

Sylva, or a discourse of forest-trees, and the propagation of timber in His Majesty's dominions / as it was delivered in the Royal society on the 15th of October, 1662, upon occasion of certain quæries propounded to that illustrious assembly, by the honourable and principal officers and commissioner of the Navy. In two books. Together with an historical account of the sacredness and use of standing groves. Terra, a philosophical essay of earth ... to which is annex'd Pomona; or an appendix concerning fruit-trees ... also Kalendarium hortense; or, the gardener's almanack ... by John Evelyn.

Contributors

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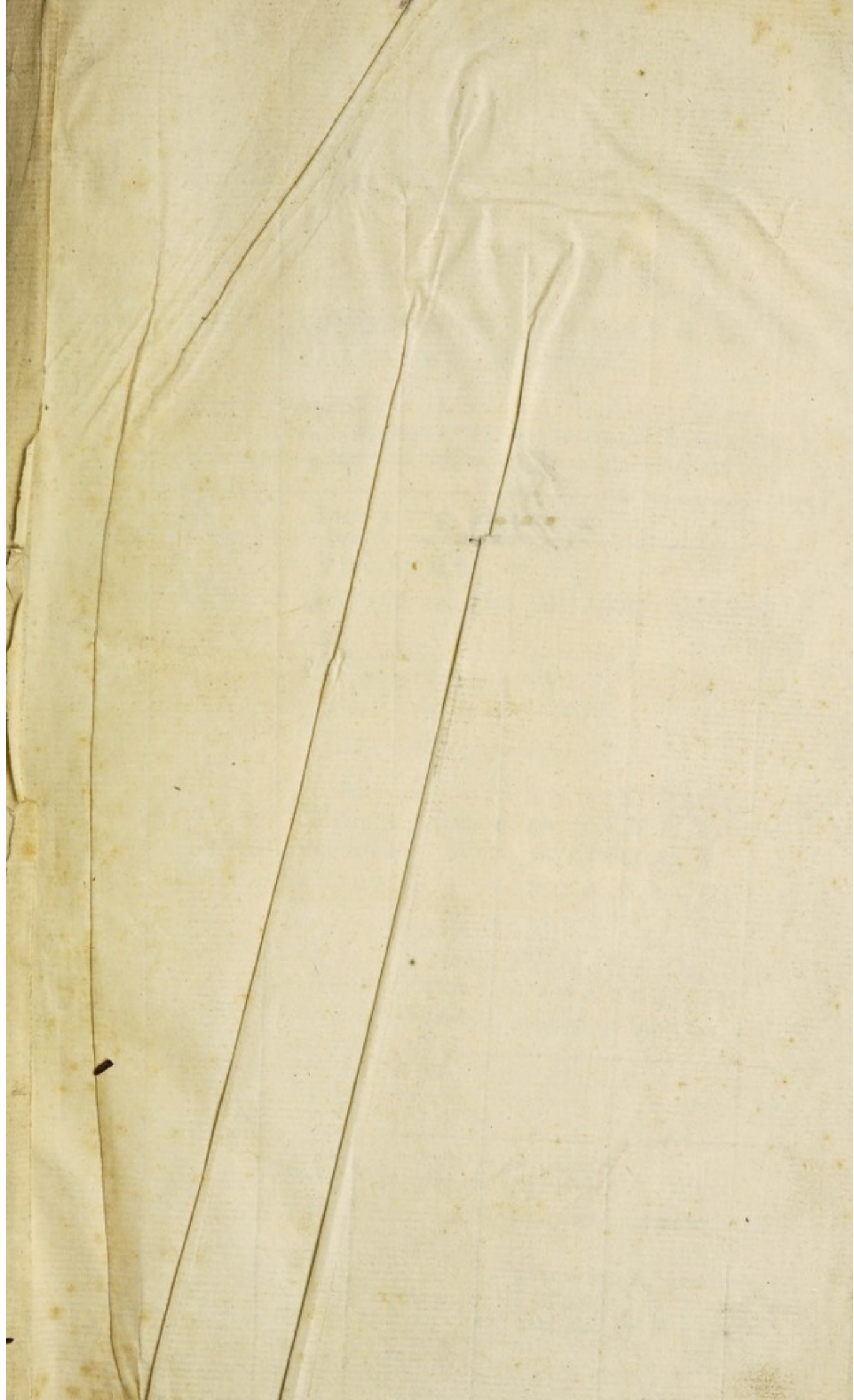
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William H. W. Norworthy.





S I L V A:
O R, A
DISCOURSE
O F

FOREST-TREES,
And the Propagation of **TIMBER** in His
MAJESTY'S Dominions:

As it was delivered in the **ROYAL SOCIETY** the 15th of October, 1662,
upon Occasion of certain *Queries* propounded to that *Illustrious Assembly*,
by the Honourable and Principal Officers and Commissioners of the NAVY.

IN TWO BOOKS.

TOGETHER WITH
An Historical Account of the *Sacredness* and Use of
STANDING GROVES.

TERRA, *A Philosophical ESSAY of* **EARTH;**
being a Lecture in Course.

To which is annex'd,

POMONA: Or an **APPENDIX** concerning
FRUIT-TREES, in relation to **CYDER**; the
Making, and several Ways of Ordering it.

Publsh'd by express ORDER of the ROYAL SOCIETY.

A L S O

KALENDARIVM HORTENSE; Or, The
GARDENER'S ALMANACK;

Directing what is to do *Monthly* throughout the Year.

By **JOHN EVELYN**, Esq; Fellow of the *Royal Society*.

The FIFTH EDITION.

*Tibi res antiquæ laudis & artis
Ingredior, tantos ausus recludere fontes.*

VIRG.

L O N D O N:

Printed for J. WALTHOE, J. KNAPTON, D. MIDWINTER, A. BETTESWORTH,
J. TONSON, W. INNYS, R. ROBINSON, J. WILFORD, J. OSBORN and
T. LONGMAN, B. MOTTE, A. WARD; and sold also by F. FAYRAM.

M. DCC. XXIX.

1729



T O T H E
R E A D E R.



AFTER what the Frontispiece and Porch of this Wooden Edifice presents you, I shall need no farther to repeat the Occasion of this following Discourse: I am only to acquaint you, That as it was delivered to the Royal Society by an unworthy Member thereof, in Obedience to their Commands; by the same it is now re-publish'd without any farther Prospect: And the Reader is to know, that if these dry Sticks afford him any Sap, it is one of the least and meanest of those Pieces which are every Day produc'd by that Illustrious Assembly, and which enrich their Collections, as so many Monuments of their accurate Experiments, and publick Endeavours, in order to the Production of real and useful Theories, the Propagation and Improvement of Natural Science, and the Honour of their Institution. If to this there be any Thing subjoined here, which may a while bespeak the Patience of the Reader, it is only for the Encouragement of an Industry, and worthy Labour, much in our Days neglected, as haply reputed a Consideration of too sordid and vulgar a Nature for Noble Persons and Gentlemen to busy themselves withal, and who oftner find out Occasions to Fell-down and Destroy their Woods and Plantations, than either to Repair or Improve them.

BUT we are not without Hopes of taking off these Prejudices, and of reconciling them to a Subject and an Industry which has been consecrated (as I may say) by as good, and as great Persons, as any the World has produced; and whose Names we find mingled amongst Kings and Philosophers, grave Senators and Patriots of their Country: For such of Old were Solomon, Cyrus, and Numa, Licinius, surnamed Stolo, Cato, and Cincinnatus; the Piso's, Fabii, Cicero, the Plinies, and thousands more whom I might enumerate, that disdained not to cultivate these Rusticities even with their own Hands, and to esteem it no small Accession to dignify their Titles, and adorn their Purple
with

with these rural Characters of their Affections to Planting, and Love of this Part of Agriculture, which has transmitted to us their venerable Names through so many Ages and Vicissitudes of the World.

