* half a dram, *Musk* ten grains, all being in fine powder, 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 powder, 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 powder, 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 powder; 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 scruple, *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 Sassafras, 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 powder of white Starch, dry them and keep them for use.

VII. *To make the best Bologna 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 *Macaieb*, or Musk-seeds in fine powder, yellow Sanders in fine powder, Orrice-root also in powder, 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 powder five pounds: Orrice powder four pounds: whites of Eggs No. 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, Sassafras, of each four ounces: Nutmegs two ounces; Musk-seeds ten ounces; each made apart into fine powder: 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 powder 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.

## C H A P. XX.

## Of Perfuming Soaps.

I. **T**O *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 unctuousity.

II. *Another way to do the same.*

Grate the Soap, and dry it in the Sun, or an Oven, poulder 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 *Kenice* 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 poulder 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 powder, 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 powder 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.

## C H A P. XXI.

*Of burning and boiling Perfumes.*I. **T**O *make Perfumed Lights.*

Take Olibanum two ounces; Camphire one ounce: beat them into powder; of which make, with Wax, balls or rous, 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 powder 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, *Syrax 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 powder; 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 *Pern*, Oil of *Rhodium*, of each two scruples; Ivory burnt black a sufficient quantity; powder what is to be powdered, 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, *Syrax 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 *Anise*, Amber, of each half an ounce: Time, Sweet Marjoram, *Lignum Aloes*, yellow Sanders, of each two drams: all being in powder, with Gum *Tragacanth* dissolved in Rose-water, make a Mass for Cakes or Balls.

X. *Another for the same.*

Dissolve Gum *Tragacanth* in Damask Rose-water, and make it into a Paste with *Labdanum*, *Syrax Calamita*, Benjamin, Amber, of each two drams: *Lignum Aloes*, *Lignum Rhodium*, of each two ounces: all being in powder; mix, and make Cakes.

XI. *Another for the like intention.*

Take Benjamin, *Syrax Calamita*, Amber, all in powder, of each half an ounce; *Lignum Aloes*, yellow Sanders, of each six drams in powder: 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 *Syrax Calamita* two ounces: Florentine Orrice, Amber, *ana* an ounce and half: Nutmegs an ounce: Musk a scruple: being in powder, 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 powder sixteen ounces: *Storax liquida* eight ounces: Gum *Guajaci*, Mastic, each in fine powder six ounces: *Labdanum*, *Calamus Aromaticus*, yellow Sanders, Xylo-aloes, Sassafras, all in fine powder, of each three ounces: Cloves, Nutmegs in powder, 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 powder, *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 powder, 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 powder four pounds : yellow Sanders in powder, enough to make it into a Paste.

## C H A P. XXII.

### *Of Animal and Mineral Perfumes.*

I. **T**HE *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 Garlic : 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.*

## C H A P. XXIII.

### *Of the Adulteration of Musk, Civet and Ambergrise.*

**B***Y 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 powder, 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 rolling 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, powder 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, powder 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 powder 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 powder 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 powder, Florentine Orrice in fine powder, white Starch, of each seven ounces : Bitumen in fine powder one ounce : Musk in fine powder half an ounce : Ambergrise in fine powder 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 powder 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.

## C H A P. XXIV.

*Of Perfuming Cloth, Skins, Gloves, &c.*I. **T**O *Perfume Skins or Gloves.*

Put a little Civet thereon here and there, (if Gloves, along the seams) then wash in Rose or Musk'd water four or five times, or so long as that they favour no more of the Leather, pressing them hard every time; then lay them in a platter, covered with the said water, mixed with powder 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 Ambergris a sufficient quantity, which mix with Oil of Jasemin, Benjamin or Ben, dissolve at the fire with a little perfum'd 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 Matresses, so will the Skins or Gloves be excellently perfum'd.

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 thoroughly wet; then take them out, and dry them carefully: Take Cloves an ounce and half, in fine powder; mix it with the same water, and lay it upon the Gloves, wetting them thoroughly, 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 thoroughly 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 powder;) 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 : *Syrax 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 Damask 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 powder, of each an ounce ; 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, Saffras 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.*



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# P O L Y G R A P H I C E S

## LIBER SEXTUS

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### *The Art of Dying and Staining.*

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#### C H A P. I.

##### *Of Dying Ash-Colour.*

##### I. **T**O 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 fadder, you must put in more Copperas. *Note, That Handling of it, signifies to Roule 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.

## C H A P. II.

## Of Dying Blacks.

I. **T**O 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.

## C H A P. III.

## Of Dying Blues.

I. **T**O 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 powder, 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 powder 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, unflaked 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 forty 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.* *Limos*, 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. **T**O *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 fadder, put in more Copperas.

II. *To Dye a Sad Brown.*

First insue the matter to be Dyed in a strong Tincture of *Hermoadts*, 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 Lixivate 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-foot *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.

## C H A P. 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

Chap. 5. *Of Dying Cinnamon Colours:* 441

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.

## C H A P. VI.

## Of Dying Clove Colours.

I. **T**O 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.

C H A P. VII.

*Of Dying Flesh Colours.*

I. **T**O 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, dried upon a Pewter Dish before the fire, and made into a fine powder: red Argol in powder 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 powder 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 powder 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 Raspberry 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.

## C H A P. 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 fadder, 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 fadder, add more Copperas.

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 fadder, 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 powder 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 powder, 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.

## C H A P. 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 Poppingjay 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 poulder: 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 Poppingjay Green.*

Take clear stale Bran Liquor, or sowre Tap-wort *q. s.*  
Alum



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 sowie 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.* foregoing.

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.* foregoing : 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 powder *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 powder 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 powder 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*.

## C H A P. 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 powder two pounds: Madder in powder 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.

## C H A P. XI.

*Of Dying Mouse Colours.*I. **T**O *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 fadness; making it fadder with more Galls, and a gentle heat: if you would have it fadder yet, then put in a little Wood-Soot, but then it will become a Brown: boil, and then cool, and lastly fadden 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 fadden 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 faddening, 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 fadden 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 powder 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 fadden 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 fadden, &c.

VI. *Another Mouse, or light Tree-Moss colour.*

Take Water *q. s.* Fustick 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.

## C H A P. XII.

### *Of Dying Pink Colours.*

#### I. **T**O 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 powder, 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 powder 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 powder two ounces; Cochenele in fine powder 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.

C H A P. XIII.

*Of Dying a Rose Colour.*

I. **T**O 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.

C H A P. XIV.

*Of Dying Red-Rose, or Carnation Colours.*

I. **T**O 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.* Cochinele in fine powder 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 Cochinele, 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 Cochinele 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 color by the Sun, Fire, Air, Vinegar, Wine, Urine, or Salt water, &c.

## C H A P. XV.

*Of Dying Red Colours.*I. **T**O *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 Broad 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 powder, fine Vermilion, 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 Water; then dip it into the following Liquor. Take Water *q. s.* Roset 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 powder four pounds: Alum in powder 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 powder: 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 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 powder 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.

## C H A P. XVI.

### *Of Dying a Red Blush-Color.*

I. **T**O *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 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 powder 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 powder 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.

## C H A P. XVII.

*Of Dying Scarlet, and the Bow-Dye.*I. **T**O 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 powder 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 powder : 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 powder ; Cream of Tarter in fine powder 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.*

## C H A P. XVIII.

*Of Dying Sand Colours.*I. *TO Dye a Sand Colour.*

Take water *q. s.* Nut-galls in powder 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 Colour.*

Take water *q. s.* Red-wood ground two pounds and a half. Sumach one pound: enter your Cloth, boil two hours, 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 powder, 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-foot: 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 powder 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.

## C H A P. XIX.

### *Of Dying Snuff Colours.*

#### I. *TO Dye a Snuff or Chesnut Colour.*

Take water *q. s.* Nut-galls in powder 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 ~~Copperas~~ *q. s.* Nedder or Straw-well a sufficient quantity, ~~boil~~ 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 powder 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 fadden 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 fadden 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.

C H A P. XX.

*Of Dying Violet and Purple Colours.*

I. **T**O 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

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.* Cochinele, Tartar, both in fine powder, 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. *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.

## C H A P. XXI.

*Of Dying Yellows, and Orange Tawny.*I. **T**O *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 powder; 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 powder.

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.

## C H A P. 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 scruce 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 thoroughly 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 Vita*, 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 Powder to take out Spots.*

Take Bone-Ashes of Sheeps Legs calcin'd White, make them into subtil powder ; 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 : unflaked 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.*

Squeeze 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.

## C H A P. XXIII.

*Dying of Paper, Parchment, and Leather, &c.*

I. **T**O *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 Iising-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 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 Turneric-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 powder 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.

## C H A P. XXIV.

### *Dying of Wood, Horns and Bones, &c.*

I. **T**O 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 clarify 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. *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 Horfe-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, and 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.

## C H A P. XXV.

### The CONCLUSION.

I. **T**O 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 needles, 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.

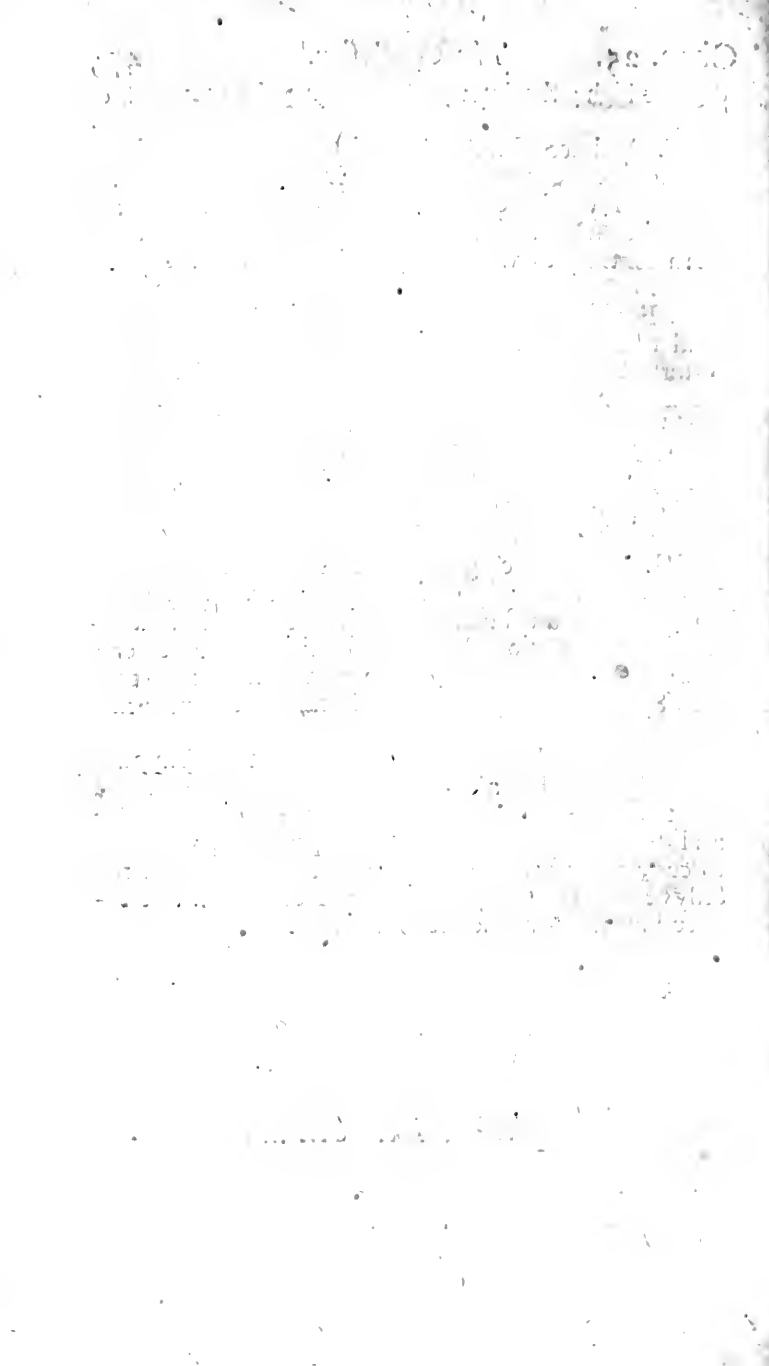
V. For if strange Colours be dipt into Dyes not natural to them, they produce a forced colour of a new texture, such as cannot possibly be preconceived by the mind of Man, although long and continued experience might much help in that case.

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, unknown, 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.*



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# P O L Y G R A P H I C E S

## LIBER SEPTIMUS.

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Of ALCHYMIE: *Wherein is treated of the true Philosophers Tincture, and Process of the same.*

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### C H A P. I.

#### *Of Alchymie in General.*

- I. **A**LCHYMIE 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, Tin-glass, 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 whitening 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 base) into one heap or mass, that they might not be carried away by the wings of the Volatile or base 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 pursuer of better things, may point at the great work it self.

XIII. The Matter of Transmutation is done by that great Ponder, Tincture, Elixir, or Stone, of the Philosophers, which, according to the Opinion of *Paracelsus*, and others the most learned, we shall signify 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.

## C H A P. 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*, *Tucia*, and *Zink*, severally prepared, and mixt *ana*, and then reduced, adjoining 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 powder, *Sal Nitre* in powder 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 Celandine : 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 powder, 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*.

## C H A P. III.

## Of Jupiter, or Tin.

I. **J**upiter 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* afore-said.

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 explanation.*

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 *Phæbus*) 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 powder, 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 inflammable, 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 *Horfe-dung* until the whole be dissolved, augmenting the Salt, if need be. This water is the ferment of *Jupiter*, for the *White Elixir*.

## C H A P. 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 dried, 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 Powder) 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 *seminating* 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.

## C H A P. 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.

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 *Powder*, because the *Powder* 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; coagulate, 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 Poulder 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 till fresh Sal-Armoniack if need shall be, till the whole be made Water. This is the Water of the fixed Sulphur of *Venus*.

## C H A P. VII.

## Of Mercury or Quicksilver.

I. **M**ercury is the Root of Metals, and pure immature *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 intencion: 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 menstruum*.

III. To make our white *Mercury*; This is only done by a simple dissolution in the aforesaid *insipid menstruum*.

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*.

## Chap. 7. Of Mercury, or Quicksilver. 489

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-Armoniac; beat them to a Pouder and mix them well; sublime, first in moderate Fire; then in a stronger; so continuing for 4 hours: take this sublimate, and sublime it again with its *faces* 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 dissolve it in *Aqua fortis*, and evaporate to dryness: mix this 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 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.

## C H A P. VIII.

### Of Luna, or Silver.

I. **L** *Una* 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* (as *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 quantity; 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 Tmia, 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 *ij.* 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.

## C H A P. IX.

### Of the Accidents of Metals.

I. **T**O make Iron of a Gold colour.

Take Alum of Melancy in Pouders, 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 Pouders 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 unslack'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, *ſublimat* 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 cleaned 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 powder, 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 powder ; 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 powder, 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 powder ) 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 powder twenty ounces, small Sand, Flints, Pebbles, or Crystals in fine powder 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 powder, 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 extracteth 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 powder 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 powder, 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 powder 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: powder 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 afore-said 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 powder, which keep for use. 4. Take the afore prepared *Venus*, melt it now a fifth time, to which put of your prepared powder 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 powder 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 Armonick*. 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 afore-said 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 stopp'd 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 powder 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 Glazed 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 poulder 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 poulder ; 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 poulder, 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 Alkali : in it dissolve Sulphur in powder, 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 aforesaid 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.

*XLII. 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.

*XLIII. 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 ingressed. This clearly and very speciously whitens Venus.

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 dried, 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.



## C H A P. 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 conversed 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 fucus 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. *This*

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 *se-  
minal 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 fertile 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 *Yeast* 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 *transfuse*, 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 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 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 inferior 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.

## C H A P. 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 *Lina*.

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 Vita* 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. ounces; or of the finest *Luna* as much; file it very fine; or else take leaf Gold or Silver; then take of the aforesaid Sublimate iij. 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 Bras.

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 xiiij. 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.

## C H A P. XII.

### *Of the Qualities of the Philosophers Stone.*

I. **O**F 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 transmüteth 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 Elebro*, *Mercurius Sublimatus*; in the Metalline Bodies, Tinn, Lead, Wisimuth, 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, Terra, &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 joynd 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 *Subiectum* must be colder than Ice, and yet hotter than Fire, because it must temper the extrem 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 joynd 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 homogeneity 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 Procefs which he hears, whether it be true or not; and whether the desired and hoped for end may be obtained or no.

## C H A P. XIII.

*Of the matter of the Philosophers Stone.*

I. **S**Econdly, 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 *Theophrastos* 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 ambiguity, 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 Mysteries 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 Sphaerae 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: *Unam habetur in hoc Mundo Metallum, in quo Mercurius noster seu aqua hac 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 *Archens* 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 Fleth and Blood, and from one Seed, yet unlike to the Eye and Generation, and yet are but one; so is the Spi-

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 magistry, 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.

## C H A P. XIV.

### *A continuation of the former Discourse.*

I. **O**F 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 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 *Basilins* 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 *Basilus*, 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 *Basilins* 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 grossly 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*

## C H A P. XV.

*Of the preparation of the Philosophers Stone.*

I. **C**ONCERNING 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 Mystery; 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 Powder, 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 separation



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 veiled 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 *Potencies* 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 Nature's 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 Fume* or 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 potable*, 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.

## C H A P. 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 Effence 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 Controller, 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: *Vitriolum 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 Pouders; a Poyson of Poyton, and the true Spirit of Saturn, and of Arsenick.

X. This is afterward our *White Lilly*, or *Spiritus Mercurii*, *Aqua Benedicte*, which Philosophers called a Crystalline Air, coagulated by Nature. *Basilus* 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 Terra n'fra* 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 *Basilus* his Femer Bath.

XIV. Otherwise, if it be dissolved by the common *Aqua Fortis*, and the precipitated Gold by Salt of Tartar be taken, then the Spirits of Vitriol are precipitated 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*, præcipated 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 & Luna* 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 Aquila*, &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 & Luna*, 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 Luna*, 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 flighteth it, cannot make a mixture, nor attain to any dissolution or perfection.

XXIX. But when the Conjunction is done in the afore-said 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.

## C H A P. XVII.

### *The former Discourse continued.*

I. **T**HE 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 dried up many Mens Brains, infomuch, 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 *Mentruum* 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 increased 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, *Comburiat as nostrum cum igne fortissimo*.

XVI. Therefore this burning must continue for a time, if you intend to get the Phoenix; 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 rejoices 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 confess 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.

## C H A P. XVIII.

*Of the Instruments fit for this Work.*

I. **O**F 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 grossly 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.*

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## C H A P. XIX.

### *Of the requisite Fire: and first of the Ignis Externus.*

I. **I**N the next place there followeth the Fire, how that must be governed, so that this most noble Mystery 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 *Arctifus* 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 Terrestrial 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 *Phoenix*, 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 Mariae, 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 Pouders; 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 Poudrer?

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 inflammable 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 Mystery, 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 *coagulare Mercury*.

## C H A P. XX.

### *Of the Ignis Internus.*

I. **T**O 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 Nature 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 Spagyricall 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, or *Aqua 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 Ingredients 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 preparatione superflua removeremus. 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 Mystery they sought after.

## C H A P. XXI.

### *Of the time for performing this Work.*

I. **L** Astly, 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 omits in the Fire, yet so long it must be continued, till the Medicine getteth the true *plusquam perfection*, and is



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*, *Terra*, *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.

## C H A P. XXII.

*Of a profitable particular Work.*

I. **D**Aily 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 falsehoods.

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 Mystery 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 juggling 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 *Sulphur*, 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 Mystery 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 Discours'd 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 wheresoever 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.*

## C H A P. 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 Mollago Wine.

Take a Wine Vessel well Hoop'd 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 Mollago 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 tastes 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 Glasse; 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 stoppt 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 Athes 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 Effence of a Vegetable of its own Species: (some say the juice of the same Plant, but especially the Spirit will do instead of the Effence) 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 Effence thereof.*

Take the whole Plant with Flowers and Roots, bruise them in a Mortar, put all into a large Glafs 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 Powder, 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 dried, (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 *Cank*.

XXI. *To make a Candle that shall last long.*

Mix with your Tallow unslaked Lime in Powder: 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 Walnut, 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 Powder: 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 Powder, which being wetted shall be kindled.*

1. Take a Loadstone, powder it, and put it into a strong Crucible, cover it all over with a Powder made of Calx Vive and Colophonia, of each a like quantity; put also some of this Powder 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, and 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 Powder, Niter, of each a Pound: crude Tartar in fine powder 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 powdered two Pounds: crude Tartar in powder 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 Infusion at first.

*Explicit Liber Septimus.*

P O L Y -

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# P O L Y G R A P H I C E S

LIBER OCTAVUS.

Faber's Arcanum's.

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Containing the 112 Chymical Arcana  
of *Peter John Faber*, a most Eminent  
and Learned Physician.

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*Translated out of Latin into English,*  
By *William Salmon, M. D.*

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## C H A P. I.

*The highest Tincture of Sol, fixed, for Luna.*

I. **T**AKE 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.  $\xi j$ . Lapis Hæmatitis, common Vitriol calcined red, common Salt prepared, A.  $\xi j$ . Bole Armoniack  $\xi \beta$ . German Azure Stone  $\xi \beta$ . reduce all into a fine Pouder, which strew upon the aforesaid Plates (in a strong Crucible) *Stratum super Stratum.*

R r

III. Cement

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 Powder 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 Powder, 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. ℥ij. 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



Chap. 3. *The fixed Tincture for Venus.* 559

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.*

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C H A P. III.

*The White fixed Tincture for Venus.*

I. **R** **M**ercury sublimate ℥β. 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 Powder, 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.

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C H A P. IV.

*The fixed Oil of Mercury.*

I. **R** **M**ercury 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 Powder, 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 cocted 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

Chap. 6. *A fixed Tincture upon Venus.* 561

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. foregoing.*

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C H A P. VI.

*A fixed Tincture to project upon Venus.*

I. **T**AKE fixed Oil of Tartar, (as we shall hereafter teach) Sulphur Vive, A.  $\zeta$ 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.

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C H A P. VII.

*The fixing of Oil of Tartar.*

I. **T**AKE Tartar calcined to whiteness; dissolve it in common Water, filter and make it very pure.

R 3

II. Then

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.

## C H A P. VIII.

### *To fix the Oil of Sal Armoniack.*

I. **T**AKE 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 gloriously 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.

C H A P. 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 Powder.

**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 Glafs Matres 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 Matres, 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 Powder; put it into a strong Glafs 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 Ardentis desigmed, 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) sublimed Mercury, so have you indeed a perfect Medicine.

(a) *At sect. 10. and 11. of chap. 9. aforesgoing.*

C H A P. XI.

*To make an increase of Gold and Silver.*

I. TAKE of the best foliated Sol  $\zeta j.$  of the best Mercury  $\zeta i i i j.$  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  $\zeta v i i j.$  you will have  $\zeta i x.$

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.

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C H A P. XII.

*A fixed Tincture for Venus.*

I. TAKE filings of Venus  $\text{lbj.}$  of the best Mercury washed  $\text{lbj.}$  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 lbj. white Arsenick  $\frac{3}{4}$ vj. white Tartar  $\frac{3}{4}$ j. common Salt decrepitated  $\frac{3}{4}$ j.

III. Beat all together, and imbibe the Pouders 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 Faces, 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.*



## C H A P. 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 *ʒj.* crude Tartar *ʒj.* 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.*

## C H A P. 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 Matres well luted with this following Lute.

III. *R* 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 Matres, wherein is the prepared Mercury, be luted according to Art.

IV. Let

IV. Let the Matres 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 aforesaid place.

## C H A P. 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 powder it, and make an Amalgama with  $\zeta iij.$  thereof with the Mercury of Antimony  $\zeta ix.$  which shut up in a Matres 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 Matres 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.*

## C H A P. XVI.

### *For the making of Sol.*

I. TAKE Niter, Verdigrise, Sulphur vive, Roman Vitriol, A. lbs. Sal Armoniack  $\zeta$ iv. Cinnabar  $\zeta$ 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  $\zeta$ j. then in another Matres, dissolve a part of the best Mercury well washed  $\zeta$ 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.

## C H A P. XVII.

### *For the whitening of Copper.*

I. **R** Common Salt calcined  $\mathfrak{z}$ ss. Quicklime  $\mathfrak{z}$ ss. Arsenick calcined  $\mathfrak{z}$ j. Tartar calcined  $\mathfrak{z}$ ss. fixed Salt Armoniack, Borax A.  $\mathfrak{z}$ ij. Mercury sublimed (a) seven times as much, mix, and make of all a Powder.

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  $\mathfrak{z}$ xiv. or  $\mathfrak{z}$ xlvs. (b) You must calcine it very gently, lest you lose your Labour. (c) Where-soever 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. foregoing.

## C H A P. XVIII.

### *The Cementation of Sol.*

I. **T**AKE Roman Vitriol  $\mathfrak{z}$ ij. Sal Armoniack  $\mathfrak{z}$ j. Verdigrise  $\mathfrak{z}$ ss. Crocus Martis, Niter, A.  $\mathfrak{z}$ i. mix and make a Powder, 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 Pouders, 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.

## C H A P. XIX.

### Oil of Sulphur Vive.

I. TAKE of Tartar calcined ℥j. Sulphur Vive ℥ss. beat them into Pouders, 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 thoroughly 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.

## C H A P. XX.

*A Tincture for Sol.*

**I.** TAKE of Sol  $\zeta j.$  of Luna  $\zeta ss.$  of the best Mercury washed  $\zeta ij.$  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.  $lss.$  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.

## C H A P. XXI.

*The Extraction of Mercury from Antimony.*

**I.** TAKE Antimony  $\zeta viij.$  powder it finely, and put it into Capacious Matress, upon which put the best Aqua Vitæ  $l ij.$  Salt of Tartar  $\zeta vj.$  Sal Armoniack  $\zeta iij.$  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 stop) 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  $\text{z}\text{v}$ .

IV. This is the best Mercury for the performance of the Preparation of that Arcanum at *Chap.* 15. aforegoing.

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## C H A P. XXII.