THAT famous Answer alone which the Persian Monarch gave to Lyfander, will sufficiently justify that which I have said, besides what we might add out of the Writings and Examples of the rest: But since these may suffice, after due Reproofs of the late impolitick Waste, and universal Sloth amongst us; we should now turn our Indignation into Prayers, and address ourselves to our better-natur'd Countrymen; that such Woods as do yet remain entire, might be carefully preserved, and such as are destroy'd, sedulously repaired: It is what all Persons who are Owners of Land may contribute to, and with infinite Delight, as well as Profit, who are touch'd with that laudable Ambition of imitating their Illustrious Ancestors, and of worthily serving their Generation. To these my earnest and humble Advice should be, That at their very first Coming to their Estates, and as soon as they get Children, they would seriously think of this Work of Propagation also: For I observe there is no Part of Husbandry, which Men commonly more fail in, neglect, and have Cause to repent of, than that they did not begin Planting betimes, without which, they can expect neither Fruit, Ornament, or Delight from their Labours. Men seldom plant Trees till they begin to be Wise, that is, till they grow Old, and find by Experience the Prudence and Necessity of it. When Ulysses, after a ten Years Absence, was return'd from Troy, and coming home, found his aged Father in the Field planting of Trees, he asked him, Why (being now so far advanc'd in Years) he would put himself to the Fatigue and Labour of Planting that which he was never likely to enjoy the Fruits of? The good old Man (taking him for a Stranger) gently reply'd; I plant (says he) against my Son Ulysses comes home. The Application is obvious and instructive for both Old and Young: And we have a more modern Instance, almost alike that of the good old Laertes. Here then upon the Complaint of learned Persons and great Travellers, deploring the Loss of many rare and precious Things, Trees and Plants, especially instancing the Balsam Tree of Gilcad (now almost, if not altogether failing, and no more to be found where it grew in great Plenty) He applies himself to young Eperous, to consider it seriously, and to fall a planting while Time is before them, with this encouraging Exclamation. Agite, ô Adolefcences, & antequam canicies vobis obrepât, stirpes jam alueritis, quæ vobis cum insigni utilitate, delectationem etiam adferent: Nam quemadmodum canicies temporis successu, vobis infciis, sensim obrepat: Sic natura vobis inserviens educabit quod telluri

See Petrarch
de Remed.
utriusque for-
tunæ, Lib. i.
Dial. 57.

telluri vestræ concredetis, modò prima initia illi dederitis, &c. *Pet. Bellonius De neglecta stirpium Cultura. Problema ix.*

MT next Advice is, that they do not easily commit themselves to the Dictates of their ignorant Hinds and Servants, who are (generally speaking) more fit to Learn than to Instruct. Male agitur cum Domino quem Villicus docet, was an Observation of old Cato's; and 'twas Ischomachus who told Socrates (discoursing one Day upon a like Subject) That it was far easier to Make than to Find a good Husbandman: I have often prov'd it so in Gardeners; and I believe it will hold in most of our Country Employments: Country People universally know that all Trees consist of Roots, Stems, Boughs, Leaves, &c. but can give no Account of the Species, Vertues, or farther Culture, besides the making of a Pit or Hole; casting and treading in the Earth, &c. which require a deeper Search than they are capable of: We are then to exact Labour, not Conduct and Reason, from the greatest Part of them; and the Business of Planting is an Art or Science (for so Varro has solemnly defined it) and that exceedingly wide of Truth, which (it seems) many in his Time accounted of it; Facillimam esse, nec ullius acuminis Rusticationem, namely, That it was an easy and insipid Study. It was the simple Culture only, with so much Difficulty retrieved from the late Confusion of an intestine and bloody War, like that of Ours, and now put in Reputation again, which made the Noble Poet write,

Vide & Curtium, Lib. vii, &c.

De R. R.

How hard it was
Low Subjects with illustrious Words to grace!

*Verbis ea vincere magnum
Quàm sit, & angustis hunc addere rebus honorem!*
Georg. iii.

*Seeing, as the Orator does himself express it, Nihil est homine libero dignius; there is nothing more becoming and worthy of a Gentleman, no, not the Majesty of a * Consul. In antient and best Times, Men were not honour'd and esteem'd for the only Learned, who were great Linguists, profound Criticks, Readers and Devourers of Books; but such whose Studies consisted of the Discourses, Documents and Observations of their Fore-Fathers, antient and venerable Persons; who (as the excellent Author of the Rites of the Israelites, Cap. xv, &c. acquaints us) were obliged to instruct and inform their Children of the wonderful Things God had done for their Ancestors; together with the Precepts of the Moral Law, Feasts, and Religious Ceremonies: But taught them likewise all that concerned Agriculture, joined with Lessons of perpetual Practice, in which they were, doubtless, exceedingly knowing; whilst during so many Ages, they employed themselves almost continually in it: And though now a-days this Noble Art be for the most part left to be exercised amongst us by People of grosser and unthinking Souls; yet there is no Science whatever*

*In agris erant tunc Senatores, Cic. de Senect.
* Silvæ sunt Consule dignæ. See this of the Poet interpreted, Scaliger, L. i. c. i. Poet.
P. Nennius, Sueton. Jul. in Lipsium Tacit. iv. Annal. 27. concerning the Quæstors Of-*

which

which contains a vaster Compass of Knowledge, infinitely more useful and beneficial to Mankind, than the fruitless and empty Notions of the greatest Part of Speculatists; counted to be the only Eruditi and Learned Men. An Israelite, who from Tradition of his Fore-fathers, his own Experience, and some modern Reading, had informed himself of the Religion and Laws which were to regulate his Life; and knew how to procure Things necessary: Who perfectly understood the several Qualities of the Earth, Plants, and Places agreeable to each Sort, and to cultivate, propagate, defend them from Accidents, and bring them to Maturity: That also was skill'd in the Nature of Cattle, their Food, Diseases, Remedies, &c. which those who amongst us pass for the most learned and accomplished Gentlemen and Scholars, are, for the most part, grossly ignorant of, look upon as base, rustick, and Things below them, is (in this Learned Author's Opinion) infinitely more to be valued than a Man brought up either in wrangling at the Bar, or the noisy and ridiculous Disputes of our Schools, &c. To this Sense the Learned Modena: And 'tis remarkable, that after all that wise Solomon had said, that All was Vanity and Vexation of Spirit (among so many Particulars he reckons up) he should be altogether silent, and say nothing concerning Husbandry; as, doubtless, considering it the most useful, innocent, and laudable Employment of our Life, requiring those who cultivate the Ground to live in the Country, remote from City-Luxury, and the Temptation to the Vices he condemns. It was indeed a plain Man (a Potter by Trade) but let no Body despise him, because a Potter (Agathocles, and a King was of that Craft) who, in my Opinion, has given us the true Reason why Husbandry, and particularly Planting, is no more improved in this Age of ours; especially, where Persons are Lords and Owners of much Land: The Truth is, says he, when Men have acquired any considerable Fortune by their good Husbandry and Experience (forgetting that the greatest Patriarchs, Princes, their Sons and Daughters, belonged to the Plough, and the Flock) they account it a Shame to breed up their Children in the same Calling which they themselves were educated in, but presently design them Gentlemen: They must, forsooth, have a Coat of Arms, and live upon their Estates; so as by the Time his Son's Beard is grown, he begins to be ashamed of his Father, and would be ready to defy him, that should upon any Occasion mind him of his honest Extraction: And if it chance that the good Man have other Children to provide for, This must be the Darling, be bred at School, and the University, whilst the rest must to Cart and Plow with the Father, &c. This is the Cause, says my Author, that our Lands are so ill cultivated and neglected. Every Body will subsist upon their own Revenue, and take their

Pleasure,

Pleasure, whilst they resign their Estates to be managed by the most Ignorant (which are the Children whom they leave at home, or the Hinds to whom they commit them) When as in Truth, and in Reason, the more Learning, the better Philosophers, and the greater Abilities they possess, the more, and the better are they qualified to Cultivate and Improve their Estates: Methinks this is well and rationally argued.

AND now you have in part what I had to produce in Extenuation of this Adventure; that Animated with a Command, and Assisted by divers worthy Persons (whose Names I am prone to celebrate with all just Respects) I have presumed to cast in my Symbol; which, with the rest that are to follow, may (I hope) be in some Degree serviceable to him (who'er the happy Person be) that shall oblige the World with that compleat System of Agriculture, which as yet seems a Desideratum, and wanting to its full Perfection. It is (I assure you) what is one of the Principal Designs of the ROYAL SOCIETY, not in this Particular only, but through all the Liberal and more useful Arts; and for which (in the Estimation of all equal Judges) it will merit the greatest of Encouragements; that so, at last, what the Learned Columella has wittily reproached, and complained of, as a Defect in that Age of his, concerning Agriculture in general, and is applicable here, may attain its desired Remedy and Consummation in This of Ours.

SOLA enim Res Rustica, quæ sine dubitatione proxima, & quasi consanguinea Sapientiæ est, tam discentibus eger, quam magistris: Adhuc enim Scholas Rhetorum, & Geometrarum, Musicorumque, vel quod magis mirandum est, contemptissimorum vitiorum officinas, gulosius condiendi cibos, & luxuriosius fercula struendi, capitumque & capillorum concinnatores, non solum esse audiui, sed & ipse vidi; Agricolationis neque Doctores qui se profiterentur, neque Discipulos cognovi. But this I leave for our Peruk'd Gallants to interpret, and should now apply myself to the Directive Part, which I am all this while bespeaking, if after what I have said in the several Paragraphs of the ensuing Discourse upon the Argument of Wood (and which in this Edition coming Abroad with innumerable Improvements and Advantages (so furnished, as I hope shall neither reproach the Author, or repent the Reader) it might not seem superfluous to have premised any Thing here for the Encouragement of so becoming an Industry. There are divers Learned, and judicious Men who have preceeded Me in this Argument; as many, at least, as have undertaken to Write and Compile vast Herbals, and Theatres of Plants; of which we have some of our own Countrymen (especially the most Industrious and Learned Mr. Ray) who have (boldly I dare affirm it) surpassed any, if not all the Foreigners that

Præfat. ad P. Silvium; which I earnestly recommend to the serious Perusal of our Gentry.