### *An Elixir of the Golden Work.*

I. **S**ublime Mercury sever. 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.

## C H A P. XXIII.

*Of Drawing forth the Virgins Milk.*

I. **T**AKE 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. ℥ij*. 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 Metallick 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. aforesaid.



## C H A P. 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 Glafs.

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. foregoing.

## C H A P. 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 Powder, 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.*

C H A P. XXVI.

*A Tincture of Silver upon Copper.*

I. **T**AKE of Luna (Amalgamated with Mercury)  $\zeta$ ij. of  $\varphi$  extracted with Calx Vive and Tartar from Mercury Sublimate,  $\zeta$ ij.

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.

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C H A P. XXVII.

*A Tincture of Gold upon Luna.*

I. **T**AKE of fine Luna  $\zeta$ ij. of fine Sol  $\zeta$ j. melt them together, and bring them into thin Leaves, which dissolve in Aqua fortis.

II. To this Dissolution add Mercury seven times Sublimed  $\zeta$ ij. 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.

## C H A P. XXVIII.

*Another Tincture of Gold upon Luna.*

I. **T**AKE 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  $\zeta ij$ . Mercury seven times Sublimed, and reduced again into running Mercury  $\zeta ij$ . mix them well.

III. Then put them into a Fixatory or strong Matress well stoppt, 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 dried, 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.

## C H A P. XXIX.

*A Tincture of Sulphur and Mars for Luna.*

I. **T**AKE Scales of Iron (plenty of which you may find in a Smiths Shop) being beaten off from the red hot Iron,  $lbj$ . yellow Sulphur as much.

II. Mix

II. Mix and burn them together, adding new Sulphur  $\bar{v}$ . or  $\bar{ij}$ . 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 adjoynd 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 Glafs 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 Quantity, mix them throughly, which digest in a gentle heat for one day, till the Mercury is fixed into a Red Powder.

XI. This Red Powder 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.*

## C H A P. XXX.

*A Tincture from Sulphur Vive, and Argentive, 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 lbij. reduce it into Pouders, 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 thoroughly 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 part of it being put upon 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. foregoing.*

(b) *You may first fix it with the fumes of Lead.*

## C H A P. 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 *Crystalline Arsenick* in fine Pouders ℥j. which Sublime once.

III. Beat this Sublimate small, and dissolve it in the aforesaid A. F. and clarify 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.

## C H A P. XXXII.

*A fixed Tincture to convert Luan into Sol.*

I. **T**AKE 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. ℥iij. 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.

## C H A P. XXXIII.

*Mercury Water.*

I. **T**AKE Mercury Sublimate in fine Poudre ℥j. lay it on a strong substantial plate of Tin, with a hole in its middle; place it on a Glasse 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.

## C H A P. XXXIV.

### *To tinge Luna into Sol.*

I. **T**AKE 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 Pouders 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*.

## C H A P. 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 Matres, and Affuse thereon strong Spirit of Vinegar, to which add a good Quantity of dissolved Sal Armoniack.

**III.** Place the Glass Matres 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 Matres 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.

## C H A P. 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 stoppt 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 stoppt.

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.

## C H A P. XXXVII.

### *To turn the fusible Oyl of the Golden Marchasite into Gold*

I. **T**AKE 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 joyne 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. Joyne this fusible matter with the fixt Oyl of the Alcalys, 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.

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C H A P. XXXVIII.

*To make the Oyl of an Alcali to prepare the former Secret.*

I. **T**AKE 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.

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C H A P. XXXIX.

*To tinge Luna into Sol.*

I. **T**AKE of the best Antimony well Poudred one Pound, crude Tartar and Salt, of each as much; Poudre 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 Forces, 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.

## C H A P. XL.

### *To make the Mercury of Antimony.*

I. TAKE of the Regulus mentioned in the former Chapter 4 Ounces, of Sal Armoniack, well deperated by Solution and dryed, 8 Ounces.

II. Pouder and mix them all together, and Sublime them in a strong Glafs.

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.

C H A P. XLI.

*To extract Mercury from Metals reduced into a Calx.*

I. **D**issolve 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 Glafs 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.

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C H A P. XLII.

*To Transmute Antimony into Sol.*

I. **T**ake Mercury of the Regulus of Antimony  $\frac{3}{4}$  of the best Gold filed or made into thin leaves  $\frac{5}{8}$ . 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 Glafs Mortar, with a Glafs Pestel.

III. Being well mix'd, put them into a long Bolt Head well stop'd, and in a gentle heat digest the matter, until it wax black.

IV. Then encrease the Fire, and digest until it grows

T t

white;

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 aforesgoing, it will be an unparalell'd Secret ; and being sweetned with Spirit of May-dew : it cures all Diseases, both Humane and Metallick.

## C H A P. XLIII.

*To make Mercury of Silver, and with it a great Elixir.*

I. TAKE of the best Silver  $\zeta ij$ . 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  $\zeta yj$ . of dissolved Sal Armoniack  $\bar{\zeta} ij$ . digest them in Horsedung for a month, or in Balneo, in a Glass Matrafs very well stop't.

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.

## C H A P. 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 Glafs: which Work repeat till nothing sublime, but all remains at the bottom of the Glafs.

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.

## C H A P. XLV.

*To fix Luna, and tinge it into good Sol.*

I. TAKE Mercury seven times sublim'd  $\text{ʒiij}$ . Gold calcin'd (with Mercury, Salt and Sulphur)  $\text{ʒj}$ . Oil of Crocus Martis often dissolv'd, wash'd and purify'd  $\text{ʒiij}$ . rubify'd Sal Armoniack  $\text{ʒiv}$ .

II. Mix them together, and sublime them with a strong Fire in a Glass Matrass in Ashes: what Sublimes, put again to the Faces 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 powder very small: this Powder 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.

## C H A P. XLVI.

*To fix Mercury into fine Luna.*

I. TAKE of calcin'd Tin  $\text{ʒiv}$ . dissolve it in a sufficient quantity of the Virgins Milk, (in Chap. XXIII. atoregoing.)

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

**Chap. 47. To fix Mercury into fine Sol. 593.**

IV. To the matter remaining in the bottom add  $\zeta$ iv. of the Oyl of *Sal Alkali* (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 Alkali* of the highest order, and possibly the real thing which is intended.

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C H A P. XLVII.

*To fix Mercury into fine Sol.*

I. TAKE of the best Minium  $\zeta$ vi. 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  $\zeta$ iv. mix all together and putrify it for eight days in Horfe-dung or in a Balneo Mariae.

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  $\zeta$ ii. 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.

## C H A P. XLVIII.

*To fix Mercury into fine Sol.*

I. **T**AKE Crocus Martis  $\zeta$ iv. 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,  $\zeta$ ij. Oil of Sal Alkali or fixt Salt  $\zeta$ ij. 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.

## C H A P. XLIX.

*To fix Mercury into fine Luna.*

I. **T**AKE of the best white Lead and of the Calx of Silver (calcin'd with Mercury) of each  $\zeta$ ij. 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

**Chap. 50. To fix Mercury into true Sol. 595**

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.

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**C H A P. L.**

**To fix Mercury into true Sol.**

I. **T**AKE the red mineral stone (*a*) heat it hot, and quench it in strong Vinegar (*b*), do so seven times.

II. Then beat and powder it very small, and dissolve it in common *Aqua fortis* (*c*), putrify the Solution 15 days in Horse-dung, or *Balneo Maria*.

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, dried (*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 multiplied, and its Virtue and Pouer increased and  $\frac{3}{j}$ . 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. aforesgoing. (*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.

## C H A P. LI.

*To make the Oils of Gold and Silver.*

I. TAKE of the Gold, (calcin'd with Salt, Sulphur, and Mercury, and then washed)  $\bar{z}$ ij. dissolve it in a sufficient quantity of *Aqua regia*.

II. Digest it in *Balneo* or Horle-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.

C H A P. LII.

*To fix Luna into Sol.*

I. **T**AKE of dried Roman Vitriol  $\zeta$ xij. Antimony, and Sulphur, of each  $\zeta$ iv. Verdigrise, Sublimate, of each  $\zeta$ ij. Sal Nitre  $\zeta$ vij. make of these a Water according to Art.

II. Take  $\text{lbj}$ . of this Water, and add to it  $\zeta$ 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 powder it: Take of this powder  $\text{lbj}$ . and cast it upon  $\text{lbvj}$ . 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.

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C H A P. LIII.

*To extract Mercury from Sol.*

I. **T**AKE 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 Powder.

II. Take of this prepared Gold  $\zeta$ ij. of the best white Salt of Tartar (from which the best rectified Spirit of Wine has been distilled)  $\zeta$ iv. common Salt decrepitated, dissolved, and congealed again  $\zeta$ ij. Sal-Armoniack purely sublimed  $\zeta$ j. the best rectified Spirit of Wine  $\zeta$ 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.

## C H A P. LIV.

*To fix this Mercury into most fine Sol.*

I. TAKE of the forementioned Mercury (of Sol)  $\zeta j.$  of common Mercury drawn from Cinnabar, with Lime and Salt of Tartar,  $\zeta xx.$  mix all together, and put to it of the best Oil  $j.$  drachm: which mix well together in a strong Glafs.

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  $\zeta j.$  will transmute a thousand ounces of common Mercury (well washed or cleansed) into pure Sol.

(a) See Chapter 23. foregoing.



C H A P. LV.

To fix the Mercury of Luna into Luna.

I. TAKE of Mercury drawn from Luna  $\mathfrak{z}ij$ . common Mercury, drawn from common sublimate  $\mathfrak{z}ij$ . and an half or  $\mathfrak{z}xx$ . Oil of Luna  $\mathfrak{z}ij$ . Oil of Tin  $\mathfrak{z}ijj$ . mix all together.

II. Put them into a strong Glafs Matrafs, 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.

C H A P. LVI.

To cement Luna into true Sol.

I. TAKE of burnt Brass  $\mathfrak{z}j$ . Roman Vitriol made red, and of the best Crocus Martis, of each  $\mathfrak{z}ij$ . Lapis Tutia, Sal-Armoniack, of each  $\mathfrak{z}j$ . 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.

## C H A P. 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 Horsedung 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 extrem 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.

## C H A P. 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 (2) Aqua fortis.

II. Putrify the Solution in Horse-dung for a month, or in *Balneo Mariae*; then distil the matter to dryness, and cohobate upon the Faces 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 Mariae* 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.

## C H A P. LIX.

### To transmute Luna into Sol.

**L**Take ℥j. of the best Aqua fortis, distil it from the Sal Armoniack, and common Salt prepared, of each ℥ij. 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 Matrafs 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 Mariae* 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. LX.

To transmute Venus into Luna.

I. TAKE Mercury drawn from Sublimate with Lime and Tartar  $3\text{viij}$ . of the best Leaf-silver  $3\text{ij}$ . mix and make an Amalgama.

II. Digest this Amalgama in a Matrafs well closed in warm Ashes for a month, till it is converted into a Powder, 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.

## C H A P. LXI.

*A perpetual Silver Mine, that will never decay.*

I. TAKE of the Silver and Mercury in the former Chapter (tj.) 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 Matrafs 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 Matrafs; 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.

## C H A P. 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 covered into a fix'd Oil or Salt which is fusible: take of this fusible  
Salt

## Chap. 63. *A tinging Water to tinge Luna.* 605

Salt of Gold ℥ij. of Mercury drawn from Cinnabar, as is before taught, half a pound.

II. Mix and beat all together in a Glafs Mortar, with a Glafs Pestil; and put it into a strong Glafs Matrafs, with a long neck, which stop or close well.

III. Put this Matrafs 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.

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## C H A P. LXIII.

### *A tinging Water to tinge Luna.*

I. **T**AKE 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 ℥ij. crude Antimony, Sulphur and Mercury sublimate, of each ℥ij. Verdigrise, Lapis Tutia, of each ℥ij. powder them all and mix them.

II. Put them all into a Glafs 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 Glafs 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.

U u

V. The

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 Pouders 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.*

## C H A P. LXIV.

### *To multiply Luna.*

I. **T**AKE 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 Pouders 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 per-spire.

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.

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## C H A P. LXV.

### *To tinge Luna into Sol.*

**I.** TAKE of the red Oil of Antimony, and of the red Oil of Mars, of each ℥ij. 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 foregoing *Arctunums*; 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.

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## C H A P. 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. powder and dissolve it in ℥vj of the Spirit of *May-dew*.

**II.** Mix them in a long neck'd Glass Matras; 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 in 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 ſbj. 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 Mariae* 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 Cheres*, 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 rubiy'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*.

## C H A P. LXVII.

*To fix Luna.*

**I.** Dissolve Sal Armoniack  $\zeta j.$  in the Water or Flegm of Vitriol, and as much, *viz.*  $\zeta j.$  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.

## C H A P. 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  $\zeta i v.$  of these Filings; of Sal Armoniack  $\zeta j.$  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.

## C H A P. 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,  $\zeta ij$ . amalgamate it with  $\zeta xxiv$ . 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 Powder.

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 Powder.

IX. Take half this Gold thus calcined, and the Mercury

**Chap. 69. To reduce Sol into Mercury. 611**

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 stoppt, 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 stoppt, 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 Powder will be turned into Mercury, and there will nothing remain in the Vessel but a black Powder.

XXIII. This Powder, 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.

## C H A P. LXX.

### *To make a Golden Mine.*

I. **T**AKE of the Gold above calcined, whereof we have left a half part for this Arcanum: Take, I say,  $\text{ʒij}$ . 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 Powder 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 Powder.

VII. Of this Powder 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 Pouders, and then into animated Mercury, and this animated Mercury into a Calx, and this Calx project upon melted Gold.

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## C H A P. LXXI.

*To make the aforesaid Mine have the Virtue of tinging Luna into Sol.*

I. **T**AKE what quantity you please of this Mineral or Mine, and put it into a strong Glass Matrafs well stoppt, 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  $\text{ziii}$ . 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 Pouders: one part of this will project upon a thousand parts of melted Luna, and transmute it into fine Sol.

VI. If this Pouders 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.

## C H A P. 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 Poudre, 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



**Chap. 73. To transmute Mercury into Sol. 615**

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 Pouders, 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.

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**C H A P. LXXIII.**

*To transmute Mercury and Luna into Sol.*

**T**AKE of the Mercury aforesaid coagulated and fixed in an Iron Pot, with Verdigrise, Vitriol, Tartar and common Salt: Take, I say, of this Mercury  $\bar{5}$ 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  $\bar{5}$ 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.

## C H A P. 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  $\text{zxxviiij}$ . which imbibe in the following Water eleven times, imbibing and drying in a Crucible upon the Luna.

**II.** Then take of Sal Armoniack  $\text{zxxviiij}$ . Mercury seven times sublimed  $\text{zxxvij}$ . 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 exsiccate 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.

## C H A P. LXXV.

*To tinge the same Venus into Luna.*

**I.** TAKE of the before prepared Alkali Oil, (in Chap. XXXVIII.) Mercury seven times sublimed with fixed Sal Armoniack, of each  $\text{zxxx}$ .

**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 fixed 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 Powder.

VI. Take of this Powder 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 Powder 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 paralleled in purity, whiteness and sound.

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## C H A P. LXXVI.

### To tinge Luna into Sol.

I. TAKE crude Antimony  $\text{℥xx}$ . as much *Crocus Martis*: crude Tartar  $\text{℥xij}$ . Salt Petre as much; powder 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  $\text{℥xvj}$ . of Mercury sublimatè.

VI. Mix them all and let them stand in a Glass Matras

trafs with a long neck, in a strong Sand heat for a month; then difsolve all in common Water, diftilled and warm; filter the Solution, and it will be of a fine red colour.

VII. Diftil it now to drynefs, difsolve again, and diftil to drynefs, doing thus fifteen times.

VIII. So fhall you have at length a red fixt Oil; to which add the Oil of Sol and Oil of Antimony, and digeft them in a Matrafs 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 thoufand parts of melted Luna, will tranfmute it all into good Sol at all affays.

X. But it will be more strong and effectual, if the Luna on which you do project be fixt; yet the confequence of this is not very great in this Work, becaufe 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 Tranfmutation of Metals, if you know how to work.

## C H A P. 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 Pafte of the *Crocus*, which dry with a gentle Fire, then calcine it in a Crucible for four hours, after which difsolve it in common diftilled Water or *May-dew*.

III. Purify and filter the Solution; and what of the *Crocus* will not difsolve, calcine in a strong Crucible with a moft vehement Fire for a day and a night.

IV. Then imbibe it again with the aforefaid Water, and make it pure; which dry and calcine for two or three hours: after which difsolve 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 Matrafs for a month, it will be the more effectual and powerful in Transmutation.

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C H A P. 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.

## C H A P. LXXIX.

*To tinge Venus into Luna.*

I. **T**AKE Luna calcined with Salt, Sulphur and Mercury  $\text{z}ij$ . 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 Lune*, which will transmute Venus into good Luna, one part being projected upon fifteen parts of melted Venus.

## C H A P. LXXX.

*Another way to make the Aqua Mercurii.*

I. **T**AKE of Sol calcined with Mercury, Salt and Sulphur  $\text{z}ij$ . 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*.

C H A P. LXXXI.

To make the Aqua Mercurii another way.

I. TAKE common Mercury well washed and squeezed through Leather, and inclose it in a strong Matrafs with a long Neck, which Seal up Hermetically.

II. The Matrafs 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 Glafs 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.

C H A P. LXXXII.

To make an Elixir of the white Stones found among Lead.

I. TAKE the white Stones which are found in Leadens 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 Pouders.

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,



## Chap. 83. *To prepare an Elixir from Pearl.* 623

XV. Mix, dissolve and digest the Solution, or boyl it in a Glafs Matrafs, 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.

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## C H A P. LXXXIII.

### *To prepare an Elixir from Pearl.*

I. **T**AKE 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 Distill 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.

## Chap. 84. To make small Pearls into great ones 625

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 Faeculent 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.

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## C H A P. 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 Faeces, 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 fastened 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.

C H A P. LXXXV:

To make malleable Glass.

I. TAKE Oil of Luna Twenty Draclims, Oil of Mercury, or its Water seven times rectified, one Pound; mix them together and Distil them.

II. Repeat the Distillation till the *Oleum Luna* 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 multiplied 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.

## C H A P. LXXXVI.

*To make Carbuncles of Crystal.*

I. **T**AKE 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 Matrafs, 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.

## C H A P. LXXXVII.

*To beautify Trees with Fruit three times in a year.*

I. **T**AKE 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

## Chap. 87. To beautify Trees with Fruit. 629

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 stoppt.

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 stoppt.

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 fowr 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  $\zeta j.$  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.

## C H A P. LXXXVIII.

### *To fix Mercury with the Salt of Tin.*

I. **T**AKE pure Salt of Tin purified from all its Forces  $\zeta vij.$  Mercury seven times sublimed  $\zeta iij.$  mix and incorporate them together, and in a strong Glass sublime them.

II. Sub-



**Chap. 89. To fix Mercury into an Oil. 631**

II. Sublime a second time upon the Fœces which are left in the bottom of the Glafs.

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  $\text{ʒij.}$  or  $\text{ʒij.}$  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.

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*To fix Mercury into a white Oil, which will transmute impure Metals into Sol.*

**C H A P. LXXXIX.**

I. **T**Ake pure Oil of Mars  $\text{ʒiv.}$  Oil of Sol  $\text{ʒiv.}$  mix them together, and add thereto Mercury seven times sublimed  $\text{ʒij.}$  mix and sublime them in a strong Glafs 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  $\text{ʒij.}$   
and

and mix them together, by beating and grinding them ; and sublime so long till that which remains in the bottom of the Matrafs 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.

## C H A P. XC.

*To fix Mercury into a white Oil, which will transmute impure Metals into Luna.*

I. **T**AKE *Oleum Luna* and *Oleum Jovis*, of each ℥ij. to which add Mercury seven times sublimed ℥ij. 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 Matrafs.

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 Matrafs.

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,

## Chap. 91. To make a red Tincture of Nitre. 633

Water, and make volatile, and again fixt by Digestion, for a year, in a strong Glass Matrafs 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.

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## C H A P. XCI.

### To make a red Tincture of Nitre.

I. TAKE the best Nitre and powder 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 Matrafs well stoppt.

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.

## C H A P. 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 Matrafs, 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 Luna* 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 multiplied *ad infinitum*; nor need you to do the same Work over again *de novo*.

C H A P. XCIII.

*To make a red Elixir for Transmutation of all other Metals into Sol.*

I. **T**AKE 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 Mariae* 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 Transmutates 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 multiplies the Fruits of all sorts of Trees, if some drops be dissolved in Water, and the Tree watered 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.

C H A P. XCIV.

*To prepare the Spirits of May Dew for the former Secrets.*

I. **G**ATHER Dew in the Month of *May*, with a clean white Linnen Cloth spread upon the Grass, which exprets

express from the Cloth; thus gather a very large quantity; and filter it.

II. Put this into a great and capacious Glass Matrafs, 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 Matrafs 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 Matrafs.

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 Faces and Excrements, is made an Elixir of a wonderful virtue in Transmuting of Metals.

## C H A P. 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 Matrafs 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 Matrafs well stopt, and congeal or evaporate upon warm Ashes.

V. Dissolve

## Chap. 96. *To resolve Sol into its first matter.* 637

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 Luna*, 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.

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## C H A P. XCVI.

### *To resolve Sol into its first matter.*

I. **W**ithout 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-fertis*; 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 stoppt 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.

## C H A P. XCVII.

### *To make the Spirit of Mercury.*

I. TAKE Mercury sublimate ℥j. of the best Potters Clay ℥iiij. powder them both, and with Spirit of May-dew, malax them together, and make little Balls thereof, which dry.

II. Being dried, 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:

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## C H A P. XCVIII.

*To make a Spirit of Lime, which will dissolve all things.*

I. **T**AKE 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.

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## C H A P. XCIX.

*To transmute Jupiter into Luna.*

I. **T**AKE *Jupiter*, melt it, and quenchi it in the Water of Eggshells, 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 Sulphar 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.

## C H A P. 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

**Chap. 100. To make a white Elixir, &c. 641**

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 Matrafs 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  $\zeta$ 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 Alcoholate 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 filtered 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.

## C H A P. 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 *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 rectified 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.

C H A P. 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 re-  
peat 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 dry-  
ness.

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  
Glas Matrafs 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 Pouders being made of both Mercuries with  
Ashes, let it be sublimed for six hours; and to this mat-  
ter add an Amalgama of Luna with the Mercury of Ju-  
piter, 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, Jupi-  
ter, Venus or Mercury, converts them all into fine Luna;  
one part being projected upon an hundred of any imper-  
fect Metal.

X. And if it be projected upon fine Luna, all the Lu-  
na will be turned into a Medicine of equal Virtue with  
the former.

## C H A P. 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 filtered, and this is to be so often done, till it will melt like Wax as aforesaid.

III. Take of this matter,  $\text{ʒix}$ . of pure white Salt drawn from Egg-shells  $\text{ʒix}$ . Mercury seven times sublimed and dulcified,  $\text{ʒxx}$ . pure white Salt of Vitriol  $\text{ʒxviii}$ . 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,  $\text{ʒxviii}$ . of calcined Luna  $\text{ʒix}$ . of sublimed and fixed Sal-Arsenick  $\text{ʒxviii}$ . 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.

C H A P. CIV.

*Of the Physical Stone made of Dew.*

I. **T**AKE 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 this solution in a Matrafs well stop't 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 Matrafs or distillatory.

XIII. Separate the slegm 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 stop't Matrafs, till all is turned into a red fixed Oil, your Medicine will be multiplied both in quantity and Virtue.

## C H A P. 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 Matrafs, with a very strong fire: then sublime without the faces which are left in the bottom of the Glafs.

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 multiplied.

V. And if this fixed Oil be dissolved in our strong Vinegar, prepared in the former Chapter, it will be all converted



**Chap. 107.** *To extract the Mercury, &c.* 647  
converted into a Spiritous Water, which will penetrate  
and dissolve all things.

VI. And herewith are performed strange and stupen-  
dious secrets, with Sol, Luna, and precious Stones, in  
order to Mans health, as also for making Glass mallea-  
ble, and turning it into precious stones.

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## C H A P. CVI.

*To congeal Mercury into Luna.*

I. **T**AKE Auripigmentum, half a pound: Mercury Sub-  
limate as much; mix them, and grind them till  
they become a most fine powder.

II. Put it into a Retort, and distil (according to Art)  
in Ashes a gummosse 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 Sapientie* 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 calci-  
ned and well washed, it will be better, and you will  
find in the fusion a greater quantity of Luna.

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## C H A P. CVII.

*To extract the Mercury of Antimony.*

I. **T**AKE flowers of Antimony made *per se* in an earth-  
en Vessel, as much as you please; and add there-  
to pure Salt of Tartar in very fine Powder, 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.

## C H A P. 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 Luna*; and into Sol, with *Oleum Solis*; the manner and way of doing which, you may collect out of some of the aforegoing Chapters.

## C H A P. 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 powder, and put it into a well luted Receiver.

II. Distil with a strong fire, and what comes over, keep in the Receiver 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 Mariae*.

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 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.

## C H A P. CX.

*A tincture of Luna for other Metals.*

I. TAKE of the mineral of Luna in gross Pouders two pounds: Mercury seven times sublimed half a pound: mix them together, and in *Balneo Maria* 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 stopp'd.

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 stop't; 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 dryness, 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.

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## C H A P. 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 Mariae* 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 Mariae*, 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 *Alhes*.

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.

## C H A P. CXII.

### To extract a red Tincture from Arsenick.

I, **T**AKE Crystal Arsenick half a pound: Powder 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 Mariae* 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.

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C H A P. 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 *humilium Radicale* or Mercury

of Metals; and how to free and deurate 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 employ in depurating and digesting of this Mercury, or *Radical moisture*, or Juice of Metals in these our preceding *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



**Chap. 113. Conclusion of this Eighth Booke 655**

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.

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*Explicit Liber Octavus.*

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# POLYGRAPHICES

## LIBER NONUS.

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### Of Chiromantical Signatures.