Et mihi ad sapientis vitam proximè videtur accedere. Cic. de Senectute.

are extant : In Those it is you meet with the Description of the several Plants, by Discourses, Figures, Names, Places of Growth, Time of Flourishing, and their Medicinal Virtues; which may supply any Deficiency of mine as to those Particulars; if forbearing the Repetition, it should by any be imputed for a Defect, though it were indeed none of my Design: I say, these things are long since performed to our hands: But there is none of these (that I at least know of, and are come to my Perusal) who have taken any considerable Pains how to Direct and Encourage us in the Culture of Forest-Trees (the grand Defect of this Nation) besides some small Sprinklings to be met withal in Gervas Markham, old Tusser; and of Foreigners, the Country-Farm long since translated out of French, and by no means suitable to our Clime and Country: Neither have any of these proceeded after my Method, and so particularly, in Raising, Planting, Dressing, and Governing, &c. or so sedulously made it their Business, to specify the Mechanical Uses of the several Kinds, as I have done, which was hitherto a great Defideratum, and in which the Reader will likewise find some things altogether New and Instructive; and both Directions and Encouragements for the Propagation of some Foreign Curiosities of Ornament and Use, which were hitherto neglected. If I have upon occasion presumed to say any thing concerning their Medicinal Properties, it has been modestly and frugally, and with chief, if not only, respect to the poor Wood-man, whom none I presume will envy, that living far from the Physician, he should, in case of Necessity, consult the Reverend Druid, his * Oaks, and his Elm, Birch, or Elder, for a short Breath, a green Wound, or a sore Leg; Casualties incident to this hard Labour. These are the chief Particulars of this ensuing Work, and what it pretends hitherto of Singular, in which let me be permitted to say, there is sufficient for Instruction, and more than is extant in any Collection whatsoever (absit verbo invidia) in this Way and upon this Subject; abstracting things practicable, of solid Use, and material, from the Ostentation and Impertinencies of divers Writers, who receiving all that came to hand on trust, to swell their monstrous Volumes, have hitherto imposed upon the credulous World, without Conscience or Honesty. I will not exasperate the Adorers of our antient and late Naturalists, by repeating of what our Verulam has justly pronounced concerning their Rhapsodies (because I likewise honour their painful Endeavours, and am obliged to them for much of that I know) nor will I (with some) reproach Pliny, Porta, Cardan, Mizaldus, Cursius, and many others of great Names (whose Writings I have diligently consulted) for the Knowledge they have imparted to me on this Occasion; but I must deplore the Time which is (for the most part) so miserably lost in pursuit of their Speculations, where they treat upon this Argument: But the World is now advised, and (blessed be God!) infinitely

* Nè Silvæ
quidem, hor-
ridiorque na-
turæ facies
Medicinis ca-
rent, Sacra
illa parente
rerum om-
nium, nus-
quam non
remedia dis-
ponente ho-
mini ut Me-
dicina, fieret
etiam solitu-
do ipsa, &c.
Hinc nata
Medicina, &c.
Hæc sola na-
turæ placuerat
esse remedia
parata vulgo,
inventu faci-
lia, ac sine
impendio, ex
quibus vivi-
mus, &c. Plin.
Lib. xxiv. c. i.

infinitely redeemed from that base and servile Submission of our noblest Faculties to their blind Traditions. This, you will be apt to say, is a haughty Period; but whilst I affirm it of the Past, it justifies, and does Honour to the Present Industry of our Age, and of which there cannot be a greater and more emulous Instance, than the Passion of his Majesty to encourage his Subjects, and of the Royal Society (his Majesty's Foundation) who receive and promote his Dictates, in all that is laudable and truly emolumental of this Nature.

IT is not therefore that I here presume to instruct Him in the Management of that great and august Enterprize of resolving to Plant and repair his ample Forests, and other Magazines of Timber, for the Benefit of his Royal Navy, and the Glory of his Kingdoms; but to present to his Sacred Majesty, and to the World, what Advices I have received from others, observed myself, and most industriously collected from a studious Propensity to serve as one of the least Intelligences in the ampler Orb of our Illustrious Society, and in a Work so necessary and important.

AND now since I mention'd the Society, give me leave (worthy Reader) as a Member of that Body, which has been the chief Promoter of this ensuing Work, and (as I stand obliged) to vindicate that Assembly, and consequently the Honour of his Majesty and the Nation, in a Particular which concerns it, though (in appearance) a little foreign to the present Subject.

I will not say, that all which I have written in the several Paragraphs of this Treatise, is New; but that there are very many new and useful Things, and Observations (without insisting on the Methods only) not hitherto delivered by any Author, and so freely communicated, I hope will sufficiently appear: It is not therefore in behalf of any Particular which concerns myself, that I have been induced to enlarge this Preface; but, by taking this Occasion, to encounter the unsufferable Boldness or Ambition of some Persons (as well Strangers as others) arrogating to themselves the being Inventors of divers new and useful Experiments, justly attributable to several Members of the Royal Society †.

SO far has that Assembly been from affecting Glory, that they seem rather to have declined their Due; not as ashamed of so

† Consult
Hist. Roy. Soc.
and their Re-
sisters.

The Laws
of Motion,

and the Geometrical Streightning of Curve-Lines were first found out by Sir Christopher Wren and Mr. Thomas Neile.

The equated isocrone Motion of the Weight of a Circular Pendulum in a Paraboloid, for the regulating of Clocks, and the improving Pocket-Watches by Springs apply'd to the Ballance, were first invented and demonstrated to this Society by Dr. Hooke; together with all those new and useful Instruments, Contrivances, and Experiments, Mathematical and Physical, publish'd in his Posthumous Works by the most accomplish'd Mr. Waller, Secretary to the Royal Society: And since those, the incomparably Learned Sir Isaac Newton, now President of the Royal Society; Mr. Halley, the worthy Professor of Geometry in the University of Oxford; Dr. Grew, and several more, whose Works and useful Inventions sufficiently celebrate their Merits: I did mention the Barometer, to which might be added the prodigious Effects of the Speculum Ustorium, surpassing what the French pretend to, as confidently, or rather audaciously, they do, and to other admirable Inventions, injuriously arrogated by Strangers, tho' due of right to Englishmen, and Members of this Society; but 'tis not the Business of this Preface to enumerate all, tho' 'twas necessary to touch on some Instances.

numerous and fair an Off-spring; but as abundantly satisfied, that after all the hard Measure, and virulent Reproaches they had sustain'd, for endeavouring by united Attempts, and at their own Charges, to improve Real Philosophy; they had, from Time to Time, cultivated that Province in so many useful and profitable Instances, as are already published to the World, and will be easily asserted to their Authors before all equitable Judges.

THIS being the sole Inducement of publishing this Apology, it may not perhaps seem unseasonable to disabuse some (otherwise) well-meaning People, who led away and perverted by the Noise of a few Ignorant and Comical Buffoons (whose Malevolence or Impertinencies entitle them to nothing that is truly Great and Venerable) are, with an Insolence suitable to their Understanding, still crying out, and asking, What have the Society done?

NOW, as nothing less than Miracles (and unless God should every Day repeat them at the Call of these Extravagants) will convince some Persons of the most Rational and Divine Truths (already so often and extraordinarily established) so, nor will any thing satisfy these unreasonable Men, but the Production of the Philosopher's-Stone, and Great Elixir; which yet were they Possessors of, they would consume upon their Luxury and Vanity.

IT is not therefore to gratify these magnificent Fops, whose Talents reach but to the adjusting of their Perukes, courting a Mifs, or, at the farthest, writing a smutty or scurrilous Libel (which they would have to pass for genuine Wit) that I concern myself in these Papers; but, as well in Honour of our Royal Founder, as the Nation, to assert what of other Countries has been surreptitiously arrogated, and by which they not only value themselves abroad, but (prevailing on the Modesty of that Industrious Assembly) seek the Deference of those, who whilst it remains still silent, do not so clearly discern this glorious Plumage to be purely ascititious, and not a Feather of their own. — But still, What have they done?

THOSE who perfectly comprehend the Scope and End of that Noble Institution, which is to improve Natural Knowledge, and enlarge the Empire of Operative Philosophy, not by an Abolition of the Old, but by the Real Effects of the Experimental; Collecting, Examining, and Improving their scatter'd Phænomena, to establish even the Received Methods and Principles of the Schools (as far as were consistent with Truth and Matter of Fact) thought it long enough, that the World had been imposed upon by that National and Formal Way of delivering divers Systems and Bodies of Philosophy (falsely so call'd) beyond which there was no more Country to discover; which being brought to the Test and Trial, vapours all away in Fume and empty Sound.

THIS

THIS Structure then being thus ruinous and crazy, 'tis obvious what they were to do, even the same which skilful Architects do every Day before us; by pulling down the decayed and sinking Wall to erect a better, and more substantial in its place: They not only take down the old, reject the uselefs and decayed; but sever such Materials as are solid, and will serve again; bring new ones in, prepare and frame a Model suitable to so magnificent a Design: This Solomon did in order to the Building of the Material Temple; and this is here to be pursued in the Intellectual: Nay, here was abundance of Rubbish to be clear'd, that the Area might be free; and then was the Foundation to be deeply searched, the Materials accurately examined, squared, and adjusted, before it could be laid: Nor was this the Labour of a Few; less than a much longer Time, more Cost and Encouragement than any which the Society has yet met withal, could in reason be sufficient effectually to go through so chargeable a Work, and highly necessary.

A long Time it was they had been surveying the Decays of what was ready now to drop in pieces, whatever Shew the Outside made with a Noise of Elements and Qualities, occult and evident; Abhorrence of Vacuum, Sympathies, Antipathies; substantial Forms, and prime Matter courting Form; Epicycles, Ptolemean Hypotheses, magisterial Definitions, peremptory Maxims, speculative and positive Doctrines, and Alti-sonant Phrases, with a thousand other precarious and unintelligible Notions, &c. all which they have been turning over, to see if they could find any Thing of sincere and useful among this pedantick Rubbish, but all in vain; here was nothing material, nothing of Moment mathematical, or mechanical, and which had not been miserably sophisticated, on which to lay the Stress; nothing in a manner whereby any farther Progress could be made, for the raising and ennobling the Dignity of Mankind in the sublimest Operations of the Rational Faculty, by clearing the Obscurities, and healing the Defects of most of the Physiological Hypotheses, repugnant, as they hitherto seemed to be, to the Principles of real Knowledge and Experience.

NOW, although it neither were their Hopes, or in their Prospect to consummate a Design requiring so mighty Aids (environ'd as they have been with these Prejudices) yet have they not at all desisted from the Enterprize; but rather than so Noble and Illustrious an Undertaking should not proceed for want of some generous and industrious Spirits to promote the Work, they have themselves submitted to those mean Employments, of digging in the very Quarry; yea, even of making Brick where there was no Straw, but what they gleaned, and lay dispersed up
c and

and down : Nor did they think their Pains yet ill-bestow'd, if through the assiduous Labour, and a Train of continual Experiments, they might at last furnish, and leave solid and uncorrupt Materials to a succeeding, and more grateful Age, for the building up a Body of real and substantial Philosophy, which should never succumb to Time, but with the Ruins of Nature, and the World itself.

I N order to this, how many, and almost innumerable have been their Trials and Experiments, through the large and ample Field both of Art and Nature ? We call our Journals, Registers, Correspondence, and Transactions, to witness ; and may with Modesty provoke all our Systematical Methodists, Natural Historians, and Pretenders hitherto extant from the Beginning of Letters to this Period, to shew us so ample, so worthy, and so useful a Collection. 'Tis a Fatality and an Injury to be deplored, that those who give us hard Words, will not first vouchsafe impartially to examine these Particulars ; since all ingenuous Spirits could not but be abundantly satisfied, that this Illustrious Assembly has not met so many Years purely for Speculation only ; though I take even that to be no ignoble Culture of the Mind, or Time mispent, for Persons who have so few Friends and slender Obligations to those who should patronize and encourage them : But they have aimed at greater Things, and greater Things produced, namely, by emancipating, and freeing themselves from the Tyranny of Opinion, delusory and fallacious Shews, to receive nothing upon Trust, but bring it to the Lydian Touch, make it pass the Fire, the Anvil, and the File, till it come forth perfectly repurged, and of Consistence. They are not hasty in concluding from a single, or incompetent Number of Experiments, to pronounce the Ecstatic Heureka, and offer Hecatombs ; but, after the most diligent Scrutiny, and by degrees, and wary Inductions honestly and faithfully made, to record the Truth, and Event of Trials, and transmit them to Posterity. They resort not immediately to general Propositions, upon every specious Appearance ; but stay for Light, and Information from Particulars, and make Report de Facto, and as Sense informs them. They reject no Sect of Philosophers, no mechanick Helps, except no Persons of Men ; but chearfully embracing all, cull out of all, and alone retain what abides the Test ; that from a plentiful and well-furnish'd Magazine of true Experiments, they may in time advance to solemn and established Axioms, General Rules and Maxims ; and a Structure may indeed lift up its Head, such as may stand the Shock of Time, and render a solid Account of the Phænomena, and Effects of Nature, the aspectable Works of God, and their Combinations ; so as by Causes and Effects, cer-

tain

tain and useful Consequences may be deduced. Therefore they do not fill their Papers with Transcripts out of Rhapsodists, Mountebanks, and Compilers of Receipts and Secrets, to the Loss of Oil and Labour; but, as it were, eviscerating Nature, disclosing the Resources, and Springs of Motion, have collected innumerable Experiments, Histories, and Discourses; and brought in Specimens for the Improvement of Astronomy, Geography, Navigation, Opticks; all the Parts of Agriculture, the Garden and the Forest; Anatomy of Plants, and Animals, Mines and Oars; Measures and Equations of Time by accurate Pendulums, and other Motions, Hydro- and Hygrostaticks, divers Engines, Powers and Automata, with innumerable more luciferous Particulars, subservient to human Life, of which Dr. Glanvil has given an ample and ingenious Account in his Learned Essay: And since in the Posthumous Works of Dr. Hooke, lately publish'd by the most obliging Mr. Waller, already mention'd.

THIS is (Reader) what they have done; and they are but Part of the Materials which the Society have hitherto amassed, and prepared for this great and illustrious Work; not to pass over an Infinity of solitary and loose Experiments subsidiary to it, gathered at no small Pains and Cost: For so have they hitherto born the Burden and Heat of the Day alone; Sapping and Mining to lay the Foundation deep, and raise a Superstructure to be one Day perfected, by the joint Endeavours of those who shall in a kinder Age have little else to do, but the putting and cementing of the Parts together, which to collect and fit, have cost them so much Solitude and Care. Solomon indeed built the glorious Temple; but 'twas David provided the Materials: Did Men in those Days insolently ask, What he had done, in all the Time of that tedious Preparation? I beseech you, what Obligation has the Royal Society to render an Account of their Proceedings to any who are not of the Body, and that carry on the Work at their own Expence amidst so many Contradictions? It is an Evil Spirit, and an Evil Age, which having sadly debauch'd the Minds of Men, seeks with Industry to blast and undermine all Attempts and Endeavours that signify to the Illustration of Truth, the Discovery of Impostors, and shake their sandy Foundations.

THOSE who come (says the Noble Verulam) to enquire after Knowledge, with a Mind to scorn, shall be sure to find Matter for their Humour; but none for their Instruction: Would Men bring Light of Invention, and not Fire-brands of Contradiction, Knowledge would infinitely increase. But these are the Sanballats and Horonites who disturb our Men upon the Wall: But, let us rise up and build, and be no more discouraged. 'Tis impossible

possible to conceive, how so honest, and worthy a Design should have found so few Promoters, and cold a Welcome in a Nation whose Eyes are so wide open: We see how greedily the French, and other Strangers embrace and cultivate the Design: What sumptuous Buildings, well furnish'd Observatories, ample Appointments, Salaries, and Accommodations, they have erected to carry on the Work; whilst we live precariously, and spin the Web out of our own Bowels. Indeed, we have had the Honour to be the first who led the Way, given the Ferment, which like a Train has taken Fire, and warm'd the Regions all about us. This Glory, doubtless, shall none take from us: But, whilst they flourish so Abroad, we want the Spirit should diffuse it here at Home, and give Progress to so hopeful a Beginning: But, as we said, the Enemy of Mankind has done us this Despite; it is his Interest to impeach (in any sort) whate'er opposes his Dominion; which is to lead, and settle Men in Errors as well in Arts and Natural Knowledge, as in Religion; and therefore would be glad, the World should still be groping after both. 'Tis he that sets the Buffoons, and empty Sycophants, to turn all that's Great and Virtuous into Raillery and Derision: 'Tis therefore to encounter these, that like those resolute Builders, whilst we employ one Hand in the Work, we, with the other, are obliged to hold our Weapon, till some bold and gallant Genius deliver us, and raise the Siege. How gloriously would such a Benefactor shine! What a Constellation would he make! How great a Name establish! For mine own part (religiously I profess it) were I not a Person, who (whilst I stood expecting when others more worthy, and able than myself, should have snatch'd the Opportunity of signalizing a Work worthy of Immortality) had long since given Hostages to Fortune, and so put myself out of a Capacity of shewing my Affection to a Design so glorious; I would not only most chearfully have contributed towards the freeing it from the Straits it has so long struggled under; but sacrificed all my Secular Interests in their Service: But, as I said, this is reserved for that gallant Hero (whoe'er it be) that truly weighing the Noble and Universal Consequence of so high an Enterprize, shall at last free it of these Reproaches; and either set it above the Reach of Envy, or convert it to Emulation. This were indeed to consult an honest Fame, and to embalm the Memory of a greater Name than any has yet appeared amongst all the Benefactors of the Disputing Sects: Let it suffice to affirm, that next the Propagation of our most Holy Faith, and its Appendants (nor can his Majesty or the Nation build their Fame on a more lasting, a more glorious Monument; the Propagation of Learning, and useful Arts, having always sur-
viv'd

viv'd the Triumphs of the proudest Conquerors, and Spillers of human Blood) Princes have been more renown'd for their Civility to Arts and Letters, than to all their sanguinary Victories, subduing Provinces, and making those brutish Desolations in the World, to feed a salvage and vile Ambition. Witness you Great Alexander, and you the Ptolemies, Cæsars, Charlemain, Francis the First; the Cosimo's, Frederick's, Alphonsus's, and the rest of Learned Princes: Since when all the Pomp and Noise is ended; they are those little Things in black (whom now in scorn they term Philosophers and Fops) to whom they must be obliged, for making their Names outlast the Pyramids, whose Founders are as unknown as the Heads of Nile ; because they either deserved no Memory for their Virtues, or had none to transmit them, or their Actions to Posterity.