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#### CHAP. I.

##### *A Rational Demonstration of Chiromantical Signatures.*

I. **T**HE 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*, *Eptica*, 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

ording 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, Sicknes, Diseases, Perplexities, Cares, Poverty, Crosses, Death, and whatsoever Evil can befall 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 Forehead, and a Head lifted up, Eyes somewhat big, short Nails, 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, quarrelsome, insolent, a Traitor, or a Subverter and Overturmer 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, haughty and imperious. He gives a red Complexion, deep yellow or black Hair, round Visage, fiery Eyes, and a strange 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, Sovereignty, 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 *Ἀλεξίκακος* and Phœbus.

XXI. The Hebrews call him *שמש* Shemesh, from *mi-*signing or serving, he being the chief Minister and Servant

of the whole World; and the Arabians 𐤀𐤍𐤃 Shames.

XXII. He gives Courage, Honour and Majesty, a Man considerate, wise and prudent, one of a middle Stature, comely 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, Uncleannefs and Illness: she signifies Women-kind, Sisters, Ladies, Whores, Curiosities, Lapidaries, Silk-men, Taylors, Mercers, Upholsterers, Pictures, Picture-drawers, the Pox, and Diseases proceeding from Uncleannefs.

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 cheerful Countenance, prettily mixed with Red.

XXV. She gives a compleat Body, enclining to Tanless, 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 Solicitors, 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, & Governesses, 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 increase.*

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 facile 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.

## C H A P. 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.

## C H A P. 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 unfociable, 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 *Seet. IX.* aforesgoing, 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 *Seet. 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 *Seet. 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, Wife, Prudent, Noble and Generous.

XVIII. If the good Characters at *Sett.* 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 *Sett.* 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 Mulick, eagerly running after every thing their fancy affects.

XXI. If the good Characters at *Sett.* 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 good 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 of 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 though wise and discreet and very Ingenious, 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, Concubicators, 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 or 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 *Sett. 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 Luna* 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.

## C H A P. 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 hazard to fall into Thieves hands, and be Robbed.

VIII. If



## Chap. 4. General Judgments of the Hand. 671

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 over-wise.

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 Mischievous:

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, Cenforius, 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.

## C H A P. V.

### *Of the Line of Life.*

I. **K** *Αεθρακη* *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*, foretew Riches and Honour; but if those Branches descend towards the *Restrieta*, 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 *Restrieta*, 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 Wrist, 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 of 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 Sicknefs 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 Sicknefs 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 Sicknefs 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 *Seror 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 Whoredoms, Fornication, Adultery, Incest and Sodomy.

XXXIX. If the same thing be found in a Womans Hand, it shews an infamous, impudent, lustful, shameless Whore.

## C H A P. VI.

### *Of the Epatick, or Natural Line.*

I. **T**HE 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 alio 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 Slandrous 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, threatening 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 Sickneses they signify to happen in the first Age, but they shall not be Mortal: if the said Lines extend to the middle Finger, those Sickneses shall happen in the second Age; but if they reach as far as the fore Finger, those Sickneses 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 Luna*, 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 Clefs, let the Person avoid Princes and great Men, and their Services, lest 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 Cras'd 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  $\oplus$  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 there be a Cross at one of its Extremities, it denotes danger of being Robbed, and at length sudden Death: and if forked in the Extremities, Poverty, Beggary and Contempt; and in old Age, one overwhelmed with Cares, Troubles, Afflictions and Straights.

## C H A P. VII.

### *Of the Cephalica or Head Line.*

I. **T**HE *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 Interfection, 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 Clefts to *Mons Luna*, 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 Child-bearing.

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 *Restrieta* 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  $\oplus$  *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 *Cephalica* 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.

## C H A P. VIII.

### *Of the Mensal Line, or Line of Fortune.*

I. **T**HE *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 foretshews 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 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 Sickneses, 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 Luna*, 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 Luna* 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.

## C H A P. IX.

### Of the *Restricta* or *Cauda Draconis*.

**T**HE *Restricta* is that Line which divides the Hand from the Arm, either by a single, double or triple

Transcription, thereby determining the *ῥῆσιμα* 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 Luna*, 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 Luna*, 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 *Eptica*, 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 Leysdness, Dishonour and Infamy.



## C H A P. 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 Sicknes; 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 Luna*, 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 foreshew 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 Child-bed: 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, Incest 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.

## C H A P. XI.

### Of the Saturnia, or Line of Saturn.

I. **T**HIS 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 *Li-*

*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-murder.

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.

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## C H A P. XII.

### *Of the Linea Solaris, or Stomachica.*

I. **T**HIS Line takes its beginning out of the Line of Fortune, and ascends, dividing the *Mons Solis*, straight to the Ring Finger, which is *Dignus Solis*.

II. In some (arising from the bottom of the Line of Life, or near the *Restrieta*) it ascends even to the third Ligament of the *Dignus 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, Filthiness, 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.

## C H A P. 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 *Tricassus*, 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 extremely given to the Sins of the Flesh, a monstrous Uncleaness, 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 Uncleaness, Whoredom 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, *Siggitur apparet in hominibus Cingulum Veneris, hominem salacem, libidinosum, & insigniter prurientem, sordidum præterea, & in Congressu Venerco, & 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, Bestiality, Chambering, and all other dishonest Actions.



## C H A P. 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 Luna*, 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 Sicknes, 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 Cras'd in his Brain, and so persuade 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 Complaisance; 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 Luna*, 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 *Restrieta* thro' the *Ferrens* or *Mons Luna*, 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.

## C H A P. XV.

*Of the Mount of Saturn.*

I. **T**HE 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*; because 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 preceding 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 Cross or Crosses signify Death for Religion.

V. A Cross 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 nature significantis retinet, sed interdum malitiosam qualitatem inducit, &c.* and that is the Reason that a Cross 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 Cross, 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 prenates 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, shew's 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 Rimulaes, 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.

## C H A P. XVI.

### *Of the Mount of Jupiter.*

I. **T**HE 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  $\Upsilon$  *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, Honett 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 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 Oge, full of Honour and Wealth.

XV. A Crois or two on the *Mons Jovis*, shews Honour, Dignity, Authority, Favour of Kings and Princes, and a fortunate Marriage.

XVI. A Crois 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  $\text{II Gemini}$ , and the said violent Death will happen in *May*; if in the second or middle Joynt, represented by  $\text{♉ Taurus}$ , it will happen in *April*; if in the third or upper Joynt, in the Extremity of the Finger, represented by  $\text{♈ Aries}$ , it will happen in *March*.

XXI. A Crois 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 interfectured, it foreshews Evil, Imprisonment or some great Punishment, or that he may Die in Prison.

XXIII. A Childling 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 Cross 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 Supreme 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.

## C H A P. XVII.

### *Of the Cavea Martis, and the Via Martis.*

I. **T**HE *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* & *Epaica*.

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 *Linea*, 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  $\text{♄}$  *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 *Restrieta*, terminating under the *Mons Luna*, 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 incapable 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 Luna*, it shews much Travel in a Military way, a restless Life, unsettled, and always in Dangers and Hazards.

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.

C H A P. 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 Subtily 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 extreame 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, Honor, 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.

## C H A P. XIX.

## Of the Mount of Venus.

I. **T**HE 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  $\Delta$  *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  
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Mischievous, 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 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, Uncleannels, 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 *Venerreal* 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.

## C H A P. XX.

### *Of the Mount of Mercury.*

I. THE Mount of *Mercury* is the *Tuberculum* under the little Finger, or *Dignus Mercury*, which has  
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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 Luna*, or Mount of the Moon.

II. This Mount happy and fortunate with a Star or parallel Cross, or the Character of the  $\Delta$  *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 Lye, 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 Luna* 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, Falshood, 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 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 Liar, 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 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. foregoing) 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.

## C H A P. XXI.

*Of the Mons Lunæ, or Mount of Luna.*

I. **T**HE *Mons Luna* (called also *Ferrens à Feriendo*, the smiting part) is the Mount comprehended under the *Tuberculum* of *Mercury*, between the *Mensal* and *Restricta*.

II. The *Mons Luna* 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 *Ferrens* 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 Luna*, or the Mount of the Moon, which is called also *Locus Luna*, the Place of the Moon, and the *Hypothenar* or *Subvola*, (*pars ea manûs est quæ opponitur Vole*) 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 Luna* is called *Hypothenar*.

VI. If there be Stars on *Mons Luna*, it shews one Deceitful, Crafty, Treacherous, and a great Liar: Stars in this place signify one Wicked, Infamous, Perfidious,

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Contumelious, a Dissembler, and one not fit to be Converted 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 Croiles 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 Luna*, 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 Sicknes, as the Epilepsie, Apoplexy, Palsie, Gout, Lameness, Convulsions, &c.

XI. If on the lower part of *Mons Luna*, near the *Restricta*, there is a  $\Delta$  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  $\Delta$  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.

C H A P. XXII.

*Of the Mensa, Quadrangle or Table.*

I. **T**HE *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  
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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 *Mensual* 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  $\nu$ , *Jupiter*, it shews Ecclesiastical Preferment.

VII. The same Cross or Star, being doubled or tripled, wonderfully encreaseth the aforesaid good Fortune; but cut or confuted by other little Lines, the said Good is much diverted, and Anxieties and Troubles threaten'd.

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 Luna*, shews Fortunacy in Travelling.

X. If there be no *Mensa*, it shews a cloudy and obscure Line and Fortune.

XI. What and where the *Mensa* or *Quadrangle* is, we have already declared at *Sect. i.* of this *Chapter*, but some Artists will confine it in a narrower Compass, making it indeed to be the Space between the *Mensual* 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* aforesaid, 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 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, extremely Covetous, Cruel, Furious and Unmerciful, False, Deceitful, Mis-

chievious and Quarrellsome, and in a word, one of a very evil Life and Conversation.

## C H A P. XXIII.

### *Of the Fingers.*

I. **O**verthwart 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 grosse 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 Hatred

tred of Kings and great Men; but if intersected, 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 Gemture, more properly demonstrate the times in which the Good or Evil signified by those Marks or Lines, may probably happen.

## C H A P. 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 *Mont Veneris*, it denotes the Person to be *Venerical* 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 Quarrellsome, 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 *Veneal* Sports, Pastimes and Pleasures.

C H A P. XXV.

*The Good and Evil Lines, Marks or Characters.*

I. **T**HE good Lines, Marks or Characters, are Parallels, as = or || double or treble, and the like: Crosses, as + or x 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 Multi-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 shortened; 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 *Aphelical* 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 increases 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. foregoing, 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.

## C H A P. XXVI.

*Containing certain Chiromantical Aphorisms.*

I. **I**ncisures and Crosses upon the Mount of *Saturn*, shew some light Adversities and Disasters.

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 Journeys, 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 lots of Substance in old Age.

IX. Two, three or more parallel Lines upon the *Ferient*, shews many profitable and pleasant Journeys.

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 Luna*, 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 Sicknes, 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 Luna* declares Fruitfulness and many Children; as also safe Delivery in Child-bearing.

XVIII. The *Saturnia* rising obliquely from the *Refricta* 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 Luna*, 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 *Mensual* 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 *Restrieta* and *Vital*, shews an old Age full of Tranquility; and so much the more, if the end thereof upon the *Mons Luna* be adorned with a Cross or Star, or parallel Line.

XXVII. The *Epatica* enclined towards the *Restrieta*, (thereby making a narrow Triangle) makes one not over-Wife, 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 *Mensual* 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*, prefaces 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 Luna*, 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 Luna*, 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 Luna*, tending to the place of *Mars*, shew long Journeys.

XLV. The *Epatica* extremely produced, argues a very long Life.

XLVI. A Cross in the utmost part of the *Mensa* near the *Ferient*, and another in the *Cephalica* near the *Restrieta*, denotes a plentiful Life in old Age, and many successful Journeys.

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 *Restrieta*, between the *Mons Veneris* and the *Mons Luna*, 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  $\Upsilon$  *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 *Restrieta*, 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 Luna*, 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 signifies great Eloquence.

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.*

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*Libri Noni Finit.*

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P O L Y

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# POLYGRAPHICES

## LIBER DECIMUS.

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Of Painting and Coloring, or Staining  
*Glass, Enamel and Gems.*

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### SECT. I. Of GLASS.

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#### 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*, *Rocheta* 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-rack* or *Sea-weed*, called also *Sea-bongs* 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*, *Agypt*, the *Levant*, &c. is the best: that which grows on the Coast 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 smোক, one of which is the *Kali Spinofum*, which is nothing fit for this Purpose at all.

VII. All sorts of Ashes which come from the *Levant*: or *East* are called *Poluvrine*, because it is in Poulder: 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 Poulder and little bits which are less.

VIII. This *Rochetta* which is made in *Syria*, *Agypt* 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 dried them; and thus they continue sprinkling them each time with new Eye; 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 impregnated, by the continual Addition of the *Lixivium*.

IX. *Soda* which comes from *Agypt* 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 dried 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 *Sadz*.

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 *Egypt*, 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 Powder, by beating in a Mortar: then take of these powdered Ashes  $\text{℥x}$ . Tartar calcined to whiteness  $\text{℥j}$ . 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 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 grossly, dry it perfectly in a Furnace gently heated: being dryed, beat it to a gross Pouders 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 increase of the Moon, because then it yields more, better and whiter Salt. It must not be used when it is withered 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*.

## C H A P. II.

### *Of making of Frit for Crystal.*

I. **T**O 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*, *Saravozza*, *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 Glafs.

V. And it is true, that all white and transparent Stones, which will not become Lime; are fit for making Glafs: these, and all Fire Stones, and those which will strike Fire, when they are calcined and reduced to an impalpable Powder, 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 Powder; the Trouble of which has caused the Glafs-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 *Crystalline* Sand lbxx. Salt of *Pulverine* as before prepared lbxiii. 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 Glafs; 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 Rocketta*, 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 blewish color.

XX. To make ordinary *Frit* of *Pulverine*, *Rochetta* and *Barillia*. ℞ *Barillia*, &c. ℥xxx. sine *Tarso* ℥xviij. or xviii.  
making

making the Proportion according to the goodness and fairness of the Barillia: add to these of fine pure Sand Itij. or ijs. 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.

## C H A P. III.

### Of Artificial Crystal.

I. **T**HE 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 Ponder, sift it, and keep it in a Glass close stoppt 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 alio 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 it 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 scattered 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

in England, at Mendip-hills in Somersetsshire, 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 thoroughly 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 Sinoak, 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 crystalline.*

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 crystalline.

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 crystalline Glass ℥xx. and with purified Salt of Tartar ℔ij. your Glass and Crystal will be extremely 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.

## C H A P. IV.

### *Colors for tinging Glass and Crystal in general.*

I. **T**Here 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

**Chap. 4. Colors to tinge Glass and Crystal.** 741

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 guesses, 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 Caesar 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, *Cesalpinus 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*. *Ponsæus* 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 Powder, and to be sifted thro' a very fine Sieve or Serce. Neri has a better Preparation, which makes Glass much finer. R 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 stop't for Use.

XI. There are several ways of giving Glass, Golden, Amethyst 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 propos'd will result.

XII. A Milk-white Color.

R good Crystal Frit lbj. Calces of Lead and Tin ana lbj. Manganese prepared ℥ss. 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.

R Pure Crystal Frit lbxx. Calx of Tin lbij. Manganese prepared ℥ij. 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 ℥xij. 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 lbxx. 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 powder lbxx. Calces of Lead and Tin ana lbij. 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 powdered ℥iij. Scales of Iron from the Smiths Forge powdered ℥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 lbxx. Tartar ℥vj ss. *Manganese* prepared 3x. 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 lbxxv. 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 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, R Crystal Frit made of *Pulverine of Rochetta*, and the Gold color will yet be more excellent.

XX. *A Granat Color.*

R Crystal Frit, *Rochetta Frit ana* ℥xij ss. *Piedmont Manganesse* prepared ℥iv. *Zaffer* prepared ℥ij. 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.*

R Glass prepared and tinged of a Milk white, melt it well, and add to it some *Manganesse* 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.*

R Frit of *Rochetta* ℥xxxv. *Zaffer* prepared ℥iv. *Manganesse* prepared ℥ij. 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.*

R Choice Crystal Frit ℥xxxv. *Zaffer* prepared ℥iv. *Manganesse* prepared ℥ij. 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,

## Chap. 4. Colors to tinge Glafs and Crystal. 745

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 ℥iij. mix them well together. ℞ *Crystal Frit* well made with *Tarso* (not Sand) ℥xx. of the foregoing Powder ℥xx. 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 Powder 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 Powder.

### 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 Glafs 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 extremely beautiful; otherwise it will soon be lost.

### XXVII. A deep Red.

℞ *Crystal Frit* ℥xx. *calcined Tin* ℥ij. pieces of white *Glafs* ℥ij. 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 Powder, *Scales of Iron* from the Anvil in fine Powder, of each ℥j. mixed together: stir well the Glafs with an *Iron Stirrer* as you are putting in the Powder, to hinder it from rising too much. Put not in too much of the Powder, lest you make the Glafs black, which ought to be clear and shining, and an obscure yellow: then take *Copper calcined* and prepared (as hereafter in chap. 7.) ℥vj. 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 ℥ij. Sal Armoniack ℥j.* 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, becaule 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.*

R 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: R 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. R Gold colored *Orpiment*, white *Arsenick, ana ℥iv.* crude *Animony, Sal Armoniack, ana ℥ij.* 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 bot om 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. foregoing: 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 mould 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 searce 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 lbxv. Crystal Frit or common Frit lbxij. 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* lbxx. fine Sand, Salt of *Pulverine*, ana lbx. 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 seffam*.

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 Poudre 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

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well,

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.

℞ Crystal Frit powdered and scarced lbxx. Calx of Lead sifted lbxxj. 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 cleaned 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 calined Scales of Copper in fine Powder ʒvj. *Crocus Martis* made with Vinegar in Powder gr. xxiv. mixt together. Put in this Powder 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 Faeces (if any) may præcipitate, and so work it. It is scarcely to be distinguished from a true Emerald.



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 lbxvj. Copper Scales thrice calcined in Pouder ℥vj. Crocus Martis made with Vinegar gr. xlviij. 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 lbxx. Calx of Lead lbxvi. 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 Faces precipitate; if the color pleases, then work it.

XIV. *A Saphir Color in Glas of Lead.*

℞ Crystal Frit in Pouder lbxv. Calx of Lead searced lbxij. 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 Glas of Lead.*

℞ Crystal Frit in Pouder lbxv. Calx Saturni in Pouder lbx. 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 Glas at sect. 12. above, incorporate, purify well, and you will have Glas 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* ℥ix. 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 Matras 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 Faces separated. Put all these Tinctures into Glass Vessels, and let them stand to settle; decant

decant the clear and filter. Put this filtered Liquor into a Glafs 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 Glafs 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 Glafs 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 Pastes 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 Pastes 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 Pastes 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 Pouders into a Glafs 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 crystalline 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 crystalline 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 skinn'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 Powder, and keep them in a Glass close stoppt 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 lbx. each in fine Powder 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 Powder on a Marble, and keep it in a Glass well stoppt, to serve for a Basis, of which to make all sorts of Artificial Gems, as we shall hereafter teach.

XXIII. *To make Yellow Rocaille.*

℞ *Alunism* lbj. fine white Sand lbij. 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 Glafs, which make up into Grains or Beads as you please.

XXIV. *To make Green Rocaille.*

℞ *Minium* ℥j. fine white Sand ℔ij. 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 Glafs, 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 crystalline Matter made of *Saturnus Deputatus*, is much better than this.

C H A P. VI.

*Of Colors from Iron.*

I. *Natural Ferretto.*

The Name comes from the *Italians* and *Spaniards*, as *Cesalpinus 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 Hematites*, 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 *Hematites* 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 Pouders, 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 Pouders, 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. i. 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 Pouders, and searce 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 Pouders, searce 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 Pouders, *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 Glafs 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 searce 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 thoroughly 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, searce, and keep it for Use. This tinges Glafs, &c. of a true Blood red color, and complies very much with Greens and the Emerald Glafs 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, searce, 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, searce 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 Powder, of no less Virtue and Beauty than the former, which keep for Use.

## C H A P. VII.

### *Of Colors from Copper or Brass.*

I. **T**O Calcine Copper to make *Virriol of Venus*.

℞ Thin Leaves of pure *Venus*, put them into Crucibles with common Sulphur in Powder 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: powder and searce it. ℞ of this Powder ℥ij. Sulphur in Powder



## Chap. 7. Of Colors from Copper or Brass. 759

der ℥xij. 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 thoroughly kindled Charcoal, and place the Pot, having the Powder 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 Powder: 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 Powder, 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 Powder of Sulphur ℥vj. and calcine it thrice, as exactly as we have taught in the former Section. To ℔j. of this Powder 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 make the Vitriol of Venus.*

Put all your former Tincture into a low Glafs 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 Glafs 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 *ibx* of this Tincture to *ibijss*. or *ibijj*. at most: then decant it into 2 or 3 glazed Earthen Pots, and set it into a cold moist place to crytallize; so will the Crytals or Vitriol shoot to the bottom and sides, and stick there like little long Iccicles, having the true color of an Oriental Emerald: pour the remaining Water or Tincture into the Cucurbit, and evaporate again to one half, and crytallize as before: and thus continue to evaporate and crytallize, till you have obtained all the Vitriol: these Crytals or Vitriol gather and dry, that it may not stick, and keep it in a Vessel close stoppt. Its Excellencies are admirable, not only in the Art of Glafs, and in Metalick Works, but in Physick also.

IV. *To Extract the Spirit of this Vitriol.*

℞ Of the former Vitriol *ibj*. put it into a Glafs 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 Glafs Bottles, which stop close with Glafs 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 *ibjss*. of it add *ziv*. of *Zaffer*) and keep it  
for

## Chap. 7. Of Colors from Copper or Brass. 761

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 ℥viiij. 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 *Foſtoons*: 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 10 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 Pouders, which will be very red; searce it, and keep it for Use. It is an admirable thing for coloring Glafs.

X. *The treble Calcination of Copper.*

℞ Of the red Pouders in the former Section, put it on Tiles, and calcine again for 4 days; so will it be black, and coagulated into a Mass: pouders and searce it, and in the same Furnace calcine again for 5 or 6 days, and it will become grey without coagulating. With this Pouders 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 Glafs; and you may know when it is well calcined, by putting some of it into a Pot of boiling Glafs; if it makes the Glafs 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 Brasses, 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 searce: put this Pouders into the Furnace to reverberate for 4 days longer, and it will be in little Balls of a black color: pouders and searce again. Then put this Pouders once more into the Reverberatory for 4 days more: pouders, searce, 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 ℥xv. Sulphur in Pouders ℥x. Sea Salt in fine Pouders ℥v. 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 Pouders. ℞ Sulphur ℥ij. Saltpetre ℥ij. Vitriol calcined to redness ℥ij. make all into a Pouders. Put the Plates with the Pouders into a Crucible S.S.S. cover it with another Crucible, having a hole in its bottom; lute them together;

## Chap. 7. Of Colors from Copper or Brasse. 763

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 Poudre, 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 Poudre, put it into an Earthen glaz'd Pot, affuse thereon Urine, adding to each pound of Urine fixt fusil Sal Armoniack ℥iv. boil on a gentle Fire for a quarter of an hour, then decant the Urine into some Glasse 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 Glasse.

### 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* ℥ij. Sulphur *Vive* ℥viiij. 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 Glasß.*

℞ 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 ʒvj. Zaffer prepared ʒjss. 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 *Rochet:a*, put calcined Copper (at *sect.* 7. above) ʒvj. 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. Pouders of Copper thrice calcined at *sect.* 7. aforesgoing ʒvj. Zaffer prepared in Pouders ʒjss. 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

## Chap. 7. Of Colors from Copper or Brass. 765

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 Pouders 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 Pouders ℥ss. Zaffer prepared ʒj. ʒij. ʒiij. 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 heightened 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 Pouders, and in the same Proportions mentioned in the last *section*; (it being first thoroughly 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 Pouders, 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 Pouders of the treble Calcination of the Scales of Copper at *sect.* 11. above: Pouders of Scales of Iron, only washed, dried, 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 thoroughly take the color; so will the Metal loose its natural ill color, and become green; then add Powder of treble calcined Scales of Brass at *sect. 11.* above ℥vijs. 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 Powder of thrice calcined Copper at *sect. 10.* above ℥ijs. *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 Powder of calcined Vents.

XXVI. *An Oriental Emerald Green, finer than all the rest.*

℞ Crystal Frit well washed ℥vijs. common Frit of *Pulverine* ℥vj. common white Glass in Powder ℥vijs. *Minium* or red Lead ℥vijs. 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 dried, 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 Powder for this Work.

XXVII. *To make a Turcouis Blew.*

℞ Crystal Frit of a full fair blew color, melt it well; put



## Chap. 8. *Cements, Mineral Colors, &c.* 767

put into it by little and little well decipitated 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 penettating the Glafs; 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 Glafs 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 decipitated Salt. The Salt is to be well decipitated, 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: *R Crystal Frit, good Rochetta Frit, of each equal parts; melt and mix them, and it will be a very fair Blew.*

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## SECT. II. *Of GEMS.*

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### 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 powder 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 Glafs 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 Liqueur into them.

IV. *Or thus*, Take White Lead, Red Lead, Quick-Lime, Gum-Sandrack, of each  $\mathfrak{zj}$ . 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 Powder of Glass, Quick-Lime, liquid Varnish, of each a sufficient quantity.

VIII. *Or thus*, Take Quick-Lime powdered, 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  $\mathfrak{bbj}$ . Quick-Lime  $\mathfrak{bbij}$ . 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 Sapphire 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 Powder: of which Powder 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 Bubbles, 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 Powder, 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 Powder 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*  $\zeta$ iv. Crystal  $\zeta$ iiij. Scales of Brass  $\zeta$ fs. 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, powder and searce

it, to which add a little calcined Brass; melt all again, and add a small 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 lbj. *Manganese* ℥j. mix them together, and melt them.