IS not our Royal Founder already panegyricized by all the Universities, Academists, Learned Persons, divers Princes Ambassadors, and Illustrious Men from abroad ? Witness besides, the many accurate Treatises and Volumes of the most curious and useful Subjects, Medicinal, Mathematical, and Mechanical, dedicated to his Majesty as Founder ; to its President, and to the Society, by the greatest Wits, and most profoundly knowing of the European World, celebrating their Institution and Proceedings : Witness, the daily Submissions and solemn Appeals of the most Learned Strangers to its Suffrages, as to the most able, candid, and impartial Judges : Witness, the Letters and Correspondencies from most Parts of the habitable Earth, East and West-Indies, and almost from Pole to Pole ; besides what they have received from the very Mouths of divers Professors, Publick Ministers, great Travellers, Noblemen, and Persons of highest Quality ; who have not only frequented the Assembly, but desired to be incorporated and ascribed into their Number ; so little has his Majesty, or the Kingdom been diminished in their Reputation, by the Royal Society, to the Reproach of our sordid Adversaries : Never had the Republick of Letters so Learned and Universal a Correspondence as has been procured and promoted by this Society alone ; as not only the casual Transactions of several Years (filled with Instances of the most curious and useful Observations) make appear ; but (as I said) the many Nuncupatory Epistles to be seen in the Fronts of so many Learned Volumes : There it is you will find CHARLES II. placed among the Heroes and Demi-Gods, for his Patrociny and Protection : There you will see the numerous Congratulations of the most Learned Foreigners, celebrating the Happiness of their Institution ; and that whilst other Nations are still benighted under the dusky Cloud, such a refulgent Beam should give Day to this blessed Isle : And certainly, it is not to be supposed that all these Learned Persons, of so many, and divers Interests, as well as Coun-

tries, *should speak, and write thus out of Flattery, much less of Ignorance; being Men of the most refined Universal Knowledge, as well as Ingenuity: But I should never end, were I to pursue this fruitful Topick. I have but one Word more to add, to conciliate the Favour and Esteem of our own Universities, to an Assembly of Gentlemen, who from them acknowledge to have derived all their Abilities for these laudable Undertakings; and what above all is most shining in them of most Christian, Moral, and otherwise conspicuous, as from the Source and Fountain, to which, on all Occasions, they are not only ready to pay the Tribute and Obsequiousness of humble Servants, but of Sons, and dutiful Alumni. There is nothing verily which they more desire, than a fair and mutual Correspondence between so near Relations, and that they may be perpetually flourishing and fruitful in bringing forth (as still they do) Supplies to Church and State in all*

* Since this Epistle was first written and published, the University of Oxford have instituted, and erected a Society for the promoting of Natural and Experimental Knowledge, in concert with the Royal Society, with which they keep a mutual Correspondence: This I mention, for that some Malevolents had so far endeavour'd to possess divers Members of the University; as if the Society design'd nothing less than the undermining of that, and other illustrious Academies, and which indeed so far prevail'd, as to breed a real Jealousy for some considerable Time: But as this was never in the Thoughts of the Society (which had ever the Universities in greatest Veneration) so the Innocency and Usefulness of its Institution has at length disabused them, vindicated their Proceedings, dissipated all Surmises, and, in fine, produced an ingenuous, friendly, and candid Union and Correspondence between them.

*its great Capacities: * Finally, that they would regard the Royal Society as a Colony of their own planting, and augure it Success. And if in these Labours, and arduous Attempts, several Inventions of present Use and Service to Mankind (either detecting Errors, illustrating and asserting Truths, or propagating Knowledge in natural Things, and the visible Works of God) have been discovered, as they envy not the communicating them to the World; so should they be wanting to the Society, and to the Honour of divers Learned and Ingenious Persons (who are the Soul and Body of it) not to vindicate them from the ambitious Plagiary, the Insults of Scoffers and injurious Men: Certainly, Persons of right Noble and subact'd Principles, that were Lovers of their Country, should be otherwise affected; and rather strive to encourage, and promote Endeavours tending to so generous a Design, than decry it; especially, when it costs them nothing but their Civility to so many obliging Persons, though they should hitherto have entertain'd them but with some innocent Diversions. To conclude, we envy none their Dues; nay, we gratefully acknowledge any Light which we receive either from Home, or from Abroad: We celebrate and record their Names amongst our Benefactors; recommend them to the Publick, and what we thus freely give, we hope as freely to receive.*

THUS have I endeavour'd to vindicate the Royal Society from some Aspersions and Encroachments it hitherto has suffered; and shew'd under what Weights and Pressure this Palm does still emerge:

And

And if for all this I fall short of my Attempt, I shall yet have this Satisfaction, that tho' I derive no Glory from my own Abilities (sensible of my great Defects) I shall yet deserve their Pardon for my Zeal to its Prosperity.

ΕΠΙΚΤΕΤΟΣ, κτ.

Φιλοσοφίας ἐπιθυμείς; ὡς σχολάζει αὐτοῖς, &c.

Wouldst thou be a Philosopher? Prepare thyself for Scoffs: What, you are setting up for a Virtuoso now? Why so proud I pray? Well, be not thou proud for all this; but so persist in what seems best and laudable; as if God himself had placed thee there; and remember, that so long as thou remain'st in that State and Resolution, thy Reproachers will in time admire thee: But if once, through Inconstancy, thou give out and flinch, διπλὴν πορολήψῃ καταγέλωτα, thou deservest to be doubly laugh'd at.

LORD VERULAM, Instaur. Scient.

Some Men (like Lucian in Religion) seek by their Wit, to traduce and expose useful Things; because to arrive at them, they converse with mean Experiments: But those who despise to be employ'd in ordinary and common Matters, never arrive to solid Perfection in Experimental Knowledge.

THE Changes and Alterations in the several Chapters and Parts throughout this Discourse, with the Additions and Improvements, have often obliged me to alter the Method, and indeed to make it almost a New Work.

J. EVELYN.



ADVER.



ADVERTISEMENT.

THAT I have frequently inserted divers *Historical* and other Passages, *apposite*, and agreeable to the *Subject* (abstaining from a Number more which I might have added) let it be *remember'd*, that I did not altogether compile this *Work* for the Sake of our ordinary *Rusticks* (meer *Foresters* and *Woodmen*) but for the more *Ingenious*; the Benefit and Diversion of *Gentlemen*, and Persons of *Quality*, who often refresh themselves in these agreeable *Toils* of *Planting*, and the *Garden*: For the rest, I may perhaps in some Places have made use of (here and there) a *Word* not as yet so familiar to every *Reader*; but *none*, that I know of, which are not sufficiently *explained* by the *Context* and *Discourse*. That this may yet be no *Prejudice* to the *meaner Capacities*, let them *read* for

Ablaqueation, laying bare the *Roots*.

Amputation, cutting quite off.

Arborator, Pruner, or one that has Care of the *Trees*.

Avenue, the principal *Walk* to the *Front* of the *House* or *Seat*.

Bulbs, round, or *Onion-shap'd* *Roots*.

Calcine, burn to *Ashes*.

Compost, *Dung*.

Conservatory, *Green-house* to keep *choice Plants*, &c. in.

Contr' espalier, a *Palisade*, or *Pole-hedge*.

Coronary Garden, *Flower-Garden*.

Culinary, belonging to the *Kitchen*, *Roots*, *Salading*, &c.

Culture, *Dressing*.

Decorticate, to strip off the *Bark*.

Emuscation, cleansing it of the *Moss*.

Esculent, *Roots*, *Salads*, &c. fit to eat.

Espalieres, *Wall-fruit Trees*.

Exoticks, outlandish, rare, and choice.

Fermentation, working.

Fibrous, stringy.

Fronation, stripping of *Leaves* and *Boughs*.

Heterogeneous, repugnant.

Homogeneous, agreeable.

Hyemation, Protection in *Winter*.

Ichnography,

Ichnography, Ground-Plot.

Inoculation, Budding.

Incision, Graffing.