XXIII. *Or thus,* Take *Sal Alkali* ℥ij. Powder of Crystal ℥iv. 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 sixth 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 lbj. add *Crocus Martis* ℥ij. red Lead ℥ij. 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* ℥j. Vermilion ground fine ℥ss. Quick-Lime and Powder of calcined Flints, of each ℥vi. 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 Powder ℥ij. 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 Powder 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 ℥ijss. *Sal Alkali* ℥ij. *Flos Eric* infused

**Chap. 8. Cements, Mineral Colors, &c. 771**

fused in Vinegar and strained  $\mathfrak{z}i$ . *Sal Tartari*  $\mathfrak{z}i$ ss. 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  $\mathfrak{z}x$ . *Crocus Martis* and Brass twice calcined, of each  $\mathfrak{lb}j$ . mix and melt them, stirring them well with an Iron Rod.

**XXXIII. An Artificial Sapphire.**

To melt Crystal, put a little *Zaphora*, ( $\mathfrak{z}ij$ . to  $\mathfrak{lb}j$ . 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  $\mathfrak{z}ij$ . Cherry-tree Gum  $\mathfrak{z}j$ . make the Gums into Pouders, 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 Sponge, take off the Froth, to the rest put Saffron, put all into a Glass close stoppt, 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  $\zeta$ ij. Calx of Tin  $\zeta$ iv. make it into a body with Crystal  $\zeta$ xij. 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  $\zeta$ ss. 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  $\zeta$ j. 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 dried; of this gr. v. or vj. to  $\zeta$ j. gives a mixed color.

XLIII. Gold must be dissolved in *Aqua Regis*, and præcipitated with Liquor of Flints, then sweetned and dried; of which gr. v. or vj. to  $\zeta$ j. gives a glorious Saphirine color. Gold melted with *Regulus Martis nitrosus* gr. v. or vj. to  $\zeta$ j. gives an incomparable Rubine color.

XLIV. *Magnesia* in Poulder only gr. x. or xij. to  $\zeta$ j. makes an Amethyst color.

XLV. *Granata* in Poulder only gr. x. or xv. to  $\zeta$ j. 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*: Wifnut, a common *Blew*: *Magnesia*, an *Amethyst color*: Copper and Silver, an *Amethyst color*: Copper and Iron, a *pale Green*: Wifnut and *Magnesia*, a *Purple color*: Silver and *Magnesia*, an *Opal*, and the like.

XVII. *To make Azure.*

Take *Sal Armeniack*  $\zeta$ ij. Verdigrise  $\zeta$ vj. make them into Poulder, and put them into a Glas with Water of Tartar,

**Chap. 9. Of Artificial Gems in general. 773**

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 Powder.*

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 Powder.

**LI.** *To reduce Glass into its first Principles.*

Take Bits or Powder 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.*

**R** Old *Cheshire* Cheese freed from its outside, and grated small lbj. Cows Milk lbj. mix and let them stand all night. Then take of the best unslacked Lime in very fine Powder lbj. 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. f.

**LIII.** *To*

LIII. *To make a hot Cement for Bricks.*

℞ Rosin ℥iv. Bees-wax ℔j. Chalk, Brick-dust, both in subtil Pouders, 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.

## C H A P. IX.

### *Of Artificial Gems in general.*

I. **I**T 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 Aët, 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



## Chap. 9. Of Artificial Gems in general. 775

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 thoroughly 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 Pouders in a Brass (not Iron) Mortar, and grind it impalpable, not on a Porphyry, but in the same Mortar, and pass it thro' a Searce; which Pouders 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 Powder of Natural Crystal, which the nearest approaches to the Substance of Gems or precious Stones. See another Preparation in *cap. 4. sect. 29.* foregoing.

X. *To make very pure Salt of Tartar.*

℞ Rhenish Tartar, put it in a Crucible or Pan, and calcine to greynefs: extract the Salt in warm Water, filter, and evaporate to drynefs: 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 drynefs, and keep this Salt in a Glass close stoppt for Use, freed from all its Foulnefs and Uctuosity, 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 Glafs 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  
Glafs

Glass reduced into impalpable Powder, adding to it some Borax in Powder, 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 smallness: 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 Artift 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 *Blem* from *Silver*; but a much fairer from *Granats* of *Bohemia*, which are of small Price by reason of their smallness, 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 other Artificial Gems or Precious Stones; and without this, nothing excellent or drawing to Perfection, can be done in this Art.

## C H A P. 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.*) ℥x. *Minium* or red Lead ℥xxv. *Zaffer* prepared ℥v. gr. v. being all in fine Pouders, 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 ℥x. *As Ustum* ℥j. gr. xv. mix, and in a Crucible perform the Work as the former.

II. *Another Beryl or Egmarine.*

℞ Pouders of Rock Crystal ℥x. fine Salt of Tartar (in *cap. 9. sect. 10.*) ℥x. Salt of Vitriol ℥lx. all being in fine Pouders, searced and mixed in a Brass Mortar, proceed as in *cap. 14. sect. 3.* following.

III. *Another deeper Beryl or Egmarine.*

℞ Prepared Rock Crystal ℥x. fine Verdigrise ℥iij. ℥j. fine Salt of Tartar ℥xiiij. mix all in a fine Pouders in a Brass Mortar, and proceed as before, *cap. 14. sect. 3.*

## C H A P. XI.

*To make a Chalcedony.*

I. *TO make an Aqua Fortis for this Purpose.*

℞ Roch Alum calcined on a Fire-shovel lbxxv. refined Nitre lbv. Crystalline Arsenick ℥xx. all being in fine Pouders, add to it fine Sand or Lime ℥xxxv. 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. R. Of the foregoing *A. F.* ℥ij. put it into a Bolt-head; and put to it fine Silver in Filings or thin Plates ℥iv. and in a gentle Sand heat or warm Water, dissolve, which will be instantly done. 2. R. *A. F.* (at sect. 1.) ℥jss. put it into another Bolt-head; and put into it Quick-silver ℥vj. mix and dissolve. 3. Put both these Solutions together in a third Bolt-head much greater, add to it *Sal Armoniack* ℥vj. dissolve over a gentle Fire, or in B.M. viz. warm Water. 4. Then add to it *Zaffer* prepared ℥j. *Manganese* prepared ℥ss. *Ferresto* of Spain ℥ss. 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.) ℥j. Scales of Copper thrice calcined, (in cap. 7. sect. 11.) which ought to boil like *Manganese* ℥j. blew Lake which Painters use, *Minium*, of each ℥j. the whole being in fine Pouders. 6. In putting in these Pouders, gently shake or stir the Glafs, 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 Glafs close stoppt for Use.

III. To make a fair Chalcedony in Glafs.

R. White Crystal Glafs well purified, or which has been often melted ℥xxx. which put into a Pot and melt it: of the former yellow Præcipitate ℥ijj. 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 ℥viij. Soot purified ℥ij. Crocus Martis calcined with Sulphur ℥ss. 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 Precipitate.

1. *℞* A. F. ℥ij. put it into a Glass Matrass; to which put Filings or granulated Silver cupulated ℥iv. dissolve. 2. *℞* A. F. ℥ij. put it into another Glass Body: add purified Quick-silver ℥v. dissolve. 3. *℞* A. F. ℥ij. put it into another Glass Body; to which put *Sal Armoniack* ℥ij. 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 ℥ss. all being in Poulder, put it in by little and little, lest the Vessel should break. 4. *℞* A. F. ℥ij. put it into another Glass Body; to which put *Sal Armoniack* ℥ij. being dissolved, add *Gradatim*, crude Antimony, blew Enamel which Painters use, red Lead; Vitriol well purified, *ana* ℥ss. all being in fine Poulder. 5. *℞* A. F. ℥ij. put it into another Glass Body; and put to it *Sal Armoniack* ℥ij. being dissolved, add to it *Zaffer* prepared ℥ij. *Cinnabar* ℥i. thrice calcined Copper (in cap. 7. sect. 10.) ℥ss. all being in fine Poulder, put it in by little and little, for fear of breaking. 6. *℞* A. F. ℥ij. put it into another Glass Body: *Sal Armoniack* ℥ij. being dissolved, add *Ceruse* ℥ij. by little and little, because it makes a great Fermentation: then add *Painters red Lake*, Scales of Iron from the Anvil, *ana* ℥ij. putting them in *Gradatim*. 7. The Solutions of the Materials being done, in about 12 days time, put all together

ther into another large Matrafs well luted, shake 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 Pouders is spoiled by too much heat. This Pouders keep in a Glafs close stopp'd 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 Matrafs, and put to it Leaf Silver ℥iv. mix and dissolve. 2. ℞ *A. F.* ℥ij. Quick-silver purified with Salt and Vinegar till its blackness is gone ℥v. mix in a Glafs Matrafs, 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.* ℥ij. put it into a Matrafs, and put to it the former Calx of Silver, stop the Vessel and let it dissolve. 6. ℞ *A. F.* ℥ij. put it into another Matrafs: Sal Armoniack purified ℥iij. (*viz.* dissolved and filtered till it leaves no Fœces) fine Silver Calx ℥ii. mix them. 7. ℞ *A. F.* ℥ij. 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 Pouders, put it in Gradatim, and stop the Matrafs. 8. ℞ *A. F.* ℥ij. purified Sal Armoniack ℥ij. being dissolved, add to it *Crocus Martis*,

(in *cap. 6. sect. 7.*) Putty or calcined Tin, Zaffer prepared, Cinnabar, *ana* ℥ss. put it in *Gradatim.* 9. ℞ *A.F.* ℔j. Sal Armoniack ℥ij. dissolve, and add Copper Leaves calcined (in *cap. 7. sect. 8.*) ℥j. Scales of Copper thrice calcined, (in *cap. 7. sect. 11.*) *Piedmont* Manganese prepared, Scales of Iron falling from the Smith's Anvil in Poudrer, *ana* ℥ss. all being in fine Poudrer, mix *Gradatim.* 10. ℞ *A.F.* ℔j. Sal Armoniack ℥ij. mix and dissolve: add to it Scales of Copper thrice calcined (in *cap. 7. sect. 11.*) ℥j. red Lead, crude Antimony, *Caput Mortuum* of Vitriol purified, (in *cap. 7. sect. 5.*) *ana* ℥ss. mix *Gradatim.* 11. ℞ *A.F.* ℔j. Sal Armoniack ℥ij. dissolve, and add to it Orpiment, white Arsenick, Painters Lake, *ana* ℥ss. being in Poudrer, 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 Matrafs 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* ℥ij. and add to it, in its due time, calcined Tartar ℥vij. Soot purified ℥ij. *Crocus Martis* made with Vinegar (in *cap. 6. sect. 7.*) ℥ss. observing all that we have said in *sect. 3.* above, after which you may work it, being of an extraordinary Beauty, beyond Expectation.



C H A P. XII.

Pastes for an Oriental Chrysolite.

I. **A**N Oriental Chrysolite.

℞ Rock Crystal prepared ʒ20. *Minium* in fine Poudre ʒ30. 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.

℞ Poudre of Rock Crystal, (in cap. 9. sect. 9.) *Saturnus Depuratus*, ana ʒ10. *Crocus Martis* prepared ʒi. all being in fine Poudre 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 *Chrysolas*, 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*.

C H A P. XIII.

Of making fair Oriental Diamonds.

I. **T**HE first way of making Diamonds.

℞ Prepared Crystal in Poudre (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  
 H h h 2 Water,

Water, dry and reduce it again to Pouders: add to that Pouders 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.*

℞ *Durch 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 circular 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.

## Chap. 13. To make Oriental Diamonds. 785

hours. Let all cool of it self; break the Crucible, and your Stones being repolish't 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.*

R Load-stone, Quick-lime, ana lbj. Sulphur lbs. 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 distinguished 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. R 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: R *Cruo 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.*

R Pure fine Sand, wash it in Water till it is perfectly clean, and dry it: fill a Crucible half full of it, then

Hhh 3

put

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 Powder, being made into a Paste with Spittle, and well dried, putting the Saphir in the middle, &c.

## C H A P. XIV.

*Pastes for an Oriental Emerald.*

I. **T**O make an Oriental Emerald.

℞ Of the Paste in *cap. 5. sect. 22.* ℥x. Verdigrise prepared ℥ss. Ferretto of *Spain* (in *cap. 6. sect. 2.*) ℥ss. all being in fine Pouders, 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 ℥x. prepared *Sal Tartari* (in *cap. 9. sect. 10.*) ℥xss. *Crocus Martis* ℥ss. all being made into a fine Pouders 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.*) ℥x *Minium* or red Lead ℥xx. powdered and sieved: fine Verdigrise well beaten ℥ss. *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 Polished 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 thoroughly 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.*) ℥iv. *Minium* ℥xiii. Verdigrise prepared ℥iſs. *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.*) ℥ij. *Minium* ℥vij. Verdigrise gr. xviii. *Crocus Martis* gr. x. all being in Powder, mix well and proceed as we have directed in *sect. 3.* foregoing; 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* ℥ij. *Minium* in Powder ℥vj. fine Verdigrise in Powder gr. viii. 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* ℥iv. red Lead, fine Verdigrise scarced, ana ℥ij. 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

certainly 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.

## C H A P. 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 Pouders, mix them, put the whole into a Crucible, which cover and lute, and proceed as directed in *cap. 14. sect. 3.* foregoing: 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 Pouders, 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 Pouders ℥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 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.

## C H A P. XVI.

### *Pastes for an Oriental Jacynth.*

I. **A** *Paste for a fair Jacynth.*

℞ Rock Crystal Powder (*ut supra*) ℥ij. Minium ℥v. Sublimate ℥ss. Verdigrise fine gr. xlviij. Leaves of Silver N<sup>o</sup>. xij. all being made into fine Powder 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, ponder 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 Powder (*in cap. 9. sect. 9.*) ℥ij. Minium ℥vj. Verdigrise fine ℥iss. mix all well together, being made into Powder, 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 Powder 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 Fargons of Avernia (which are called false Jacynths, when they are of an ill color) to be red and like the true natural Fargon.*

Make a Powder of equal parts of purified Sal Armoniack,



ack and Tartar calcined to whiteness; being in fine Pouders, mix them well, and put your Jargons into a Crucible, laying them S. S. S. beginning and ending with the Pouders: 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 Pouders: 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.

## C H A P. XVII.

### *Pastes for making Artificial Pearls.*

I. **T**HE 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 Matrafs, 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 Matrafs, 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 powder 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 stoppt Glass Alembick, that the Air may not spoil them: thus dried, 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 ℥vj. Litharge of Silver, Nitre, Roch Alum, *ana* ℥j. 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 Pouders of *Lapis Calaminaris* ℥ij. Oil of Vitriol ℥ij. Water of Whites of Eggs ℥ij. 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 ℥j. Quick-silver purified ℥ij. 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 Matrafs, 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* ℥j. grind them well together on a Porphyry: put them into another Matrafs, 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 crystalline Substance: this reduce in a Mortar to a very fine pouders, which scarce thro' a fine Sieve, put it into a Matrafs, 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.  $\mathcal{R}$  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 dried 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.*

## C H A P. 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

Chap. 18. *Of making Artificial Pearls.* 795

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 powder, 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 gley 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 Glafs ℥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  
*Anima,*

*Anima* 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, Præcipation, 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  $\text{ʒvj}$ . Talck  $\text{ʒj}$ . 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 dried 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  $\text{ʒij}$ . prepared Salt  $\text{ʒj}$ . 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

## Chap. 18. Of making Artificial Pearls. 797

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. i.* 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 stoppt, 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 powder 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 powder *℥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 Helmin *Balneo Mariae*, and so there will be drawn off by a gentle Fire a Mercurial Water. Then take of the best small Oriental Pearls *ʒj.* 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 Household 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 stoppt, 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 powder of Pearl  $\text{ʒvj}$ . Salt-petre  $\text{ʒj}$ . Roch Alum and Litharge of Silver  $\text{ʒij}$ . 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 powder, Vitriol, of each  $\text{ʒj}$ . 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 Tooth till they shine well. To give them the true color; Boil Parchment or Vellom Shavings (being first clean wash'd 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  $\text{itj}$ . Solomon's Seal  $\text{ʒij}$ . Camphir  $\text{ʒfs}$ . 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  $\text{itj}$ . consound Water, Alcohol of Wine, of each  $\text{ʒxij}$ . Lime, Eggs, of each  $\text{ʒj}$ . Bean Flower  $\text{ʒfs}$ . 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

## Chap. 19. *Pastes for Oriental Rubies, &c.* 801

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.

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## C H A P. XIX.

### *Pastes for Oriental Rubies and Carbuncles.*

#### I. *Paste 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 powder 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. *Paste for a Balas Rubie.*

℞ Of the Paste (in cap. 5. sect. 22.) ℥xij. *Crocus Martis*, Vitriol (but some say Mercury) calcined *ad Rubedinem*, *ana* ℥j. *Sal Gem* ℥ls. all being in very fine powder, mix them well together, and proceed as in the former Section; so will you have a Mass of the fine color of a Balas 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.) ℥ls. mix all well together, being in fine powder,

pouder, put into a good Crucible, cover and lute it well: put it into a Glafs-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.*

R Of the Paste (in *cap. 5. sect. 22.*)  $\text{ʒx}$ . Gold calcined  $\text{ʒj}$ . 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 Glafs-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.*

R Fine Gold in little bits  $\text{ʒj}$ . *Aqua Regis*  $\text{ʒiij}$ . mix and dissolve: then add to it Quick-silver purified and pass'd thro' Leather  $\text{ʒiv}$ . 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 dried, 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  $\zeta$ iv. adding to it *Flores Sulphuris*  $\zeta$ v. 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 deslagrate: 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.

## C H A P. XX.

### *Pastes for an Oriental Saphir.*

#### I. *A Paste for a Saphirine Color.*

**R** Rock Crystal prepared (in *cap. 9. sect. 9.*) ℥iv. *Minium* ℥ix. Painters blew Smalt gr. liij. all being in fine powder, 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.*

**R** Rock Crystal (*ut supra*) ℥iv. *Minium* ℥xij. *Zaffer* prepared (in *cap. 4. sect. 10.*) ℥i. ℥j. *Manganese* prepared gr. xij. all being in fine powder, 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.*

**R** Rock Crystal (*ut supra*) ℥iv. *Minium* ℥x. *Zaffer* prepared ℥i. gr. xxiv. *Manganese* prepared gr. xvj. all being in an impalpable powder, 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.*

**R** Of the Paste in *cap. 5. sect. 22.* ℥x. Calx of Sol (in *cap. 19. sect. 5.*) ℥ij. mix well, and proceed as in *cap. 19. sect. 1.* so will you have a fair Oriental Saphir.

#### V. *Another Violet Saphir.*

**R** Rock Crystal prepared (in *cap. 9. sect. 9.*) ℥iv. fine Salt of Tartar (in *cap. 9. sect. 10.*) ℥ivfs. Salt of Vitriol ℥fs. 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. xlvij. of Azure ℥j. gr. iv. Sublimate ℥ss. all being in fine powder, proceed as in the former ; it will be of a very deep color.

VII. *A blew Saphir of the Male kind.*

℞ Rock Crystal powder *ut supra* ℥iv. fine Salt of Tartar ℥iv. ʒj. 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. xlvij. Azure ℥j. gr. iv. all being in powder, 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 powder, 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.

## C H A P. XXI.

### *Pastes for an Oriental Topaz.*

I. **A** *Paste for an Oriental Topaz.*

℞ Rock Crystal powder (in *cap. 9. sect. 9.*) ℥iv. *Minium* or red Lead in fine powder ℥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 powder ℥iv. *Æs Ustinum* in fine powder ℥iv. Putty or calcined Tin in fine powder ℥xvi. mix well, put all into Crucible, which cover and lute, and put them in-  
to

to the Furnace for 30 hours, in a Fire not too violent, (because this powder 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 powder ℥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 powder, 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 powder 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 *Turmeric*, 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.



C H A P: XXII.

*Pastes for an Oriental Turcoise.*

I. *Paste for a Turcoise.*

℞ Of the Paste in *cap. 5. sect. 22. 3x.* Zaffer prepared ʒj. fine purified Verdigrise ʒss. all being in fine powder, 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. Turkey: 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.*

C H A P. XXIII.

*Of Enamels in general.*

I. *THE Matter of Enamel.*

℞ Lead in Bullets lbxxx. Tin in bits lbxxxij. 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 along 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 very well 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 powder; 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 precipitate, 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 Unctuousity, 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 disposition 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.

## C H A P. 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 *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 Linned is put. 6. If you would make any Effays or Tryals, you may do it on a little Iron Shovel, the easier to draw out: but making an Effay 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) powder 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 stoppt 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.

## C H A P. XXV.

*To Enamel on Metals.*I. **T**HE 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 Artift 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 polished, 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 *Blue*, *Egmarine*, *Green* and a bright *Purple*, because the Whiteness of *Silver* gives them their true Lustre and Splendor.

## C H A P. XXVI.

*The Method of Painting on Enamel.*

I. **Y**our 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 Gloss 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 dried 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.

## C H A P. XXVII.

### *Of Milk-white Enamel.*

#### I. *A Milk-white Enamel.*

℞ Of the Mixture (in *cap. 23. sect. 2.*) ℥xx. *Manganese* prepared ʒi. ʒj. 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, I. ℞ the former white Enamel ground into fine powder; this you are to manage with Artifice, to heighten and illustrate your  
your



your Lights, which is necessary to be done in all Colors in *Miniature*. 2.  $\mathcal{R}$  the Mixture in *cap. 23. sect. 2.* or the former white Enamel powder, cleanse them with *A.F.* wash, dry, and afterwards grind with Oil of Spike.

IV. *Or 3ly thus.*  $\mathcal{R}$  Fine Putty or Tin calcined, let it vitrify in a Glafs-house Pot with 8 times as much Crystal Frit: then powder it fine as we have taught in *cap. 23. sect. 2.* and keep it for Use.

## C H A P. XXVIII.

## Of Black Enamel.

I. **A** *Black Enamel.*

$\mathcal{R}$  Of the Mixture (in *cap. 23. sect. 2.*) *lbvj. Zaffer* prepared  $\mathfrak{z}ijj.$  *Manganese* prepared  $\mathfrak{z}ijj.$  being in fine powder, 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.*

$\mathcal{R}$  Of the Mixture (*ut supra*) *lbvj. Zaffer* prepared (in *cap. 4. sect. 10.*) *Crocus Martis* made with Vinegar (in *cap. 6. sect. 7.*) *Ferretto* (in *cap. 6. sect. 5.*) *ana*  $\mathfrak{z}ij.$  all being in fine powder, 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.*

$\mathcal{R}$  Of the Mixture (*ut supra*) *lbvj. red Tartar* *lbvj. Manganese* prepared  $\mathfrak{z}ijj.$  all being in fine powder, 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 powder, then add Oil of Spike; and it will agree excellently with the Enamel.

## C H A P. 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 powder, 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 powder, 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 powder, 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 Powder 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 foregoing 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 Vita* 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.

## C H A P. XXX.

### Of Green Enamels.

I. **A** *Fine Green Enamel.*

℞ Of the Mixture (in cap. 23. sect. 2.) ℥vi. put it into a white glazed Pot, let it melt and purify 12 hours:

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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.*) ℥ij. Scales of Iron from the Anvil ℥j. gr. iv. all being in fine powder, 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 powder, 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 Powder; 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.*) ℥ij. Crocus Martis (in *cap. 6. sect. 7.*) ℥j. gr. iv. being in powder, 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.

## C H A P. XXXI.

### *Of Purple Enamels.*

I. *Purple-colored Enamel.*

℞ Of the Mixture (in *cap. 23. sect. 2.*) ℔vj. Manganese prepared ℥ij. 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 ℥ij. Scales of Copper thrice calcined (in *cap. 7. sect. 11.*) ℥vj. all being in impalpable powder, 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 ℥ij. Scales of Copper thrice calcined (in *cap. 7. sect. 11.*) gr. xlviij. all being in very fine powder, mix well; put it into a white glazed Earthen Pot, and proceed exactly as in the former.

C H A P. XXXII.

*Of Rose-colored Enamels.*

I. **T**O 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.*) ℥v. 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.*) ℥ij. ℥vj. 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* ℥v. 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.*) ℥ij. ℥vj. crude white Tartar ℥ij. ℥vj. Blood-stone in powder, fixt Sulphur (in *cap. 23. sect. 3.*) ana ℥ijss. all being in fine powder 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* lbxij. Frit lbij. (in *cap. 2. sect. 8.*) mix and powder 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 powder, and add thereto of the Mixture (in *cap. 23. sect. 1, 2.*) lbij. Tartar calcined white lbij. all being mixt and in fine powder, 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.

## C H A P. XXXIII.

### Of Red Enamels.

I. **T**O 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 powder it; put it into a strong Glass Matrafs or Bolt-head to sublime for 12 hours: break the Matrafs, and mix all the volatile and fixt parts together, adding to it an equal quantity of Sal Armoniack, weighing it exactly: grind, powder and sublime as before, and repeat this Work so long till the Mangansse remains fusible at bottom of the Matrafs; 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 powder, put it into a glazed Earthen Pot in a Glass-house Furnace, melt, boil and refine: then cast into it thrice calcined Copper in powder (in *cap. 7. sect. 11.*) as much as you think convenient: stir all well, that they may incorporate; add powder 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 powder 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 Powder of thrice calcined Copper (in *cap. 7. sect. 10.*)  $\frac{3}{4}$  *v*. or *vj*. which put in at several times, stirring it in with the Iron Crook to mix and incorporate them: add also Powder of red Tartar  $\frac{3}{4}$  *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 Manganesse *℥viijss*. mix and let the Mass be well purified: try the Color, and according as you find it, add more or less of the Manganesse 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 Balas-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 Pouders of Aluni *q. s.* at 8 times, to bring it to a Red; but take heed you put not in so much Alumas to blacken it, but only to make it yellowish; for the Manganese vanishing, it will become red, of a fine Balas-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.

## C H A P. XXXIV.

*Of Yellow Enamel.*1. **T**O make Yellow Enamel.