Insolation, exposing to the *Sun*.

Interlucation, thinning and disbranching of a Wood.

Irrigation, Watering.

Laboratory, Still-house.

Letation, Dung.

Lixivium, Lee.

Mural, belonging to the Wall.

Olitory, *Acetary*, *Salads*, &c. belonging to the *Kitchen-Garden*.

Palisade, Pole-hedge.

Parterre, Flower-Garden, or *Knots*.

Perennial, continuing all the Year.

Quincunx, Trees set like the *Cinque-point* of a *Dye*.

Rectify, Re-distil.

Seminary, Nursery.

Stercoration, Dunging.

S.S.S. Stratum super Stratum, one Bed, or Layer upon another.

Tonfile, that which may be shorne, or clipp'd.

Topiary-Works, the *Clipping*, *Cutting*, and *Forming* of *Hedges*, &c.
into *Figures* and *Works*.

Vernal, belonging to the *Spring*, &c.

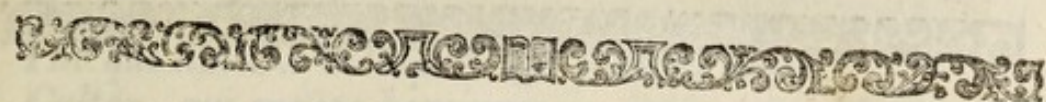
The rest are *obvious*.



BOOKS published by the AUTHOR of this Discourse.

1. **T**HE French Gardener. *Twelves.* With Mr. Rose's Vineyard.
2. *Fumi-fugium* : Or, A Prophetick Inveſtitive againſt the Smoke of London. *Quarto.*
3. *Silva* : Or, A Diſcourſe of Forest-Trees, &c. *Folio.*
4. *Kalendarium Hortenſe*, both in *Folio* and *Oſtavo.*
5. *Sculptura* : Or, The Hiſtory of Chalcography and Engraving in Copper, the Original and Progreſs of that Art, &c. *Oſtavo.*
6. The Parallel of Architecture, being an Account of Ten famous Architects, with a Diſcourſe of the Terms, and a Treatiſe of Statues. *Folio.*
7. The Idea of the Perfection of Painting. *Oſtavo.*
8. Navigation and Commerce, their Original and Progreſs. *Oſtavo.*
9. Publick Employment and an Active Life, prefer'd to Solitude and its Appanages, &c. *Oſtavo.*
10. *Terra* : Or, A Philoſophical Diſcourſe of Earth, both in *Folio* and *Oſtavo.*
11. *Numismata* : A Diſcourſe of Medals. To which is added, A Digreſſion concerning Phyſiognomy. *Folio.*
12. *Acetaria* : Or, A Diſcourſe of Sallets.



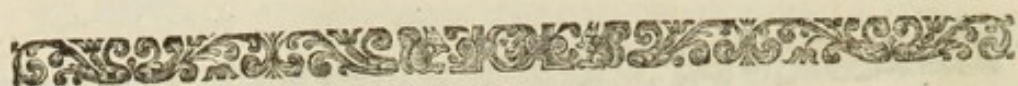


Amico charissimo *Johanni Evelyno*, Armigero, è
Societate Regali *Londini*. *J. Beale*, S. P. D.
In *Silvam*.

FARE age quid causæ est quod tu *Silvestria* pangis,
Inter *Silvanos*, capripedesque *Deos*?
Inter *Hamadryadas lætus*, *Dryadasque pudicas*,
Cum tua *Cyrrhæis sit Chelys apta modis*!
Scilicet hoc cecinit *numerosus Horatius olim*,
Scriptorum *Silvam quod Chorus omnis amat*.
Est locus ille *Sacer Musis, & Apolline dignus*,
Prima dedit *summo Templâ sacrandâ Jovi*.
Hinc quoque nunc *Pontem Pontus non respuit ingens*,
Stringitur *Oceanus, corripiturque Salus*.
Hinc novus *Hesperiiis emerisit mundus in oris*,
Effuditque *auri flumina larga probi*.
Hinc exundavit *distento Copia cornu*,
Qualem & *Amalthææ non habuere sinus*.
Silva tibi curæ est, grata & *Pomona refundit*
Auriferum, roseum, purpureumque nemus.
Illa famemque sitimque *abigens expirat odores*,
Quales nec *Medus, nec tibi mittit Arabs*.
Ambrosiam præbent modo cocta Cydonia, Tantum
Comprime, Nectareo Poma liquore fluunt.
Progredere, O *Sæcli Cultor memorande futuri*,
Felix Horticolam sic imitere Deum.

Gen. i. 2.





Nobilissimo Viro Johanni Evelyno, Regalis
Soc. Socio Dignissimo.

AUSUS laudato qui quondam reddere versu,
Æternum & tentare melos, conamine magno
Lucreti nomenque suum donaverat ævo:

Ille leves atomos audaci pangere musa
Aggreditur, variis & semina cæca figuris,
Naturæque vias: non quæ Schola garrula jactat,
Non quæ rixanti fert barbara turba Lyceo:
Ingentes animi sensus, & pondera rerum,
Grandior expressit Genius, nec scripta minora
Ev'linum decuisse solent.

Libro de co- Naturæ meditaris opus, qua luce colores
loribus. Percipimus, quali magnus ferit organa motu
Cartesius, quali volitant primordia plexu
Ex atomis, Gassende, tuis; simulacraque rerum
Diffugiunt tacito vastum per inane meatu:
Mutato varios mentitur lana colores
Lumine; dum tales ardens habet ipse figuras
Purpura, Sidonioque aliæ tinxere veneno:
Materiam assiduo variatam, ut Protea, motu
De origine Concipis, hinc formæ patuit nascentis origo,
formarum. Hinc hominum species, & vasta machina cæli:
Ipse creare Deus, solusque ostendere mundum
Boylæus potuit, sed nunc favet æmula virtus,
(Magne Eveline) tibi, & generosos excitat ignes:
Pergite, Scipiadæ duo, qui vel mille Marones
Obruitis, longo & meriti lassatis honore.

Tu vero dilecte nimis! qui stemmate ab alto
Patricios deducis avos, cerasque parentum
De Wotton Wottonicæ de stirpe domus; virtutibus æquas
in agro Sur- Nunc generis monumenta tui, post tædia Ponti
riensi. Innumerasque errore vias, quid Sequana fallax,
Hostilis quæ Rhenus agit, quæ Tibris, & Ister,

Nota

Nota tibi : triplici quid perfida Roma corona
 Gessit, & Adriaca Venetus deliberat arce,
 Qualiaque Odryfias vexârunt prælia lunas.
 Hic qui naturæ interpres & sedulus artis
 Cultor, qui mores hominum cognovit, & urbes :
 Dum Phœbo comes ire parat, mentemque capacem
 Vidit uterque polus, nec Graium cana vetustas
 Hunc latuit, veterum nunc prisca numismata regum
 Eruit, & Latias per mystica templa ruinas :
 Æstimat ille forum, & vasti fundamina Circi,
 Cumque ruinoso Capitolia prisca Theatro,
 Et Dominos colles altæque palatia Romæ.
 Regales notat inde domos, ut mole superba
 Surgat apex, molles quæ tecta imitantur Ionas,
 Qualia Romulea, Gothica quæ marmora dextra,
 Quicquid Tuscus habet, mira panduntur ab arte.
 O famæ patriæque sacer ! vel diruta chartis
 Vivet Roma tuis ; te vindice, læta Corinthus
 Stabit adhuc, magno nequicquam invisâ Metello.

Consule li-
 brum Aucto-
 ris de Archi-
 tectura.

Nunc quoque Ruris opes dulcesque ante omnia curas
 Pandis ovans, tristes maneat quæ cura Decembres,
 Pleiades hæc Hyadesque jubent, hæc læta Bootes
 Semina mandat humi, ardenti hæc Sirius agro
 Cœpit ut æstiva segetes torrere favilla,
 Hoc Maii vernantis opus, dum floreaserta
 Invitant Dominas ruris, dum vere tepenti
 Ridet ager, renovatque suos Narcissus amores.

Haud aliter victrix divinam Æneida vates
 Lufit opus, simul & gracili modulatus avena,
 Fata decent majora tuos, Eveline, triumphos,
 Aeternum renovatur honos, te nulla vetustas
 Obruet, atque tua servanda volumina cedro
 Durent, & meritam cingat tibi laurea frontem
 Qui vitam Silvis donasti & Floribus ævum.

R. BOHUN.





ΕΙΣ ΤΗΝ ΤΟΥ ΠΑΤΡΟΣ

ΔΕΝΔΡΟΛΟΓΙΑΝ.