℞ Of the Mixture (in *cap. 23. sect. 2.*) ℥vj. Tar-tar ℥iij. Manganese prepared ℥i. gr. xij. all being in an inspalpable powder, 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.

C H A P. 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 powder, grind them on a Porphyry, searce and make the powder 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 Powder 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 thoroughly 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 powder, 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 Powder 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, Portraitsures, 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 powder ℥iv. mix and make them boil: then immediately add Gum *Arabick* in fine powder ℥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-powder, or Milk-white Enamel made into an impalpable powder: 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.*

**L** *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 thereabouts. 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 Glafs-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 Glafs.*

℞ 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 powder, 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 Plaster Mold) bake or calcine it on Coals to a whiteness, and reduce it to impalpable powder. Take of the two former Calces or Pouders, and of *Rocaille*,

*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 stoppt 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 left it should stick, being very clammy and not easily emptied.

VI. *To make a Red.*

℞ Litharge of Silver, Scales of Iron, *ana ℥j. Rocaille ℥iijss. 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 aforementioned 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 Matrafs, 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 dried 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 ℥xij. *Minium* ℥ij. *Zaffer*, *Perioux* very pure and clean, ana ℥jss. 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 ℥xij. *Minium*, *Æs Ustum* (in *cap.* 7. *sect.* 12.) ana ℥ij. beat all in a Brass or Bell-metal Mortar to a very fine powder, 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. ℥j. *Ferretto* of Spain (in *cap.* 6. *sect.* 3.) ℥j. *Rocaille* (in *cap.* 5. *sect.* 23, 24.) ℥j. 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 ℥ij. *Rocaille* ℥iv. 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.* foregoing.

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 powder. 5. *Lake* in fine powder. 6. *Water-Gold* in powder. 7. *Leaf Silver* in powder, 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 powder, 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 afore-said Use.

## C H A P. 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 ℥ij. mix and dissolve: then put in Kermes-berries in very fine powder ℥j. digest, shaking the Matras 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 lbviii. Wheat Bran lbiv. Oriental Pīra-ster ℥ij. Foenugreek ℥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 lbvj. put it to half the former Liquor, make it begin to boil, and add thereto Kermes Berries or Grains in fine powder ℥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 dried) 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  $\text{ʒviiij.}$  crude Tartar  $\text{ʒiv.}$  all in fine powder: fair Water *q. f.* mix and dissolve: when it begins to boil, put into it of the former Shearings  $\text{lbij.}$  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  $\text{ʒj.}$  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 powder, 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 Quicklime: 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 Matrafs, 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.

## C H A P. XXXVIII.

### Preparations of Mineral Colors.

I, **T**O 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 powdering, and prevent sticking to the Mortar: thus calcined and dried, powder it in a Stone Mortar with a Cover on it, and searce it, and keep it for Use.

III. *To make Violet Gum-Water for Grinding Lapis Lazuli.*

℞ Spring Water lbij. Honey ℥iij, mix, boil and scum till no more Scum will arise; which reserve. Take choice *Sanguis Draconis* ℥ss. 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 Powder at *sect. 2.* ℥viiij. 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 ℥iv. of the Liquor is swallowed up; but grind it not too long, lest it lose its Color: this done, dry it in the Shade, and cover it from Dust: when dry, if it easily powders 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 Powder 4 or 5 inches; then wash it well with your Hands, and let it settle: decant the clear, and let the Powder dry in the Shade in the same Vessel it was washt in, and keep it for Cementation.

## V. To make the Lixivium's for this Work.

1.  $\mathcal{R}$  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 lbxx. 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 lbxx. and do as before: *This is the mean Lixivium.* 3. Affuse on the same Ashes more fair warm Water lbxx. and proceeding in the former method, you will have the *mild or weak Lixivium.* 4. Take white Calx of Tartar lbij. 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.

$\mathcal{R}$  Pine Rosin, per Rosin, ana  $\mathfrak{z}$ ix. fine Venice Turpentine  $\mathfrak{z}$ vj. Mastich, Bees Wax, ana  $\mathfrak{z}$ iiijss. refined Linseed Oil  $\mathfrak{z}$ ij.  $\mathfrak{z}$ 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 powder; 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.

$\mathcal{R}$  Burgundy Pitch  $\mathfrak{z}$ ix. Pine Rosin, Venice Turpentine, ana  $\mathfrak{z}$ vj. Bees Wax  $\mathfrak{z}$ iss. Linseed Oil purified as the better: mix, and make the Cement in all respects as the former. Note, this Cement opens the *Lapis Lazuli*.

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 Poulder of Lapis Lazuli in Sect. 4. with the Cements.*

℞ of the poulder, 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 poulder 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, extremely 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 Walnut, 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 *Ulira-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 Sponge: 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 Unctuousity 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 Quantities) one Ounce of which will go farther than 3ij. of the former.

XIV. *A second way to make Ultra-marine.*

R. *Lapis Lazuli* ℥ij. calcine it in a Crucible; quench it in Wine Vinegar, dry it, beat it to powder; 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 powder it again. This Powder 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 ℥iij. Frankincense, Greek Pitch, Mastich, ana ℥iij. Oil Olive ℥ij. first put in the Oil, to which when hot, add the Rosin, then the Pitch, after that the Frankincense, and lastly, the Mastich in powder, 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 Powder. Take of this Powder ℔j. of the following Cement ℥x. melt the Cement, and then put in the powder 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 Powder*, 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 Pouders, Turpentine, ana ℥j. Frankincense, Linseed Oil purified, ana ℥ij. 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 ℥xij. Quick-silver ℥viii. 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 Pouders, for use in Painting.

XIX. *To make a Glorious Mineral Red.*

Take *Native Cinnabar* q. v. beat it to Pouders 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 Pouders is called *Vermillion*.

XX. *To make a Mineral Yellow.*

℞ *Auri pigmentum* ℥x. Leaf Silver ℥i. mix, and grind them upon a *Porphyry* to an impalpable Pouders, with water: which dry, and keep for use. If Leaf Gold ℥fs. or ℥ij. 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. 20.*

## C H A P. 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, powder 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. jfs. 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 Poudre Blew ℥j. *Sal Nitre* ℥fs. mix and grind them well together.

VII. **Yellow.** ℞ *Spanish Brown* p. x. Silver p. j. (Leaf Silver) Antimony p. fs. 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 ℥viii. 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 ℥fs. being in powder, mix them.

XII. **Red.**

XII. *Red.* ℞ Jet ℥iv. Litharge of Silver ℥ij. red Chalk ℥j. being in fine powder, mix them.

XIII. *Gold Color.* ℞ Silver ℥ij. Antimony ℥j. melt them in a Crucible, then beat the Mass to powder, and grind it on a Copper Plate: add to it yellow Oker or Brick-dust calcined again ℥xxx. grind them well together with Water.

XIV. *Green.* ℞ *Minium* or red Lead ℥iv. Sand ℥j. Copper Scales calcined ℥v. mix them.

XV. *Vernish for Glass.*

℞ Oil of Turpentine ℥vj. *Venice* Turpentine ℥iij. Gum *Hedera* or Gum of Ivy (or rather Mastick) ℥j. 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 ℥iij. Linseed Oil ℥xviiij. 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.

## C H A P. XL.

### *Some other Colors for Painting Glass.*

I. **Y**ellow. Take a very thin piece of pure fine Silver, and dip it into melted Brimstone; take it out with

with a pair of Pliers, and light it in the Fire, holding it till it leaves burning; then beat it to powder in a Brazen Mortar; and grind it with Gum *Arabick* Water and a little yellow Oker.

II. *Yellow.* Take fine Silver ℥j. Antimony in powder ℥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 powder; 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 Glafs it self: you may diaper upon it with other Glafs or Crystal ground to powder.

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 powder, 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 Glafs ℥j. Jet ℥iiij. red Oker ℥v. Gum ℥ij. grind them together. It is a fair Carnation.

VIII. *Carnation.* Take Jet ℥iv. Tin Glafs 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 powder 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.*

## C H A P. XLI.

*Of the way of Painting upon Glass.*

I. **T**Here 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 Pliers, 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 varnished 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 Mixture 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, Verditors, &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 fix 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 Powder 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 Glas being thus painted, and the Draught perfectly finished, you must now come to Baking of it, to give the Paint a Consistency with the Glas 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 Glas 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 powder of Quicklime thrice baked in a Potters Furnace, and powdered, 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 Glas; on that another Lay of Powder of Lime, and another Lay of bits of broken Glas: on that another Lay of Lime Powder; upon which third Lay put your Pictures or Drawing of Painted Glas, with nothing but Lime Powder; and these to be laid as afore-said S. S. S. till the Stove is full; and upon all a Lay of Lime Powder.*

XXI. *The reason of this treble laying of Lime, with bits of broken Glas at bottom, before you put in your painted Glas, 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 nowhere forth, but at the holes of the Cover.*

XXIII. *The Lute being thoroughly 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 Glas 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.

## C H A P. XLII.

### *Of Gilding upon Glass.*

I. **T**ake 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 Pouders 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 Pouders 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 refer you: but the former ways are so excellent, that this is (being compared to them) but truly Trifling.*

## A P P E N D I X.

### C H A P. XLIII.

#### *A Discourse of Looking-Glasses.*

I. **T**HE 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 Poulder 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 Rump, 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.*

Be 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 of 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 extremely well polished, even to Perfection.

IX. *To make Steel Burning-Glasses, whether Concave or Convex, Sphericks 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 lbix. fine Tin lbij. white Arsenick, Tartar, ana ℥ij. 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 ℥xxiv. others, instead of the Arsenick, put in Antimony ℥xij.

X. Another Composition for Steel Glasses.

℞ Refined Rose Copper lbij. melt it, then add of fine Tin lbix. as soon as they are melted, add red Tartar calcined ℥xviii. white Arsenick ℥vj. Nitre ℥ij. Alum ℥i. keep these in a

M m m 4 melting

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 powder; 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.iii. 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 Brainers 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 Blouatnes: 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 Hematites 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 Metallick 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 extremely hard, white, and not very brittle, and therefore the more easily polished, and made admirably fine.

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*Explicit Liber Decimus.*

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# P O L Y G R A P H I C E S

## LIBER UNDECIMUS.

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### Of Varnishing, Japanning and Gilding.

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#### C H A P. I.

##### *Of Instruments and Utensils for these Works.*

**I.** **T**HE 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 powder 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 coarse 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 thoroughly 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 polish'd, 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 Pouders 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.

## C H A P. II.

*Of the Materials necessary for these Works.*

I. **T**HE 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 Mollifos; 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-powder to it; then set the Spirit on Fire, if it burns all away and fires the Gun-powder 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 12d. a pound.

IV. *Ising-glass* or *Ichthyocolla.* That which is clearest, whitest and freest from Yellow, is the best. It is of Use for making Size; and may be had for about 4s. 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 9d. an ounce, according to its Goodness: that which is in Lumps or Cakes, is coarse.

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 7s. 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 18d. 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 powder, 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*, *Agypt* 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 *Seplafium*, 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 clearest, 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, clearest 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. *R* 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. *R* any Roots, Woods, Leaves, Flowers as of *Alkanet*, *Brazil*, *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  $\text{zj}$ . or  $\text{ij}$ . 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 powder, ana  $\text{zjss}$ . Linseed Oil  $\text{ibij}$ . 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 Ponder*. It is made of Block Tin ground to Ponder, 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 Ponder*. 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 Ponder*. 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, Metallick 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*, to 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 Quantities, 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.

## C H A P. III.

### Of Sizes and Gum-Water.

I. 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 ʒj. Minium, Litharge of Gold, Umber, ana ʒss. all being in very fine powder, add thereto Linseed Oil ʒiiij. Drying Oil ʒviii. (*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 Ropic, 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 Musclee 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 extremely fine; then add a mixture of Size and Water as before-directed.

VI. *Another Silver Size.*

℞ Fine Tobacco-pipe Clay in fine powder *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 powder ℔j. black Lead ʒij. in powder, grind them together: then add Oil Olive ʒij. Bees Wax ʒi. melted together: grind all these very finely in a Mafs; 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 thoroughly 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 thoroughly dry, you are to rush it over as the necessity of the Work shall require. Afterwards with a Gouge or Chisel, 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 powder *q. v.* mix it with Linseed Oil, which is somewhat fat *q. s.* grind them well together, and put the Mafs 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 thoroughly.

XI. *To make Gum-Water.*

℞ The whitest, clearest and best Gum-Arabick ℥j. fair Water ℥xij. mix and dissolve: when thoroughly 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.

## C H A P. IV.

### *Of making Varnishes.*

I. **T**HE best white Varnish.

℞ *Of the whitest and largest Gum-Sandarack which casts the least yellow* ℥xvj. of clear Venice Turpentine ℥ij. whitest Gum-Animi and Gum-Copal, ana ℥is. choice Mastiche ℥j. clearest Benjamin, Gum-Elemi, white Rosin, ana ℥is. To the Sandarack and Mastiche in powder, put rectified Spirit of Wine ℥iss. in a Bottle by it self. To the Venice Turpentine, Animi and Benjamin, (both in fine powder;) put of the said Spirit ℥xij. To the Copal and Rosin in powder, put of Spirit ℥vij. 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.

*R 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. R 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. *R of the Sandarack Varnish ℥iv. of the Mastich Varnish ℥viii. 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.

*R Best rectified Spirits ℥vii. 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 Faeces 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 bring 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* ℥viiij. *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 stop't 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 Fæces 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, Walnut-tree, and Lac like.

VII. Another mixt Shell-Lac Varnish.

℞ *Of Shell-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 Powder. Take of this Powder ℥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 stopp'd 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 ℔ij. 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 powder, which will be white as Paper. ℞ of this Powder ℥i. of Seed-lac Varnish ℥viii. 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 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 thoroughly 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:  $\mathcal{R}$  Tripoli in fine powder, and a fine Rag, dip the Rag into a Basin 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 Sponge 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.*

$\mathcal{R}$  Venice Turpentine  $\mathfrak{z}$ ij. put it into an Earthen Pot over the Fire: when melted, add to it Oil of Turpentine  $\mathfrak{z}$ vj. as soon as they boil, take off the Pot, and when cold, put it up into a Glass Bottle, which keep close stopp 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 powder* ℥xviiij. *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.*

## C H A P. V.

### *Of making some other kinds of Varnishes.*

#### I. *Common Liquid Varnish.*

℞ *Linseed Oil* q.v. *Gum Sandarack* q. s. *being in fine powder, 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 powder, 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)* ℥iiij. *mix it with refined Linseed Oil* ℥j. *over a gentle Fire, stirring them well, and it is done,*

V. *A good Varnish for Gold, Silver, Brass, Copper, Iron, Steel, Stone, Wood, Velvet or Paper.*

℞ Benjamin in fine powder *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 Turmeric 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  $\text{ʒxij}$ . Mastiche, Aloes, *ana*  $\text{ʒj}$ . (in powder) 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  $\text{ʒix}$ . Rosin  $\text{ʒiij}$ . 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 powder, 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  $\text{ʒviiij}$ . evaporate to dryness  
over

over a very gentle heat, and reduce it into powder: affuse thereon *gradatim* Oil of Turpentine twice its weight; digest till the Powder 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 powder ℥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 powder ℥viii. *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 ℥viii. Gum Animi, or Copal, or Gum Sandarack in fine powder ℥j. mix, and dissolve by digesting in a gentle heat: decant the clear, and keep it in a Bottle close stoppt for Use.

XVI. *The Amber Varnish.*

℞ Clear Amber in subtil powder q.v. affuse thereon Linseed Oil or Oil of Walnuts, so much as may melt the Powder: gently boil them till they acquire a black color; then pour all out upon a wet Marble: beat this Mass into powder, 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.

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 Pouders 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 many 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 powder, *ana* ℥xiiij. ℥iiij. Gum Animi in fine powder ℥ij. ℥vj. mix; digest in a large Bolt-head or Matrafs, 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 thoroughly dried 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 over;*

ver: after 3 or 4 days time of drying it, polish it with fine Powder of *Tripoli*, *Emery* or *Putty*, by help of a Rag and a little fair Water.

XXI. *Vernix Japonica*, The Japan or Indian Varnish by another Process.

℞ Rectified Spirits ℥iv. Seed-lac in fine powder ʒxxxij. 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 dries, 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 dried 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 powder 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 Hogheads 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 object 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 *Alkali*, 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.

## C H A P. VI.

### *Of making Japan Varnishes.*

#### I. *White Japan Varnish.*

℞ Thick Seed-lac Varnish or the best white Varnish  $\text{ʒvj}$ . white Lead or flake Lead in subtil powder, enough to color it white; mix them. 2. ℞ of the thickest, or rather best white Varnish  $\text{ʒvj}$ . Venice Turpentine

tine ℥j. mix them well: add white or flake Lead enough to color it. 3. ℞ of the finest white Varnish ℥vj. pure flake Lead in fine powder, 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 ℥vj. Lamp-black enough to color it: mix them in a Gally-pot. 2. ℞ of the thickest Seed-lac Varnish ℥vj. Venice Turpentine ℥j. 3. ℞ of the finest Seed-lac Varnish ℥vj. 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 (iri cap. 4. sect. 1.) ana ℥iii. mix them well; and then Tincture it with Lamp-black as before-directed.

IV. *Red Japan Varnish.*

1. ℞ The thickest Seed-lac Varnish ℥vj. 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 ℥vj. fine Sanguis Draconis in subtil powder q. s. mix them. 3. ℞ fine Seed-lac Varnish ℥vi. Sanguis Draconis in fine powder 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 ℥vj. English Pink in subtil powder, 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. R thick Seed-lac Varnish  $\zeta vj$ . of the former prepared Color *q. s.* mix them in a Gally-pot over a very gentle Fire, for Use.

IX. *Blew Japan.*

1. R White Lead, grind it upon a Porphyry with Gum-water till it is impalpable. 2. R 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.

C H A P. VII.

*Of making Lackering Varnishes.*

I. **T**HE common Lacker Varnish.

R Rectified Spirits  $itv$ . Shel-lac in powder  $itj$ . 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 powder, and a little Turmeric in fine powder, 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 increasing or diminishing the quantity of the coloring Ingredients.

II. *Another Lacker.*

R Rectified Spirit  $itv$ . Shel-lac  $itj$ . dissolve and strain: then instead of common *Sanguis Draconis*, take a very little of Drop or fine *Sanguis Draconis* in fine powder, 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.* *℞.* Venice Turpentine ℥ij. 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.*) ℥xij. with which mix Ornatto in fine powder *q. s.* dissolve it in a Gally-pot over a gentle Fire, which reserve in a Bottle close stopt. 2. ℞ fine Seed-lac Varnish ℥xij. Cambogia in powder 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 ℥ss. tyed up in a Rag: digest 24 hours, being first well shaken 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, Sixed 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.

## C H A P. VIII.

### *Of the Way and Manner of Varnishing.*

I. **T**H E 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 Lining or Painting with Oil, which must be thoroughly 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 lick't 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 Cleanness, Gloss and Lustre you desire.

## C H A P. IX.

### *Some general Observations in Varnishing.*

I. **L**ET 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 Knots, 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 thoroughly 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 Glafs 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, lest your Work looks thin and hungry, and as it were Thread-bare: if you wear the Varnishing thus

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 raise 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 Sponge 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 fully 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. **T**O Varnish Olive Wood, Tables, Seands, 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 thoroughly.

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 Sponge 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 thoroughly 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 thoroughly dried, 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 Walnut 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.

## C H A P. XI.

### *Of Dying or Staining Wood, Bones, Ivory and Horns.*

I. **S**ometimes 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, Rub 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 Rub 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, Rub 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 ℥viii. 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. f.* 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. f.* 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 ℥iv. 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.

## C H A P. XII.

### *Of Varnishing Prints.*

I. **G**ET 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 thoroughly 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 thoroughly 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 thoroughly 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 Maltich 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 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.

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## C H A P. XIII.

### *Of Preparing Woods for Japanning.*

I. **T**Ake Plaisterers Size, dissolve it over the Fire, making it pretty warm; and mix Whiting with it in fine powder 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.

## C H A P. XIV.

### *Of Japanning Wood with Colors.*

#### I. *Black Japan.*

I. **Y**OUR Wood being close Grain'd, well wrought and smooth, Rub 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<sup>o</sup>. 1.*) put it into a Gally-pot, and with it first wash over or Varnish your piece 3 times, letting it dry thoroughly between each time: again with more of the same Varnish wash it over 3 other several times, letting it thoroughly 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 thoroughly 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 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 thoroughly 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. f.* 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 thoroughly dry between each time; then Rush it very smooth.

XV. Then take white Starch boild 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. R Gum-Water, q. v. white Lead, q. s. grind them well upon a Porphyry. R 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 Rub it very smooth, and go over it again with a stronger Blew: and when it is through dry, wash it twice over with the clearest 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. *℞* Using-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 Pouders *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 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.* atoregoing.

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 Powder, *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 atoregoing 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

results which you desire: this mixture with the *Seed-lac Varnish* you will find to be much the better.

XLII. The Colors being thus mixt, if you use the *Size* mixture, put some 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-brush*, wash therewith your piece smoothly over, and let it dry, which repeat so often till your Color lies full and fair.

XLII. Being thro' dry, *Rush* it smooth, but not close to the Wood, and so let it rest a day or two: and then wash it with *thick Seed-lac Varnish* 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 Varnish*, (in *sect. 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 simple *thick Seed-lac Varnish*, letting it dry as before.

XLIV. This being done, whether with the *Size mixture*, or with the *Varnish mixture*, and they being throughly dry, then Varnish it again up to a Body, with your fine white Varnish, (in *cap. 4. sect. 1.*) till it is fit to be Polished, which perform with fine *Tripoli*, and a Rag and Water, and so clear it up with *Lamp-black and Oil*.

#### X. *Lapis Lazuli Japan.*

XLV. Take *King-glass Size*, or *thick Seed-lac Varnish*, and make a mixture with *Spodizum* or white Lead, with which Varnish 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 smooth, letting it lie after the *Rushing* 2 or 3 days more.

XLVII. Then take *thick Seed-lac Varnish* 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 smoothly *Rush'd*, Varnish it twice over with the *best white Varnish*, and let it dry again for two days more. Then mix pure *Ultramarine*, or fine *Blew Smalt*, with the *best white Varnish*, and therewith Varnish 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 Gloris with *Seed-lac Varnish*, must be covered and finished with the *best white Varnish*, that of *Seed-lac*, being prejudicial.

## C H A P. XV.

### Of Marble and Tortoise Shell Japan.

#### I. To make marble Japan.

I. **P**repare 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-steps 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 Poulder and Lamp-black, or Ivory-black in such proportions 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 marbling 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 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, Walnut-tree, &c.

XIII. But if it is coarse 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 *Rubbing* 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 thoroughly, 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 wherea<sup>s</sup>, 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. Be *Fine Sanguis Draconis, Cambogia, ana q. s.* grind them dry to a subtil Poulder: 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 Skell 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 Ferib, 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 Poudler, 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 thoroughly 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 redish 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.

## C H A P. XVI.

### *Of laying Speckles or Strewings on Japan Work.*

I. **T**O 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 thoroughly 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.



## Chap. 16. Of Speckles, &c. *Japan Work.* 903

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 stragling 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.

## C H A P. XVII.

*Of Japanning Metals with Gum-Water.*

I. **T**O 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 useles; 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 useles and unnecessary, in the use of Gold Size. 2. That your Gum Work being thoroughly 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 unhand-som, 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.

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## C H A P. XVIII.

### Of Japanning in Gold Size.

I. **T**HE 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, washd 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 Copy 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 sake, you must sometimes be Drawing; sometimes Gilding; and then be Drawing again, and then Gilding; continuing thus alternately till your whole piece is completed.

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 dried, 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 seldom, 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 thoroughly 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.

## C H A P. XIX.

### *Of Japanning with Gold and Colors.*

I. **D**RAW 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 compats 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 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 chequer 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 hatched 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.

## C H A P. XX.

### *Of Raised and Embossed Works.*

I. **T**H<sup>O</sup> 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 convenience 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.

#### *I. 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 extremely 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



## Chap. 20. Of Raised, and Embossed Works. 911

IV. *To make the Paste for making your Moulds of.*

Make a Glew-water stronger than any Size, yet something weaker than Joiners melted Glew: mix Whiting in fine powder 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 Embosments 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 Embosments 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 Embost Works.*

IX. Make a strong Gum-Arabick Water, twice as strong as that in *cap. 3. sect. 11.* take Whiting, fine Bole, ana  $\zeta i$ . 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, Rub 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 dried, 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 exquisitely 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 thoroughly.

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 Embossments 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 Embossments 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 strengthened 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 Emboss'd 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 Embossed 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 Embossed or Raised Work, then you must use the *Securing Varnish* (in cap. 4. sect. 8.) because Embossed-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 Embossed-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 beginning, 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, supposed 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 *Rock*: 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.

## C H A P. 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 *Finning* 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. Rub 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-waver, 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 Instruments, 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 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 *Powder 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.

## C H A P. XXII.

### *Of taking off Japan Patterns.*

I. **Y**OUR 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 varnished 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 finished 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.

## C H A P. XXIII.

### Of Gilding and Lackering in Oil.

I. **T**O 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  
whi:cr

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 thoroughly 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 dried, Lacker over your Piece twice, by a gentle heat; and laying on your Gold Size, perform every thing, as is before directed.*

## C H A P. XXIV.

### *Of Gilding Wood with Burnisht Gold and Silver.*

I. **P** Archment 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. 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 *Cashion*, which hold in your left Hand with your *Pallet* and *Pencil*: have also a *Basin* 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 *Basin* of Water, wet so much of your Work, as will take up 3 or 4 *Leaves*, beginning 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 ungolded 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 untouched,

tought, 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 hollownes of the Carving, hollow veins of Leaves, and foldings: if you do not think it deep enough, go over it again, with the aforefaid 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.*

## C H A P. XXV.

## Of Gilding of Metals.

I. **T**O prepare the Gold for this Work.

**R**e Leaf Gold, or Duckett 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*  $\text{ʒj}$ . 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, and 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 smook: 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 clear 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 *ijj. 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 coarse, 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 *Powder*. Lay some of this *Powder* 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*.



## C H A P. XXVI.

## Of Gilding and Painting Mezzotinto Prints.

I. **T**Hese 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 distinguished from Linning: whereas, in all those that are Engraved, all the strokes 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 spongy, 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 Glais 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 Rabbits.

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 Rabbit 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 Orpimentt.*

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 coarse 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*

## Chap. 26. Of Gilding Mezzotinto Prints. 929

X. *All the transparent Colors must be Ground with Nut Oil: see cap. 2. sect. 36. Opaque 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 *Sponge*, rubbing it off, and peeling it so long, till the Print appears transparent on the back-side: this done, with common *Patte* 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*.

## C H A P. XXVII.

### *Of laying Prints upon Glass.*

I. **T**O 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*  
*Sponge*

*Sponge 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 Pure Pink and distilled Verdigrise: but the Trees farther off, with Verdigrise alone.

XI. *Hills, Mountains and Trees at the greatest distance* are to be Glazed with fine Smalt, a little Lake and Verdigrise, all thinly mixt with Varnish.

XII. *To be 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 Masticor, 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,

## Chap. 27. Of laying Prints upon Glafs. 933

Lake, to shadow over the darkeſt Clouds, letting all your Colours 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 Linned with the ſame, but lighter Colours 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 Vermilion, mixt as you ſhall ſee fit. Then mix it 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 worn Hatch, and ſweeten all your Colours and Shadows, cleaning 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 Colours, except what is uſed in Glazing the Shaddows; for ſhould you mix Varniſh with them, you will meet with this inconvenience, that the Colours 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, Breſts 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 Colours 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



**Chap. 27. Of laying Prints upon Glass. 935**

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 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.

## A P P E N D I X.

### C H A P. XXVIII.

#### *Of making Sealing Wax and Glews.*

I. **T**O make an ordinary Red soft Sealing Wax.

℞ Common Bees Wax, ℔j. Turpentine, ℥ij. Oil Olive, ℥j. melt all these together, then add there to red Lead, ℥ij. boil a little, and stir till almost Cold; cast it into fair Water, and make it up into Roulis or Cakes.

II. *The best Red soft Wax.*

℞ White Bees Wax, ℔j. Chio Turpentine, ℥ij. Oil Olive, ℥j. mix and melt: then add pure Vermillion in fine Pouders, well Ground *q. s.* or ℥j. mix and boil a little, stir till almost Cold, cast it into cold Water, and then make it up into Roulis or Cakes.

III. *To make Green soft Wax.*

℞ Bees Wax. ℔j. Turpentine, ℥ij. Oil Olive, ℥j. mix and melt: then add fine Verdigrise, ℥j. mix and make the Wax up as the former.

IV. *To make Yellow soft Wax.*

℞ Yellow Bees Wax, ℔j. Turpentine, ℥ij. Oil Olive, ℥j. mix and melt: then add Cambogia in fine Pouders,

Pouder, ℥ij. Auripigment finely ground, ℥j. mix and make the Wax as before.

V. To make Black soft Wax.

℞ Bees Wax, lbj. Turpentine, ℥ij. Oil Olive, ℥j. mix and melt them together: to which add black Earth, or Lamp-black, or Ivory-black finely ground, ℥j. mix, &c.

VI. To make Perfumed soft Wax.

This is done by mixing with ℥xx. of any of the former Compositions, Oil of Rhodium, ℥j. Musk in fine Pouder, ℥j. Civet, ℥ss. 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 lbj. of Gum-Lac, put of purely fine ground Vermillion, ℥ij. to ℥iiij. 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, ℥xij. Rosin, ℥vj. fine Vermillion, ℥vijs. 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. foregoing.

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 Sring, 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 Aqueducts.*

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 Aqueducts : 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 muh 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:*

F I N I S.

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## ADVERTISEMENT.

**A** Compleat Dictionary of the *Greek* and *Roman* Antiquities, explaining all the obscure Places in all the Classic Authors, and Ancient Historians. Compiled Originally in *French* for the Use of the *Dauphin*, &c. Now made *English*, with the Addition of very useful Mapps. Printed for *J. Nicholson*, *T. Nemborough*, and *J. Bullard*.

# ADVERTISEMENT.

**D**R. 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, Pusles, Boils, Scabs, Scurff and Morphem, scattered up and down in many places.

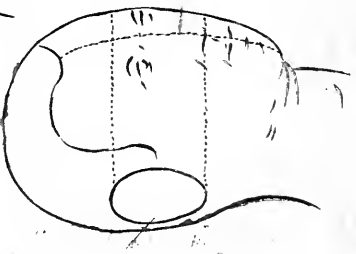
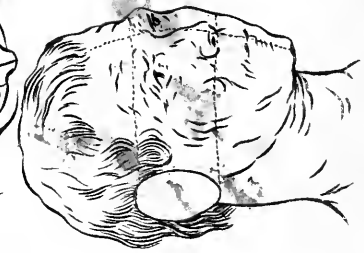
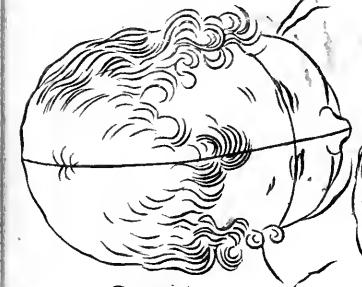
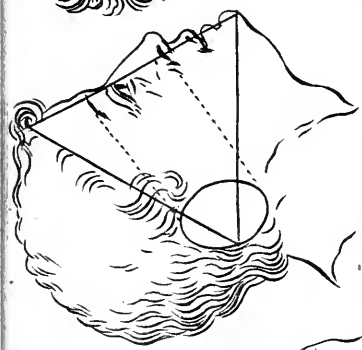
III. The Scurvy also causes a bad Stomach, and sometimes loss of Appetite, looseness and soreness of Teeth, Throat and Mouth, weakness in the Back and Loins, with a general weakness and faintness all over the whole Body, insomuch, that at last it gets into the Bones, and infects the very Marrow of them. 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 incurable,

V. They kill all sorts of Worms in Old or Young; and utterly root out the King's-Evil tho' of many Tears 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, Hoarsness, and faint Sweats, with loss of Complexion.

VI. They Cure the Cachexia in Virgins, Greensickness, Head-ach, Lethargy, Megrin, 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, Sinking Breath, the Sciatica or Hip Gout, carrying off all salt, sharp and evil Humors.

VII. They cleanse and cure a Gonorrhœa, 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 Gripping or making Sick, being fitted for all Persons of what Age, Sex, or Constitution soever.













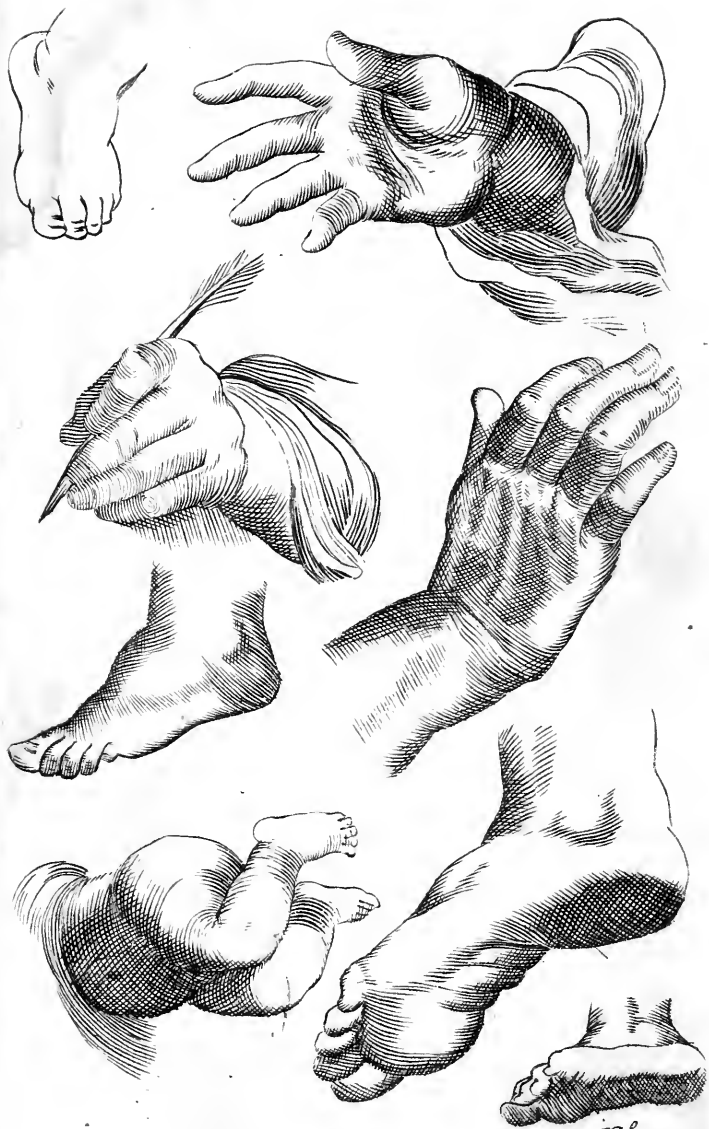
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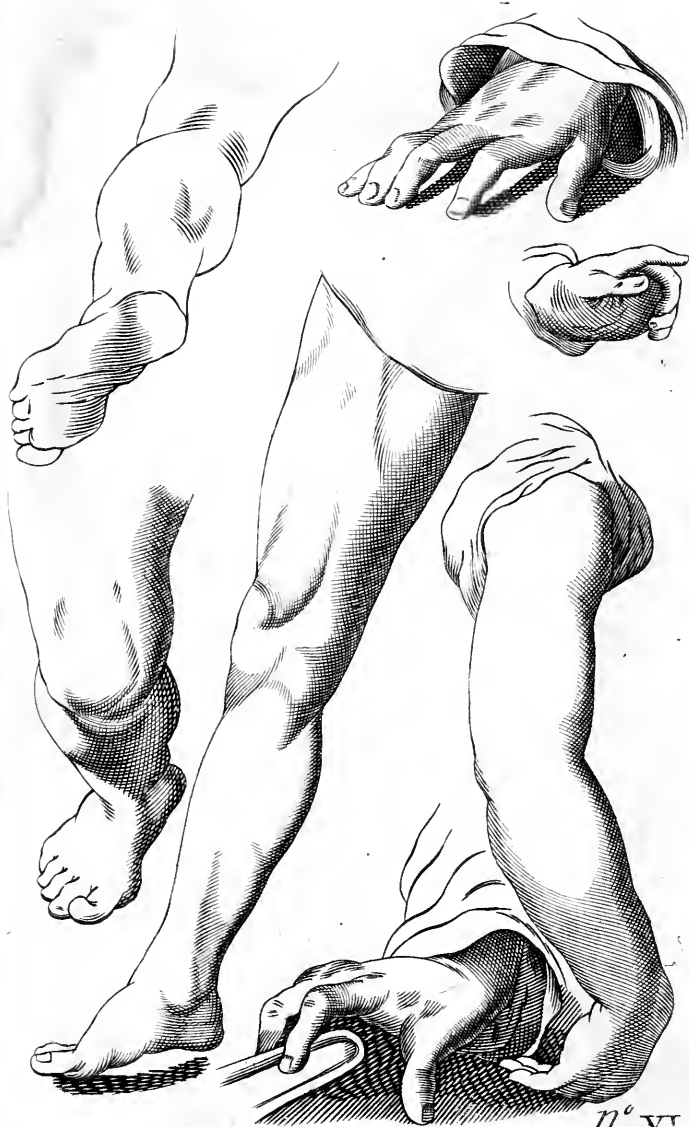




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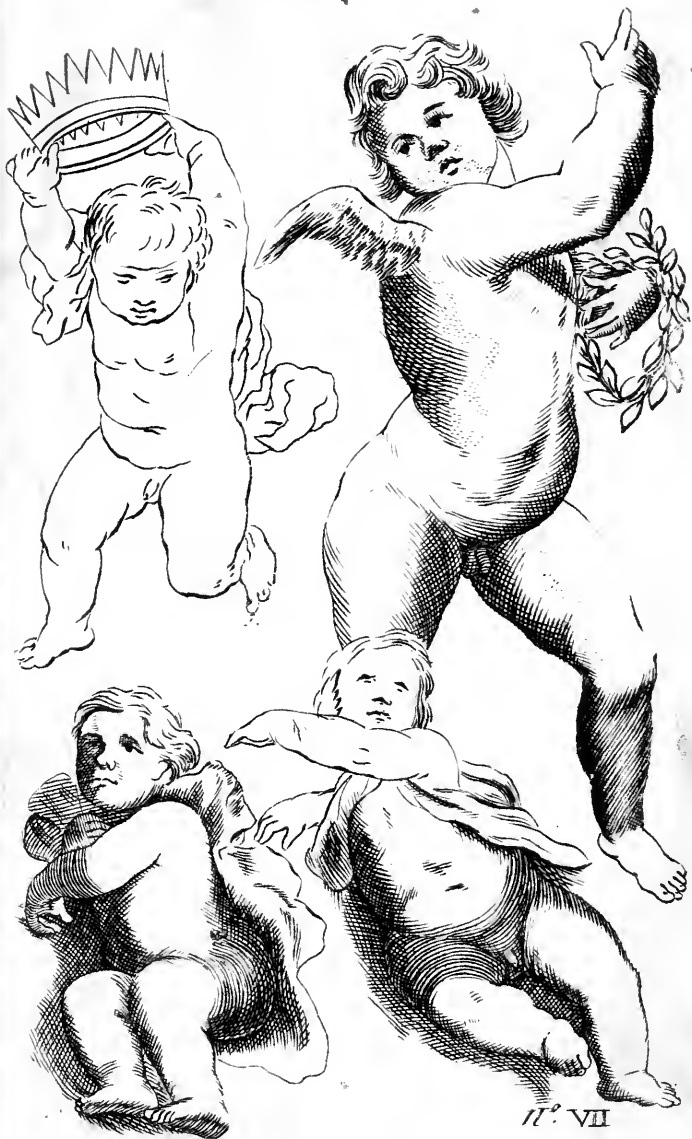




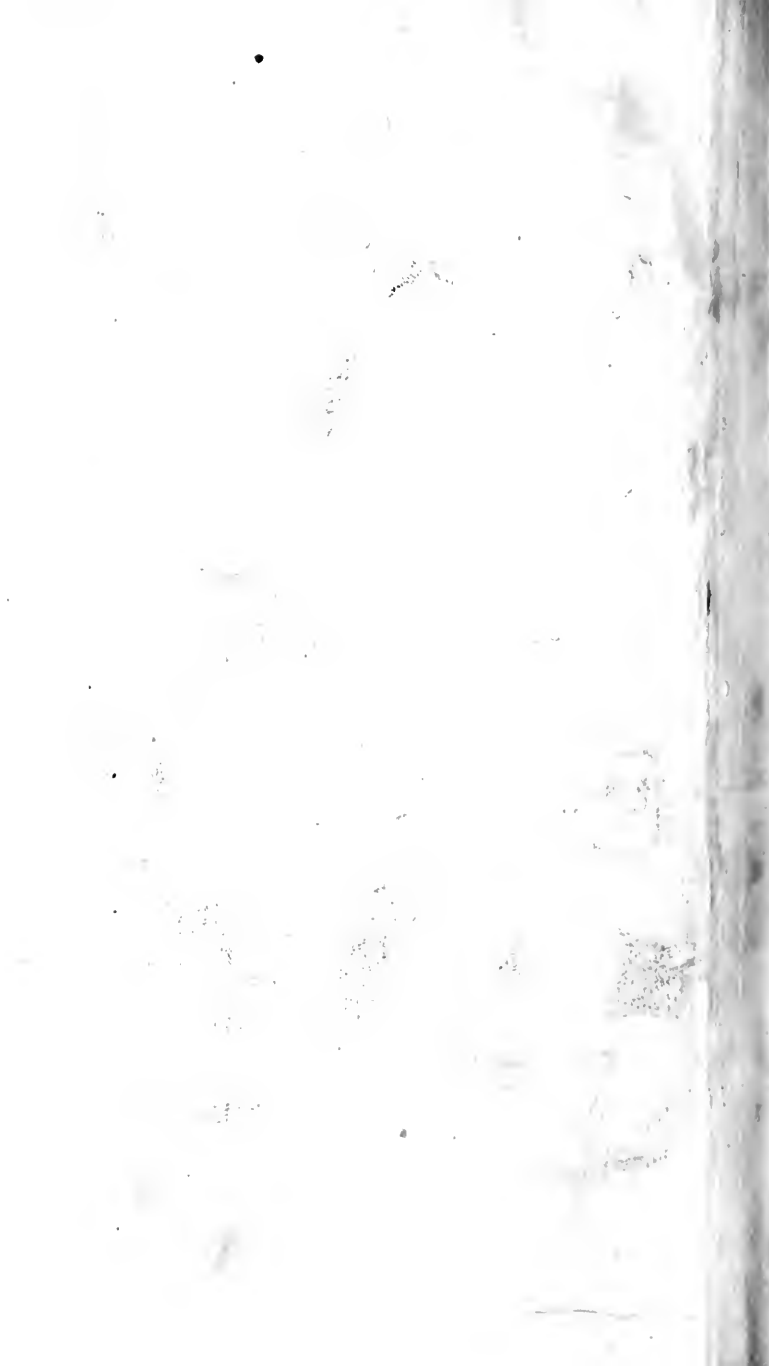


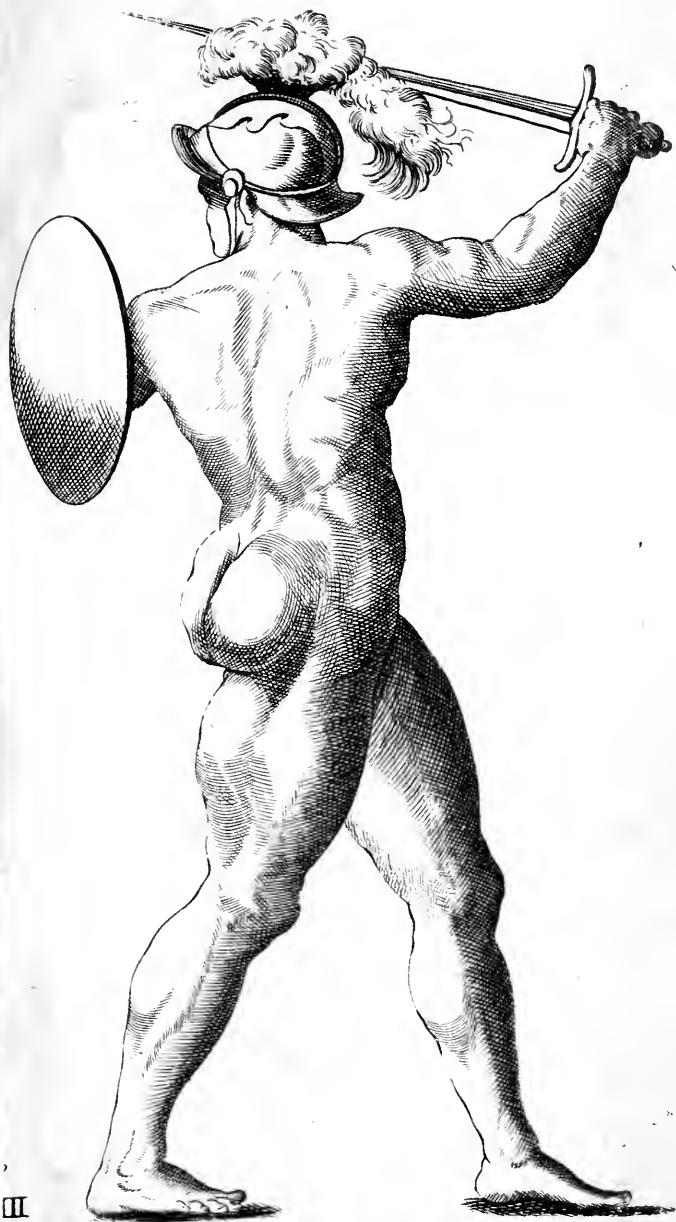
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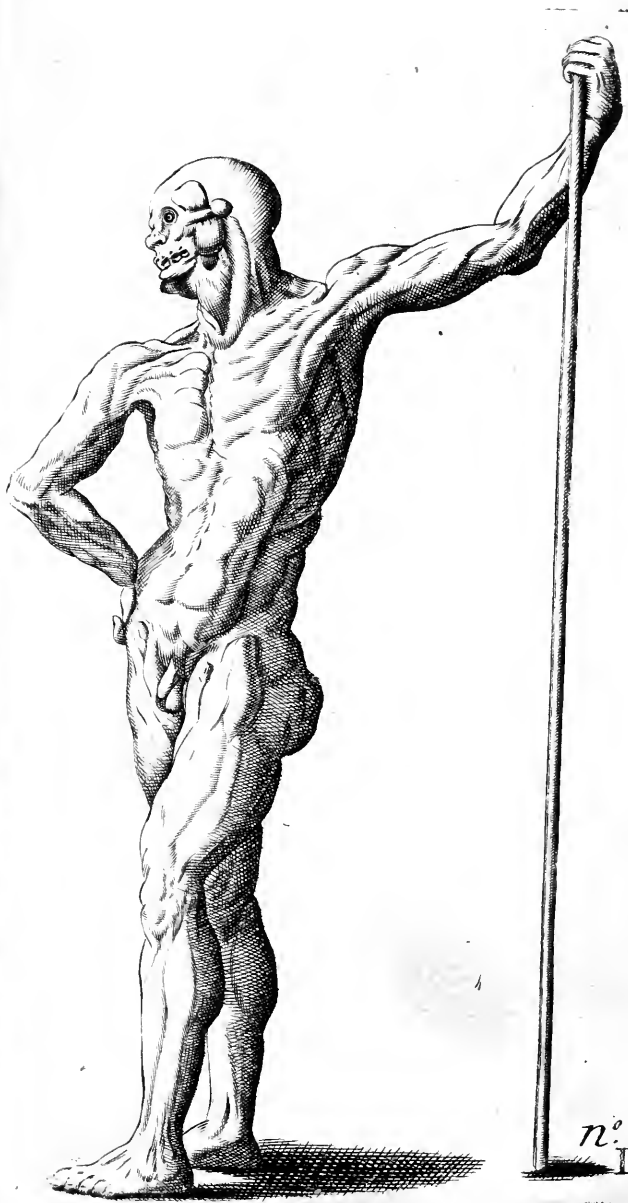


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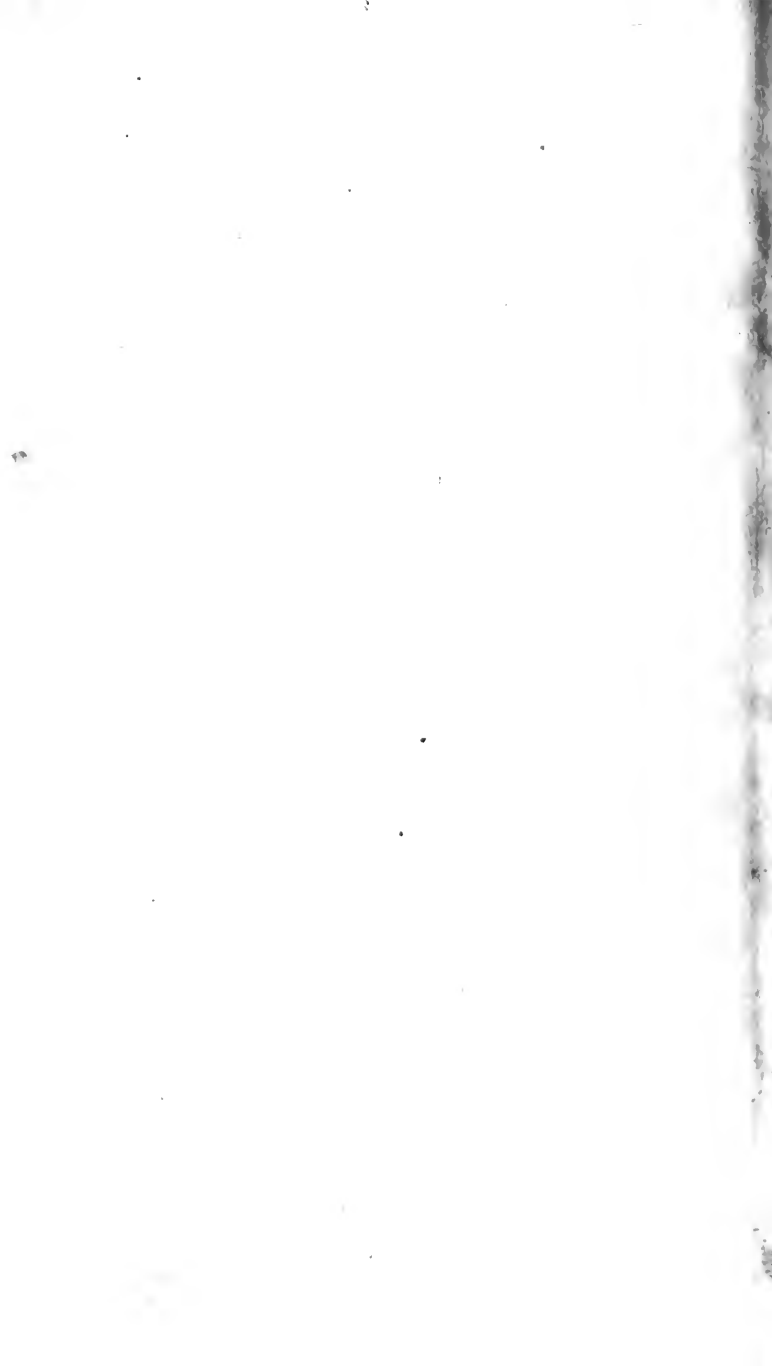