ΥΜνήσω φρονίμοιο παῖδ' ἐς μελέεσσιν ἐπαίνους,
 Ὑμνήσω ἐπέεσσιν ἀεικλύοντα γυαλῶν·
 Οὐρανίην παναῆς ἀρετὴν δρυὶς αὐτὸς ἔγραψεν,
 Καὶ ποταπῶν γινέω δένδρων καὶ δάσκιον ὕλῃ·
 Ἀθανάτων κίδις· ἢ νεφεληγερέτα Ζῆς,
 Ἔχεν δὲ δένδροιο φίλῃσι περσπιδέσσιν ἑλδωρ,
 Φύλλοις τ' ἀμβροσίοις θαλερᾶς δρυὶς ἐσφάγντο·
 Ἀχλειαῶν δὲ ἄερας· ἢ Διοείκελ' ἀνὴρ,
 Ἰστέλλω δένδρων τέλεισι φρίσι κυδάλλιμμοις,
 Ὑλογυῆς, καπνυρὸς, ὑπείροχος, δὲ μὲν ὄνταρ
 Ἀνδράσις ἰσομήμοις καὶ γαίῃ πυλυθότεραν,
 Νηὶ π' πνυτοπύροισι βαρυδύποιο θαλάσσης.

JO. EVELYN, Fil.



The



The G A R D E N.

To J. EVELYN, *Esquire.*



NEVER had any other Desire so strong, and so like to Covetousness, as that one which I have had always, that I might be Master at last of a small House and large Garden, with very moderate Conveniencies joined to them, and there dedicate the Remainder of my Life only to the Culture of them, and Study of Nature,

And there (with no Design beyond my Wall) whole and entire to lie, In no unactive Ease, and no inglorious Poverty;

Or, as *Virgil* has said, shorter and better for me, that I might there *Studiis florere ignobilis otii* (though I could wish that he had rather said, *Nobilis otii*, when he spoke of his own:) But several Accidents of my ill Fortune have disappointed me hitherto, and do still of that Felicity; for though I have made the first and hardest Step to it, by abandoning all Ambitions and Hopes in this World, and by retiring from the Noise of all Business, and almost Company; yet I stick still in the Inn of a hired House and Garden, among Weeds and Rubbish; and without that pleasantest Work of human Industry, the Improvement of something which we call (not very properly, but yet we call) our own. I am gone out from *Sodom*, but I am not yet arrived at my little *Zoar*: *O let me escape thither (is it not a little one?) and my Soul shall live.* I do not look back yet; but I have been forced to stop, and make too many Halts. You may wonder, Sir, (for this seems a little too extravagant and pindarical for *Prose*) what I mean by all this *Preface*; it is to let you know, that though I have mis'd, like a Chymist, my great End, yet I account my Affections and Endeavours well rewarded by something that I have met with by the bye; which is, that they have procured to me some Part in your Kindness and Esteem; and thereby the Honour of having my Name so advantageously recommended to Posterity, by the *Epistle* you are pleased to prefix to the *most useful Book* that has been written in that Kind, and which is to last as long as Months and Years.

Among many other *Arts* and *Excellencies* which you enjoy, I am glad to find this Favourite of mine the most predominant, that you choose this for your Wife, though you have hundreds of other Arts for your Concubines; though you know them, and beget Sons upon them all (to which you are rich enough to allow great Legacies) yet the Issue of this seems to be design'd by you to the Main of the Estate; you have taken most Pleasure in it, and bestow'd most Charges upon its Education; and I doubt not to see that Book, which you are pleased to promise to the World, and of which you have given us a large Earnest in your Kalendar, as accomplish'd as any Thing can be expected from an extraordinary Application, and no ordinary Expences, and a long Experience. I know no Body that possesses more private Happiness than
you

you do in your Garden; and yet no Man who makes his Happiness more publick, by a free Communication of the Art and Knowledge of it to others. All that I myself am able yet to do, is only to recommend to Mankind the Search of that Felicity, which you instruct them how to find and to enjoy.

I.

Happy art thou whom God does bless
With the full Choice of thine own Happiness;
And happier yet, because thou'rt blest
With Prudence how to choose the best:
In Books and Gardens thou hast plac'd aright
(Things well which thou dost understand,
And both dost make with thy laborious Hand)
Thy noble innocent Delight:
And in thy virtuous Wife, where thou again dost meet
Both Pleasures more refin'd and sweet;
The fairest Garden in her Looks,
And in her Mind the wisest Books.
Oh! who would change these soft, yet solid Joys,
For empty Shows and senseless Noise;
And all which rank Ambition breeds,
Which seem such beauteous Flowers, and are such pois'nous Weeds!

II.

When God did Man to his own Likeness make,
As much as Clay, though of the purest Kind,
By the great Potter's Art refin'd,
Could the Divine Impression take:
He thought it fit to place him, where
A kind of Heav'n too did appear,
As far as Earth could such a Likeness bear:
That Man no Happiness might want,
Which Earth to her first Master could afford;
He did a Garden for him plant,
By the quick Hand of his Omnipotent Word:
As the chief Help and Joy of Human Life,
He gave him the first Gift; first, ev'n before a Wife.

III.

For God, the universal Architect,
't had been as easy to erect
A Louvre, or Escorial, or a Tower,
That might with Heav'n Communication hold,
As *Babel* vainly thought to do of Old:
He wanted not the Skill or Power;
In the World's Fabrick those were shown,
And the Materials were all his own.
But well He knew what Place would best agree
With Innocence, and with Felicity:
And we, elsewhere still seek for them in vain,
If any Part of either yet remain:
If any Part of either we expect,
This may our Judgment in the Search direct;
God the first Garden made, and the first City, *Cain*.

IV. O

IV.

O blessed Shades ! O gentle cool Retreat
 From all th' immoderate Heat
 In which the frantick World does burn and sweat ;
 This does the Lion-Star, Ambition's Rage,
 This Avarice, the Dog-Star's Thirst assuage ;
 Every where else their fatal Power we see,
 They make and rule Man's wretched Destiny :
 They neither set nor disappear,
 But tyrannize o'er all the Year ;
 Whilst we ne'er feel their Flame or Influence here.
 The Birds that dance from Bough to Bough,
 And sing Above in every Tree,
 Are not from Fears and Cares more free,
 Than we who lie, or walk Below,
 And should by Right be Singers too.
 What Prince's Choir of Musick can excel
 That which within this Shade does dwell ?
 To which we nothing pay or give,
 They like all other Poets live,
 Without Reward or Thanks for their obliging Pains ;
 'Tis well if they become not Prey :
 The whistling Winds add their less artful Strains,
 And a grave Base the murmuring Fountains play ;
 Nature does all this Harmony bestow,
 But to our Plants, Arts Musick too,
 The Pipe, Theorbo, and Guitar we owe ;
 The Lute itself, which once was green and mute :
 When *Orpheus* struck th' inspired Lute,
 The Trees danc'd round, and understood
 By Sympathy the Voice of Wood.

V.

These are the Spells that to kind Sleep invite,
 And nothing does within Resistance make,
 Which yet we moderately take :
 Who wou'd not choose to be awake,
 While he's encompass'd round with such Delight,
 To th' Ear, the Nose, the Touch, the Taste, and Sight ?
 When *Venus* wou'd her dear *Ascanius* keep
 A Pris'ner in the downy Bands of Sleep,
 She od'rous Herbs and Flowers beneath him spread
 As the most soft and sweetest Bed ;
 Not her own Lap would more have charm'd his Head.
 Who, that has Reason, and his Smell,
 Would not 'mong Roses and Jasmin dwell,
 Rather than all his Spirits choak
 With Exhalations of Dirt and Smoak,
 And all th' Uncleanneſs which does drown
 In pestilential Clouds a pop'lous Town ?
 The Earth itself breathes better Perfumes here,
 Than all the Female Men or Women there,
 Not without Cause about them bear.

VI.

When *Epicurus* to the World had taught,
 That Pleasure was the chiefest Good,
 (And was perhaps i'th' right, if rightly understood)
 His Life he to his Doctrine brought,
 And in a Garden's Shade that sovereign Pleasure fought.
 Whoever a true Epicure would be,
 May there find cheap and vertuous Luxury.
Vitellius his Table, which did hold
 As many Creatures as the Ark of Old;
 That fiscal Table, to which every Day
 All Countries did a constant Tribute pay,
 Could nothing more delicious afford,
 Than Nature's Liberality,
 Help'd with a little Art and Industry,
 Allows the meanest Gard'ner's Board.
 The wanton Taste no Fish or Fowl can choofe,
 For which the Grape or Melon she would loofe,
 Though all th' Inhabitants of Sea and Air
 Be lifted in the Glutton's Bill of Fare;
 Yet still the Fruits of Earth we see
 Plac'd the third Story high in all her Luxury.

VII.

But with no Sense the Garden does comply;
 None courts or flatters, as it does the Eye:
 When the great *Hebrew* King did almost strain
 The wond'rous Treasures of his Wealth and Brain,
 His Royal Southern Guest to entertain;
 Though she on Silver Floors did tread,
 With bright *Assyrian* Carpets on them spread,
 To hide the Metal's Poverty:
 Though she look'd up to Roofs of Gold,
 And nought around her could behold
 But Silk and rich Embroidery,
 And *Babylonian* Tapisstry,
 And wealthy *Hiram's* Princely Die:
 Though *Ophir's* Starry Stones met every where her Eye;
 Though she herself and her gay Host were dress'd
 With all the shining Glories of the East;
 When lavish Art her costly Work had done,
 The Honour and the Prize of Bravery
 Was by the Garden from the Palace won;
 And every Rose and Lilly there did stand
 Better attir'd by Nature's Hand:
 The Case thus judg'd against the King we see,
 By one that would not be so rich, though wiser far than he.