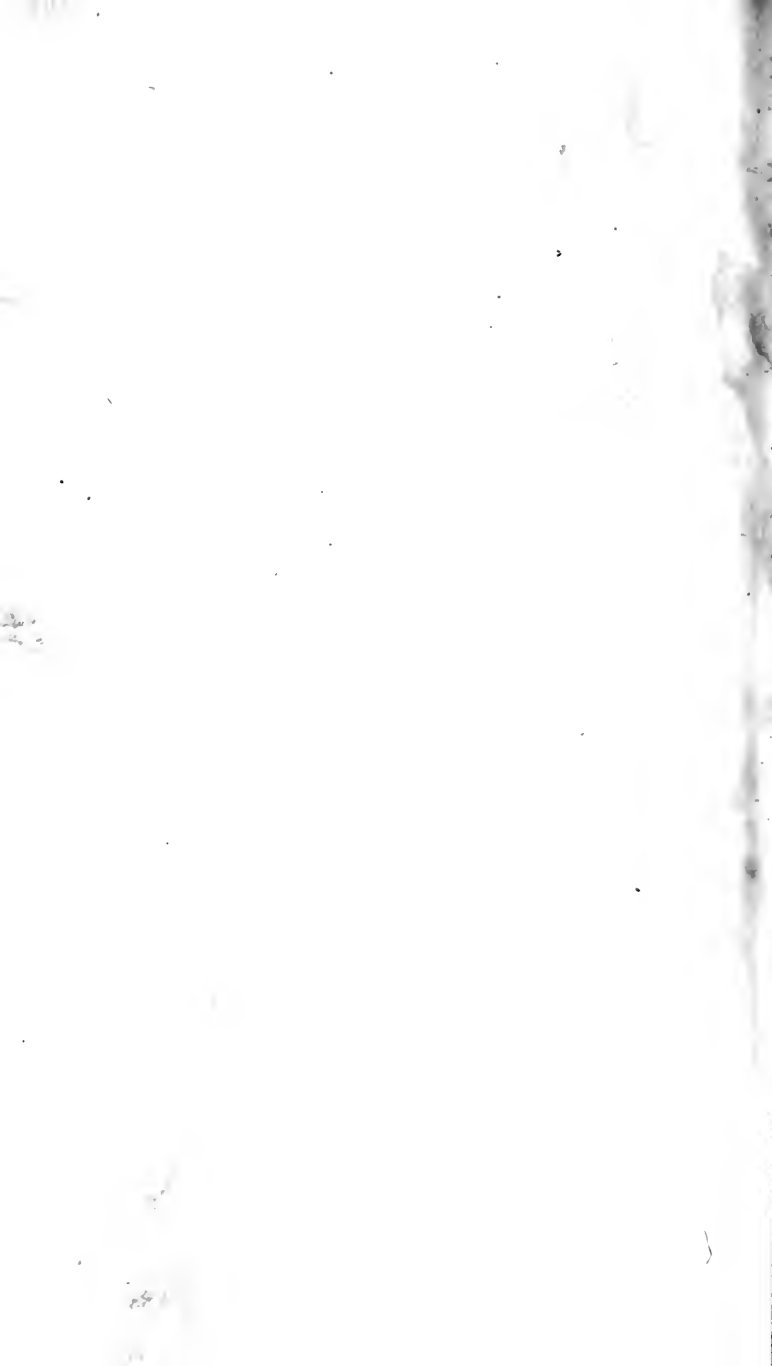
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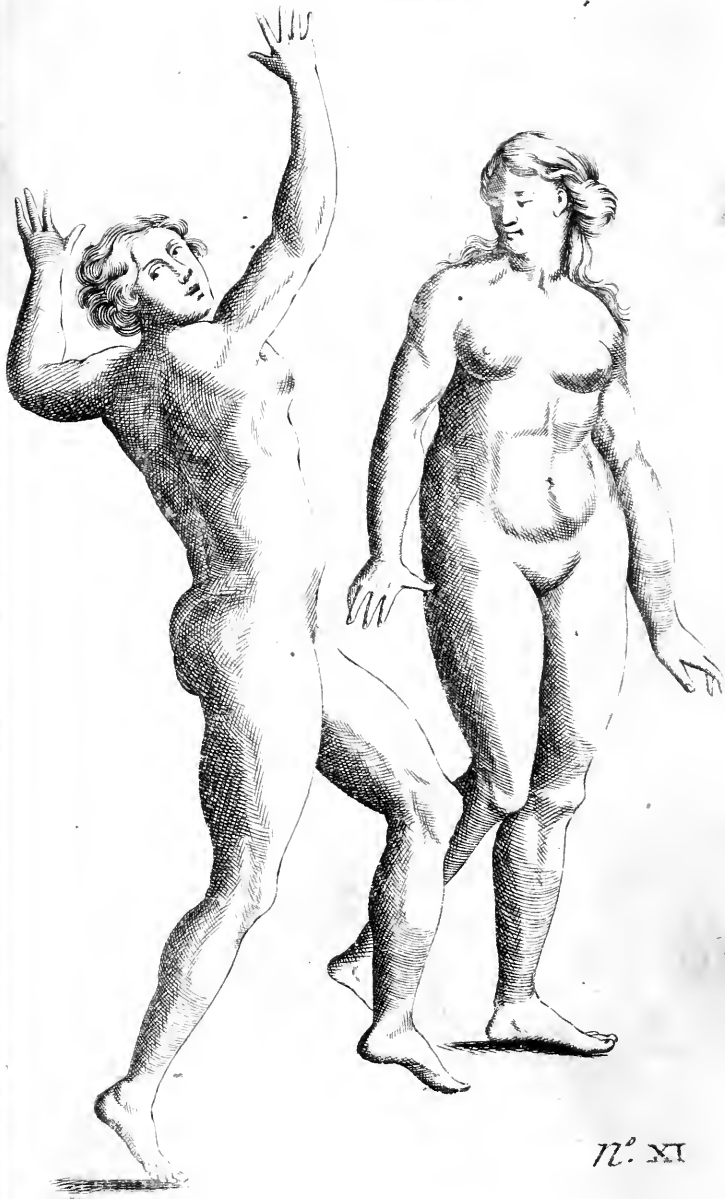




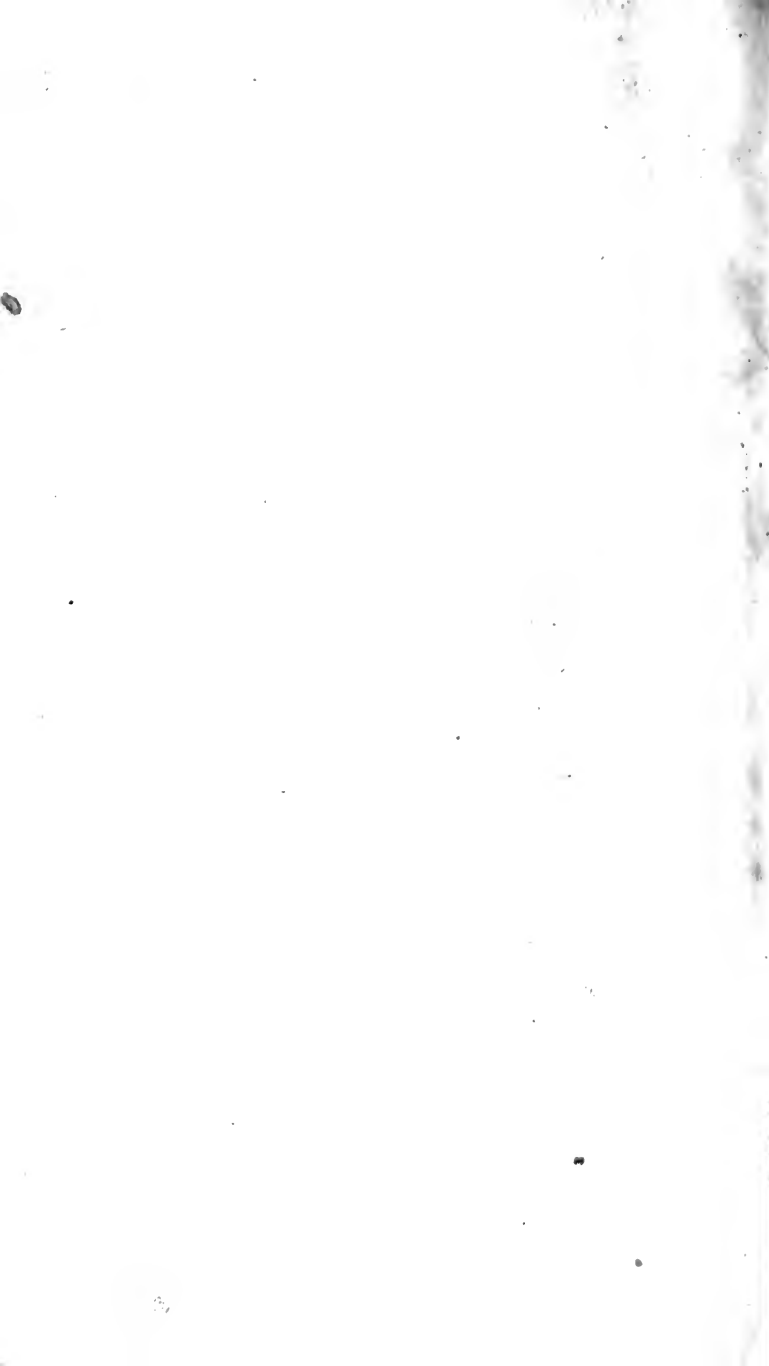


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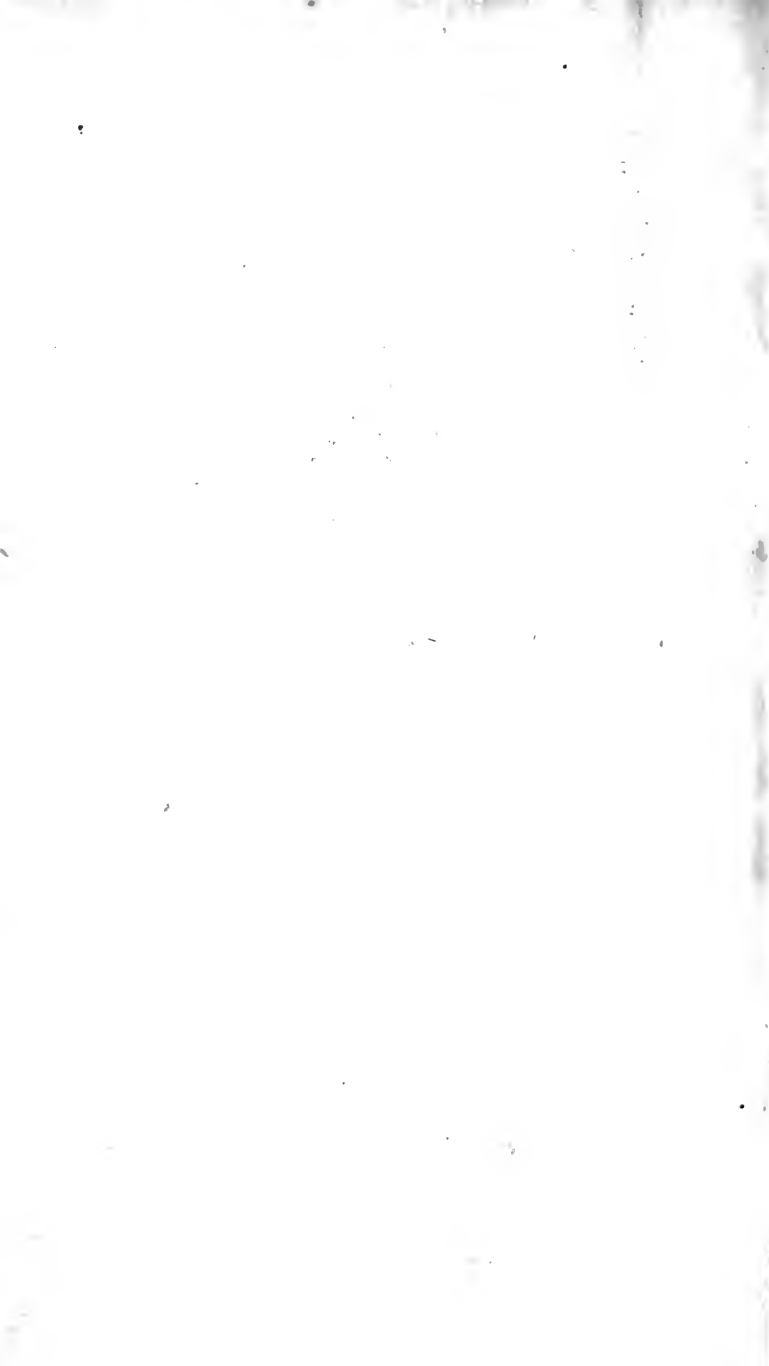


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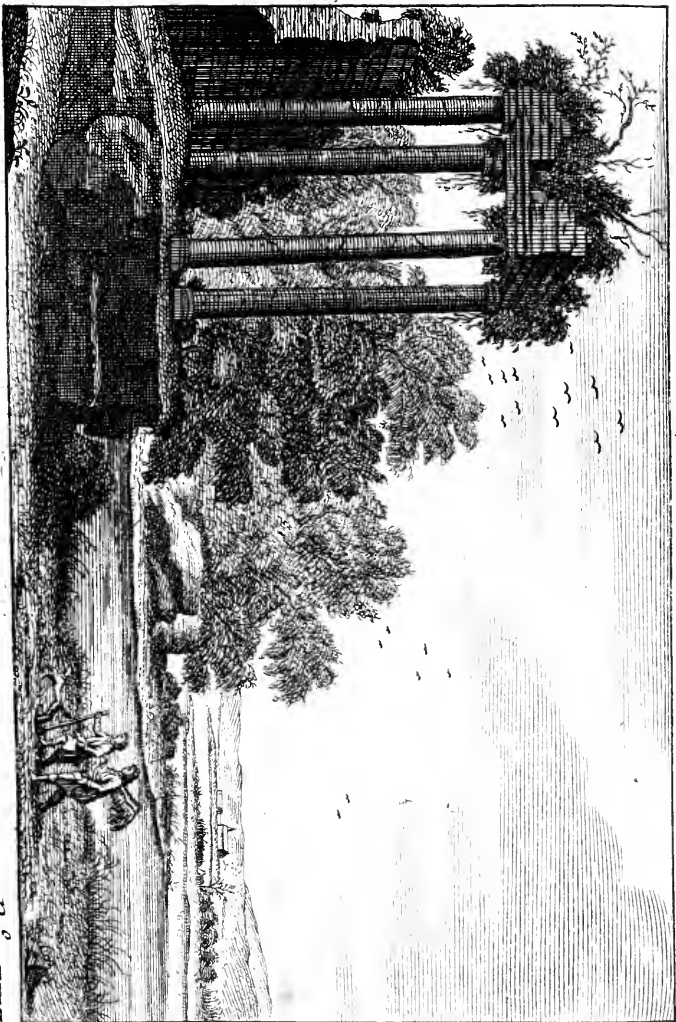




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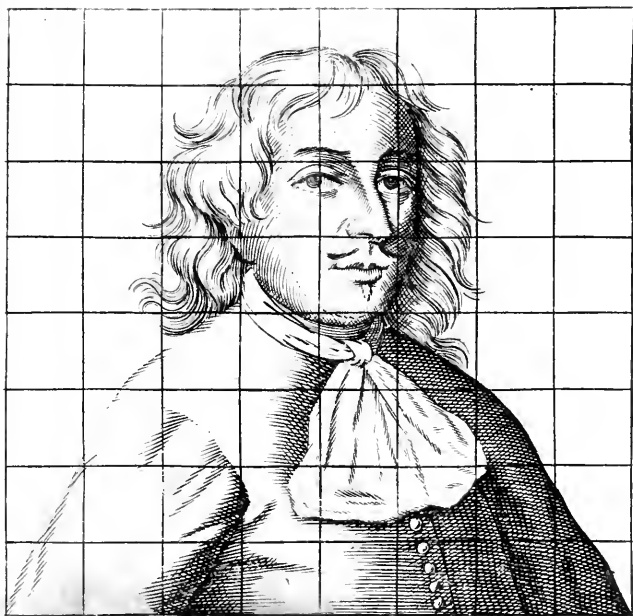






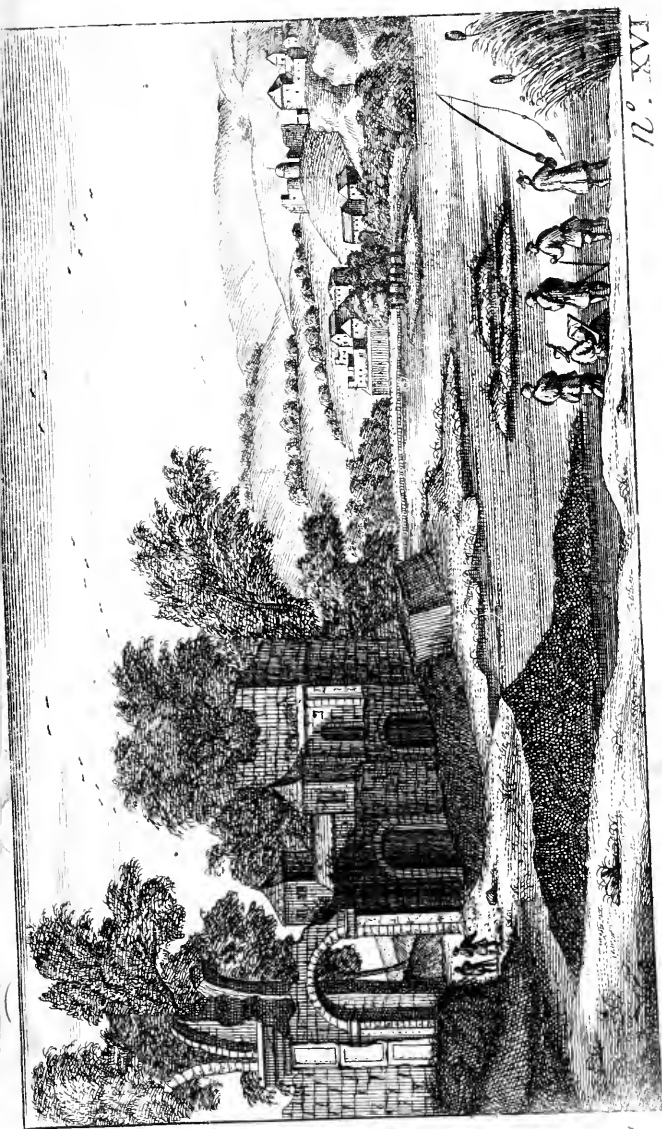
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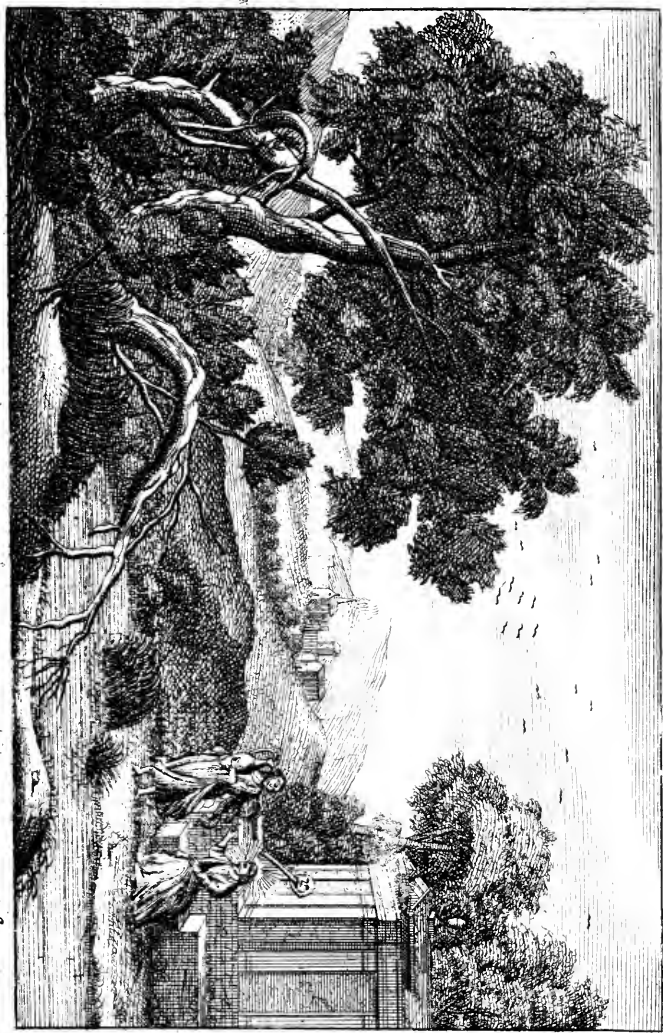


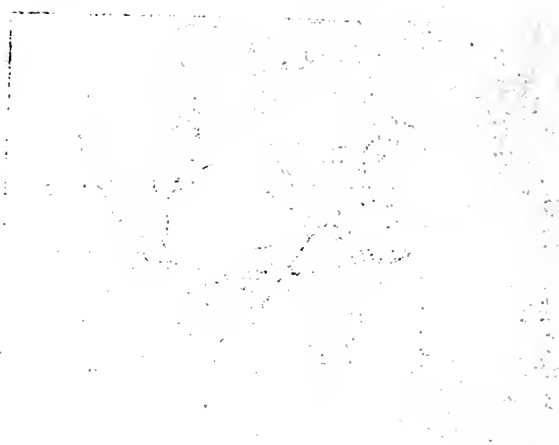
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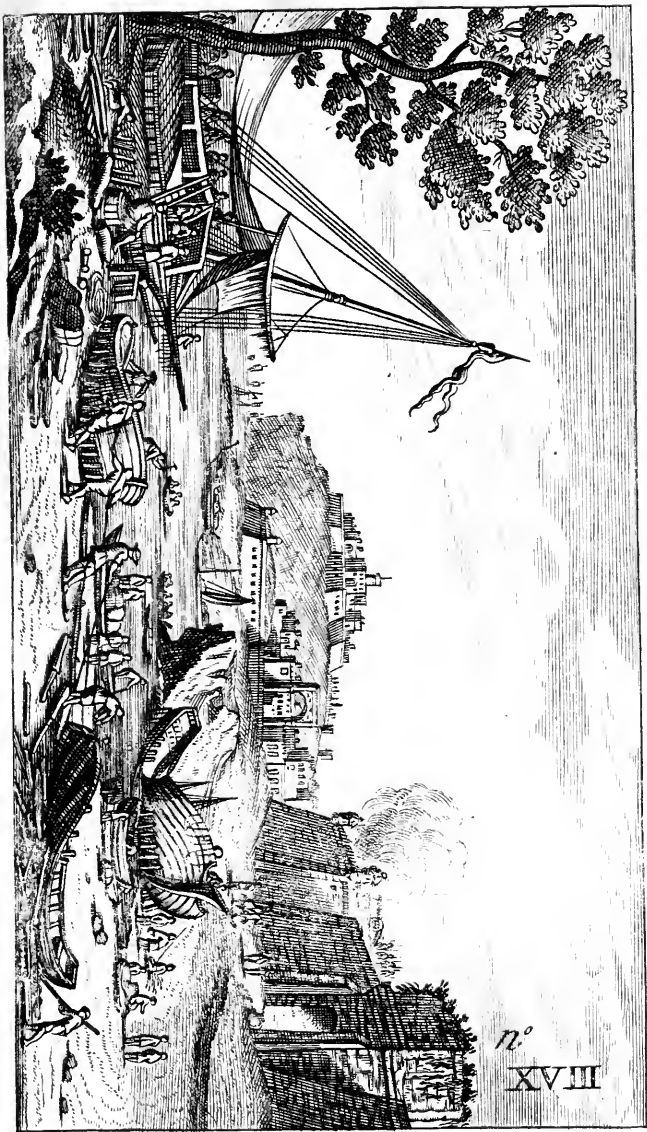




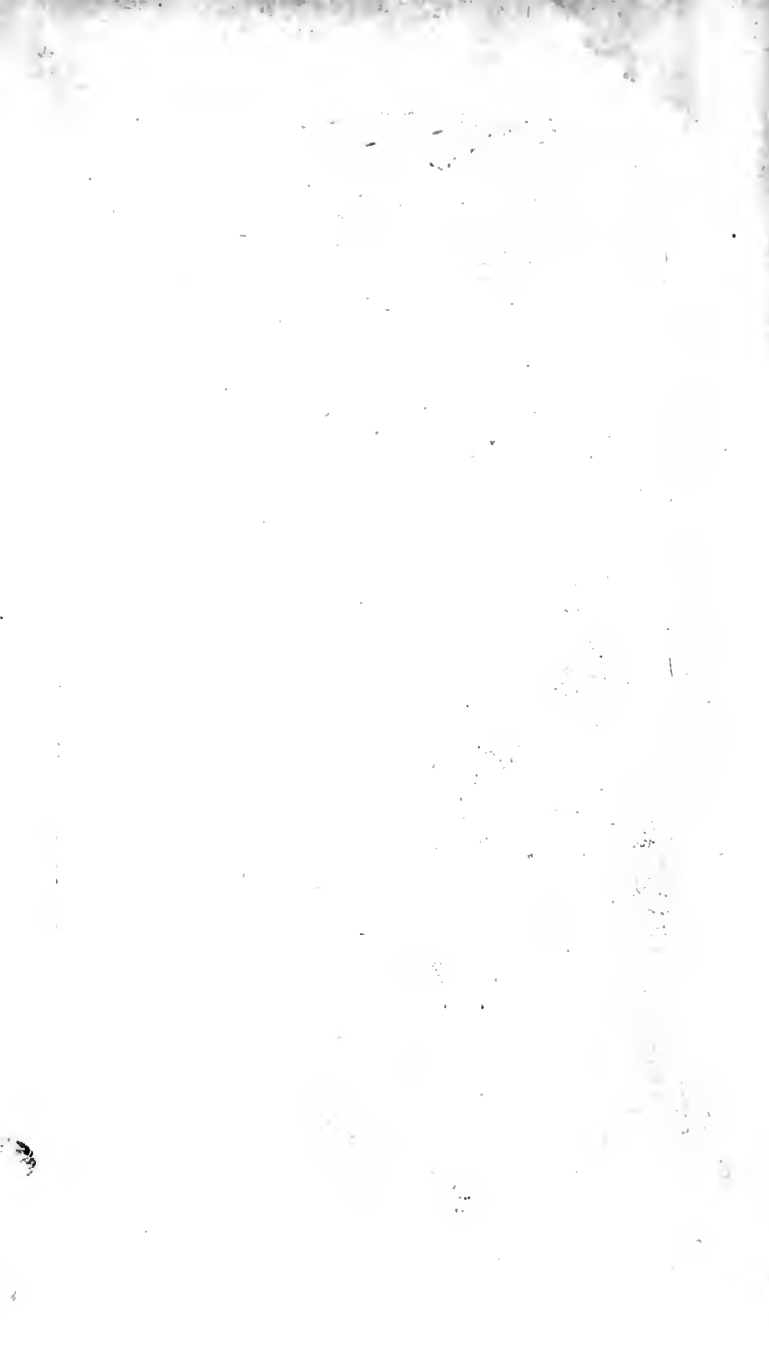
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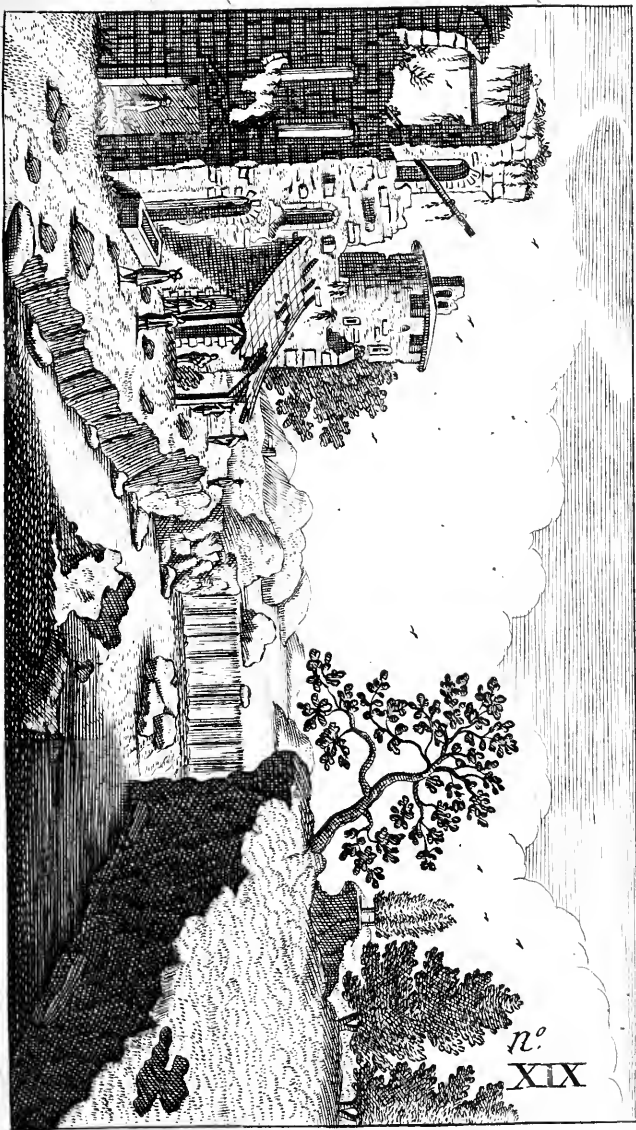
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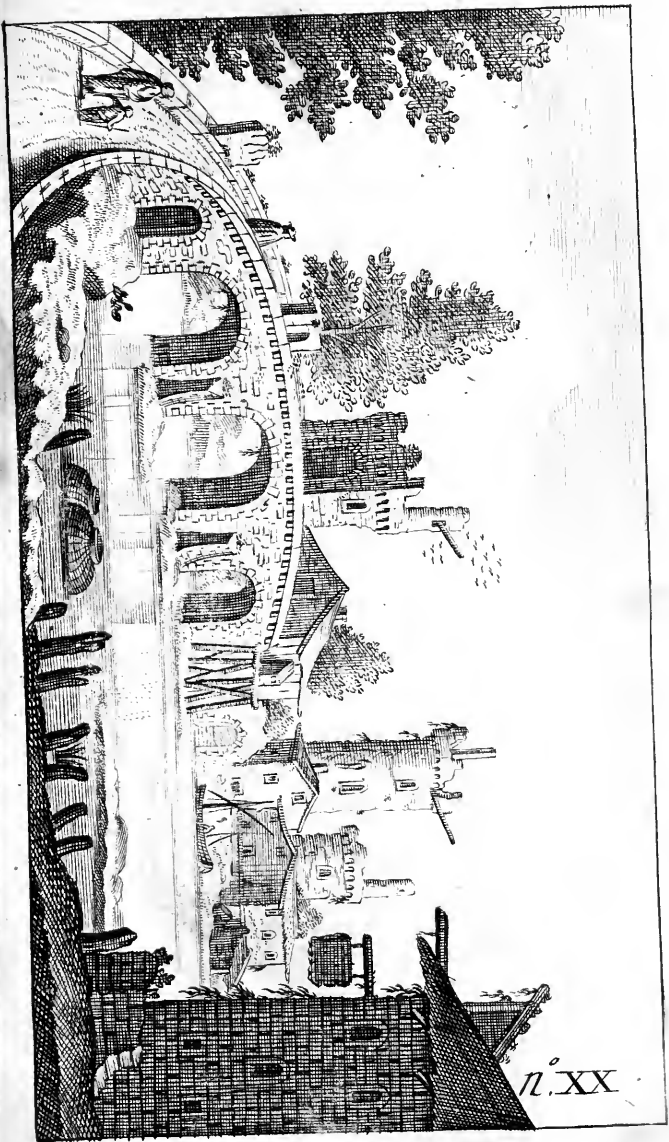
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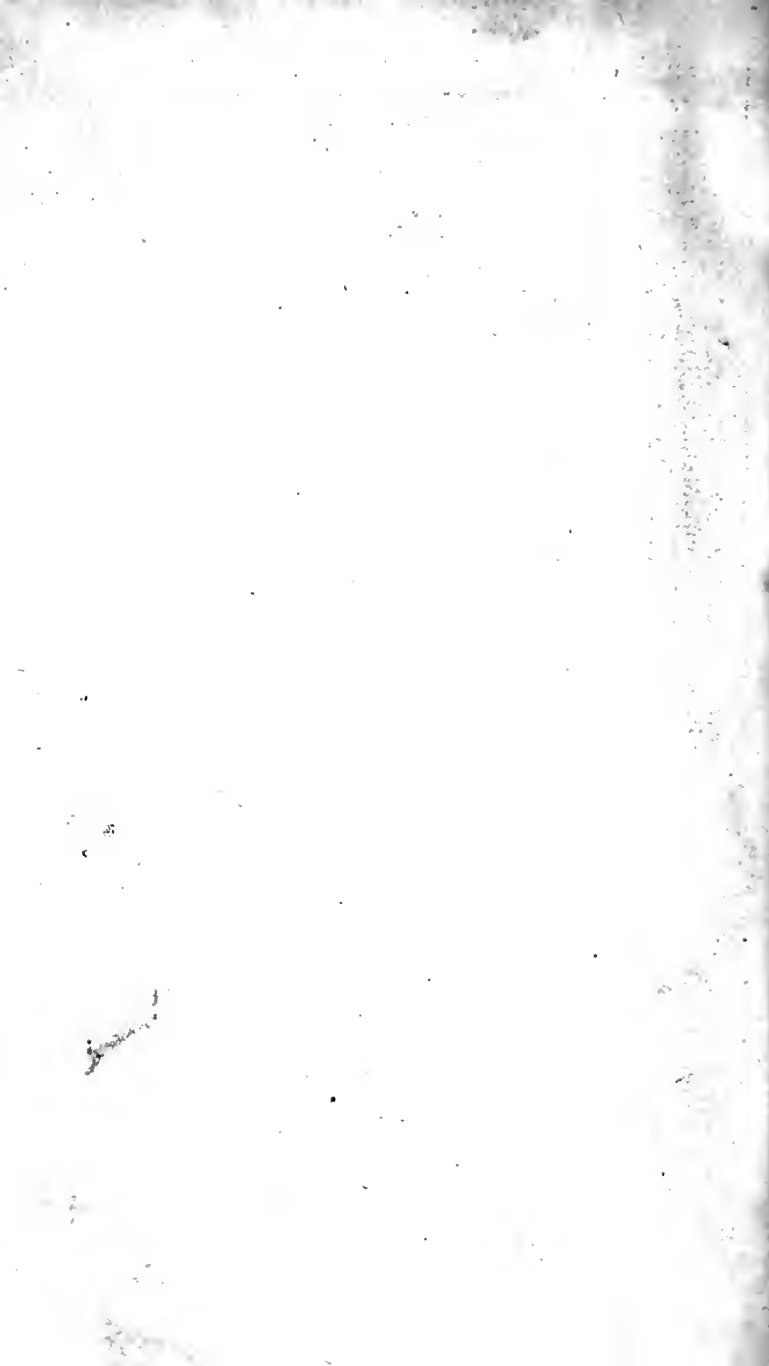


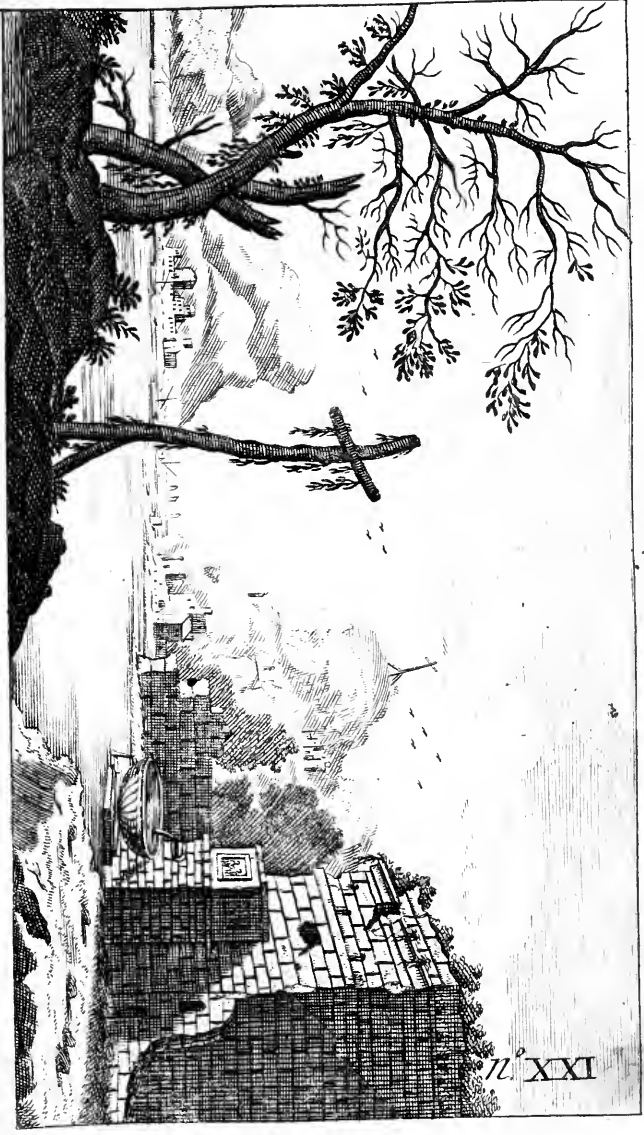
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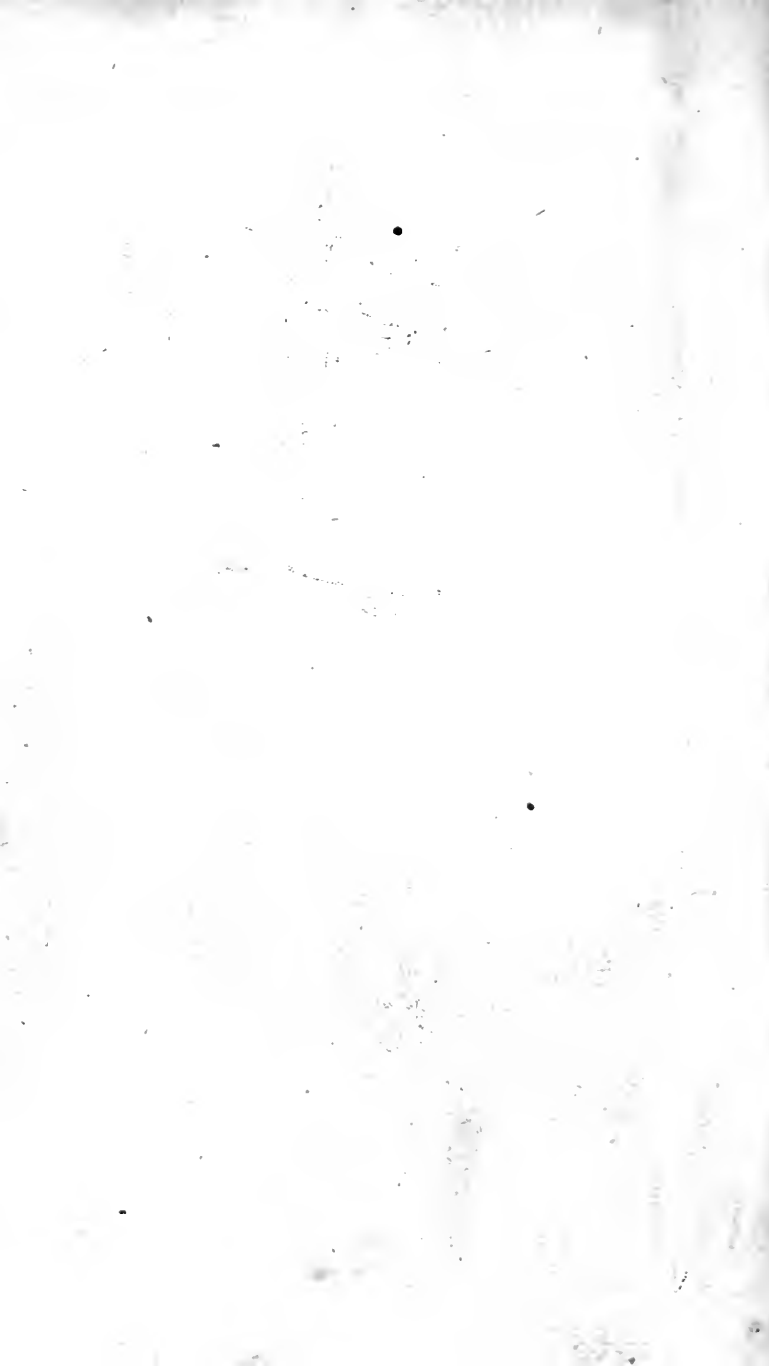




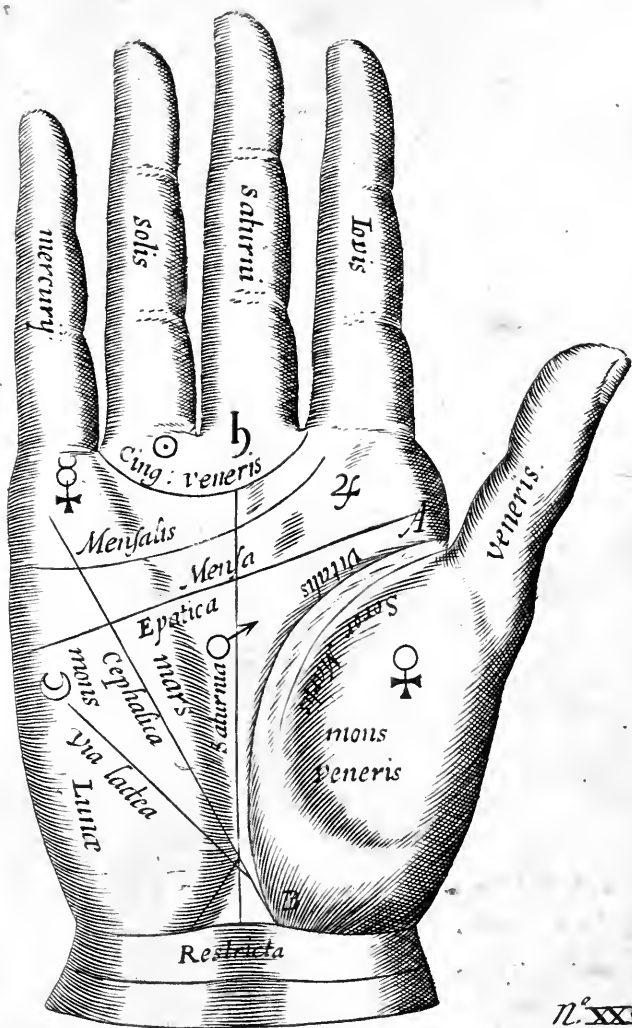
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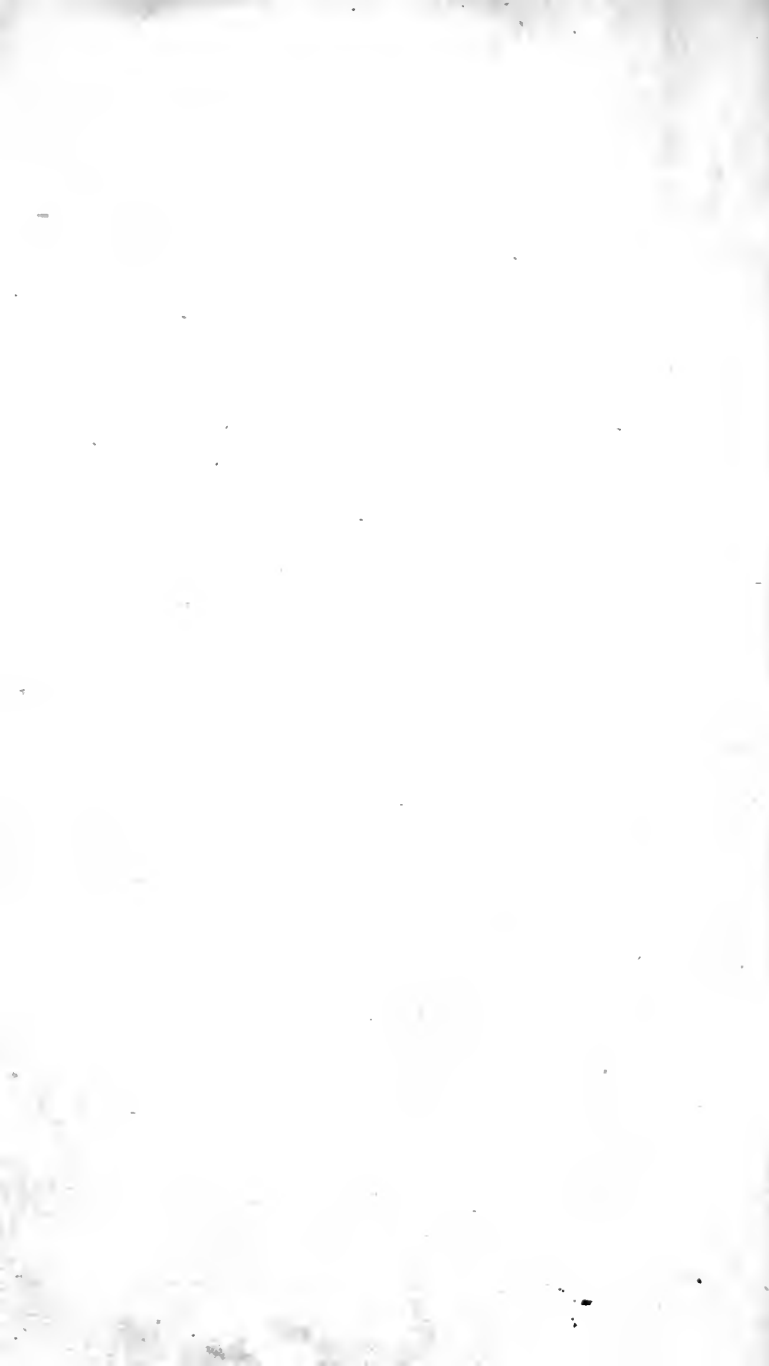


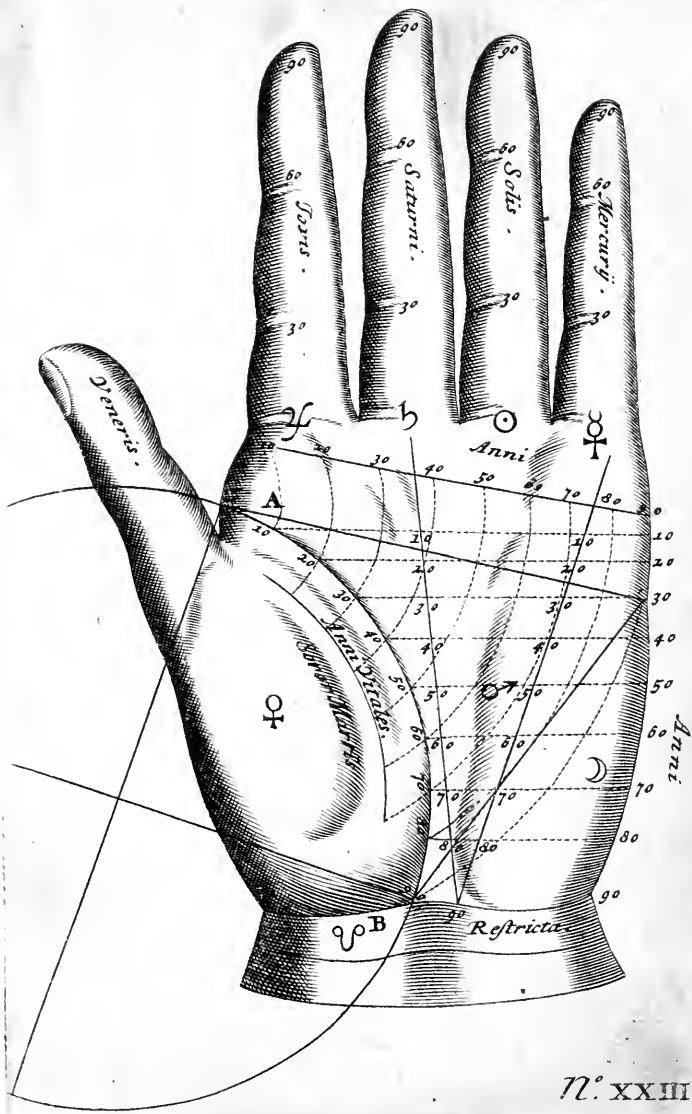


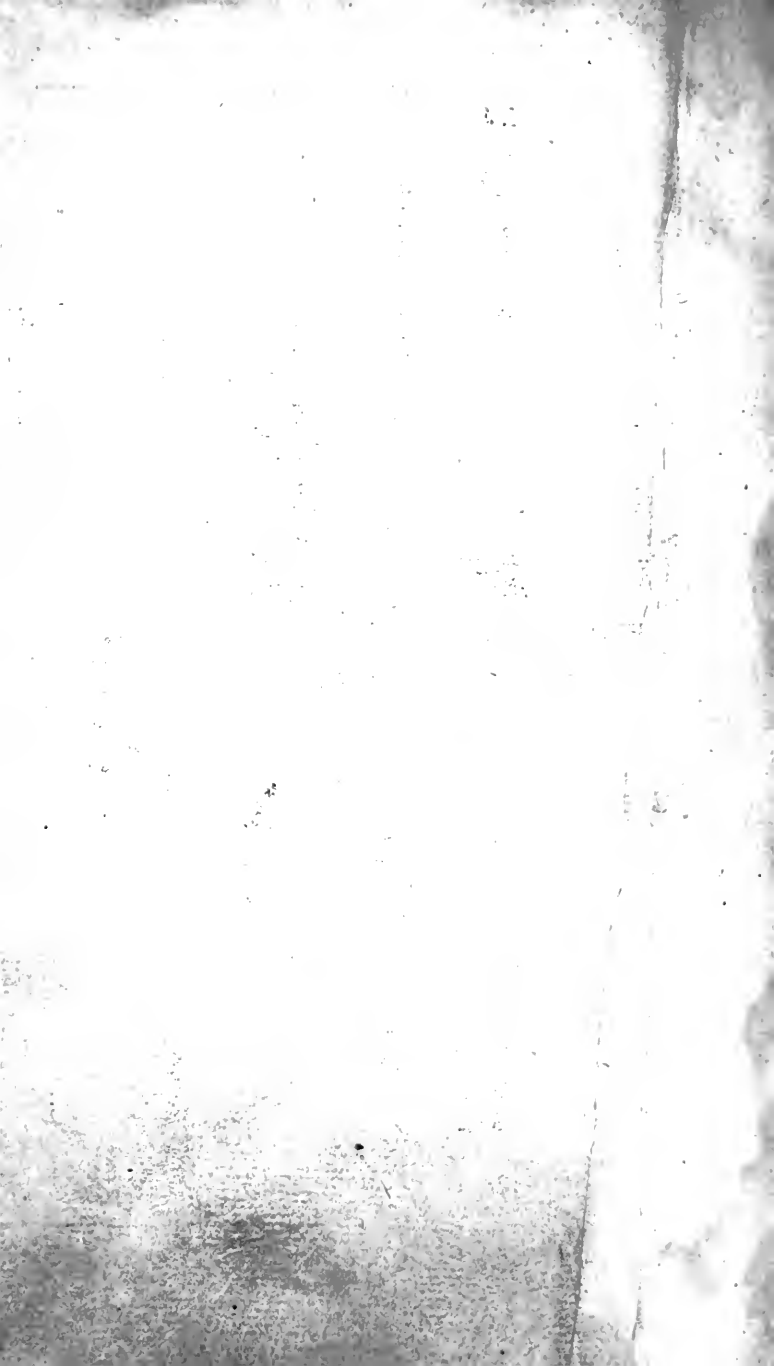
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Iobi 37. 7.

Qui in manu omnium hominum signa posu-  
it, vt cognoscerent opera eius finguli.







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