VIII.

Nor does this happy Place only dispense
 Such various Pleasures to the Sense,
 Here Health itself does live,
 That Salt of Life which does to all a Relish give,

THE GARDEN.

xxvij

Its standing Pleasure, and intrinsick Wealth,
 The Body's Vertue, and the Soul's good Fortune, Health.
 The Tree of Life, when it in *Eden* stood,
 Did its immortal Head to Heaven rear;
 It lasted a tall Cedar till the Flood;
 Now a small thorny Shrub it does appear;
 Nor will it thrive too every where:
 It always here is freshest seen;
 'Tis only here an Ever-green.
 If through the strong and beauteous Fence
 Of Temperance and Innocence,
 And wholesome Labours, and a quiet Mind,
 Diseases passage find,
 They must not think here to assail
 A Land unarmed, or without a Guard;
 They must fight for it, and dispute it hard,
 Before they can prevail:
 Scarce any Plant is growing here
 Which against Death some Weapon does not bear.
 Let Cities boast, that they provide
 For Life the Ornaments of Pride;
 But 'tis the Country and the Field,
 That furnish it with Staff and Shield.

IX.

Where does the Wisdom and the Power Divine
 In a more bright and sweet Reflection shine?
 Where do we finer Stroaks and Colours see
 Of the Creator's real Poetry,
 Than when we with Attention look
 Upon the third Day's Volume of the Book?
 If we could open and intend our Eye,
 We all like *Moses* should espy
 Ev'n in a Bush the radiant Deity.
 But we despise these his inferior Ways,
 (Though no less full of Miracle and Praise)
 Upon the Flowers of Heaven we gaze;
 The Stars of Earth no Wonder in us raise,
 Though these perhaps do more than they,
 The Life of Mankind sway.
 Although no Part of mighty Nature be
 More stor'd with Beauty, Power, and Mystery;
 Yet, to encourage human Industry,
 God has so order'd, that no other Part
 Such Space, and such Dominion leaves for Art.

X.

We no where Art do so triumphant see,
 As when it Grafts or Buds the Tree;
 In other Things we count it to excel,
 If it a docile Scholar can appear
 To Nature, and but imitate her well;
 It over-rules, and is her Master here.

THE GARDEN.

It imitates her Maker's Power Divine,
 And changes her sometimes, and sometimes does refine :
 It does, like Grace, the fallen Tree restore
 To its blest'd State of Paradise before :
 Who would not joy to see his conquering Hand
 O'er all the Vegetable World command?
 And the wild Giants of the Wood receive

What Law he's pleas'd to give?
 He bids th' ill-natur'd Crab produce
 The gentle Apples winy Juice ;
 The Golden Fruit that worthy is
 Of *Galetea's* Purple Kiss ;
 He does the savage Hawthorn teach
 To bear the Medlar and the Pear ;
 He bids the rustick Plum to rear
 A noble Trunk, and be a Peach ;
 Ev'n *Daphnes's* Coynefs he does mock,
 And weds the Cherry to her Stock,
 Though she refus'd *Apollo's* Suit ;
 Ev'n she, that Chast and Virgin Tree
 Now wonders at herself, to see
 That she's a Mother made, and blushes in her Fruit.

XI.

Methinks I see Great *Dioclesian* walk
 In the *Salonian* Gardens noble Shade,
 Which by his own Imperial Hands was made :
 I see him smile, methinks, as he does talk
 With the Ambassadors, who come in vain

To entice him to a Throne again :
 If I, my Friends (said he) should to you show
 All the Delights which in these Gardens grow ;
 'Tis likelier much, that you should with me stay,
 Than 'tis that you should carry me away :
 And trust me not, my Friends, if every Day,

I walk not here with more Delight
 Than ever after the most happy Fight,
 In triumph to the Capitol I rode,
 To thank the Gods, and to be thought myself almost a God.

Chertsea, Aug.
 16. 1666.

ABRAHAM COWLEY.






S I L V A :
O R, A
D I S C O U R S E
O F
F O R E S T - T R E E S,
A N D
The Propagation of TIMBER in His
MAJESTY'S Dominions, &c.

*Tuque ades, inceptumque una decurre laborem,
O decus, o famæ merito pars maxima nostræ,
CAROLIDE, pelagoque volans da vela petenti :
Da facilem cursum, atque audacibus annue cæptis :
Ignarosque viæ mecum miseratus agrestes
Ingredere, & votis jam nunc assuesce vocari.*

The I N T R O D U C T I O N.

I.  INCE there is nothing which seems more fatally INTROD. to threaten a *Weakening*, if not a *Dissolution* of the Strength of this famous and flourishing Nation, than the sensible and notorious Decay of her *Wooden Walls*, when either through *Time*, *Negligence*, or other *Accident*, the present *Navy* shall be worn out and impair'd ; it has been a very *worthy* and *seasonable Advertisement* in the Honourable the principal *Officers* and *Commissioners*, what they have lately suggested to this *Illustrious Society* for the timely *Prevention* and *Redress* of this intolerable Defect. For it has not been the late Increase of *Shipping* alone, the Multiplication of *Glass-Works*, *Iron-Furnaces*, and the like, from whence this impolitick Diminution of our *Timber* has proceeded ; but from the disproportionate spreading of *Tillage*, caused through that prodigious *Havock* made by such as lately professing themselves against *Root* and *Branch* (either to be re-imbur'd their *Holy* Purchases, or for some other fordid Respect) were tempted, not only to *fell* and *cut* down,
A but

INTROD. but utterly to *extirpate*, *demolish*, and *raze*, as it were, all those many goodly *Woods* and *Forests*, which our more prudent *Ancestors* left standing, for the Ornament and Service of their *Country*. And this *Devastation* is now become so *epidemical*, that unless some favourable *Expedient* offer it self, and a Way be seriously and speedily resolv'd upon, for a future Store, one of the most glorious and considerable *Bulwarks* of this *Nation*, will, within a short Time, be totally wanting to it.

* *Patricius*
L. vii. De Re-
pub.

2. To attend now a *spontaneous* Supply of these decay'd *Materials* (which is the vulgar and natural Way) would cost (besides the *Inclosure*) some entire *Ages* repose of the * *Plow*, though *Bread* indeed require our first Care: Therefore, the most expeditious and obvious *Method* would doubtless be one of these two Ways, *Sowing* or *Planting*. But, first, it will be requisite to agree upon the *Species*; as what *Trees* are likely to be of greatest *Use*, and the fittest to be cultivated; and then, to consider of the *Manner* how it may be best effected. Truly, the *Waste* and *Destruction* of our *Woods* has been so universal, that I conceive nothing less than an *universal Plantation* of all the sorts of *Trees* will supply, and well encounter the Defect; and therefore I shall here adventure to speak something in general of them all; though I chiefly insist upon the Propagation of such only as seem to be the most wanting and serviceable to the End proposed.

3. And first, by *Trees* here, I consider principally for the *Genus generalissimum*, such *lignous* and *woody Plants*, as are hard of Substance, *procere* of *Stature*; that are *thick* and *solid*, and stiffly adhere to the *Ground* on which they stand: These we shall divide into the greater and more *ceduous*, *fruticant* and *shrubby*; *feras* and *wild*; or more *civiliz'd* and *domestick*; and such as are *sative* and *hortensial* subalternate to the other; but of which I give only a Touch, distributing the rest into these two *Classes*, the *dry*, and the *aquatic*; both of them applicable to the same civil Uses of *Building*, *Utensils*, *Ornament*, and *Fuel*; for to dip into their *medicinal* Virtues is none of my *Province*, though I sometimes glance at them with due *Submission*, and in few *Instances*.

4. Among the *Dry*, I esteem the more principal and solid, to be the *Oak*, *Elm*, *Beech*, *Ash*, *Chest-nut*, *Wall-nut*, &c. The less principal, the *Service*, *Maple*, *Lime-tree*, *Horn-beam*, *Quick-beam*, *Birch*, *Hazel*, &c. together with all their *sub-alternate* and several Kinds.

a Which of how many Sorts they are,
We can't stand here at present to declare.

5. Of the *Aquatical*, I reckon the *Poplars*, *Asp*, *Alder*, *Willow*, *Sallow*, *Osier*, &c. Then I shall add a Word or two, for the Encouragement of the planting of *Fruit-trees*, together with some less vulgar, but no less useful *Trees*, which, as yet, are not *endenizon'd* amongst us, or (at least) not much taken Notice of: And in Pursuance hereof, I shall observe this *Order*: First, to shew how they are to be raised, and then cultivated. By raising, I understand the *Seed* and the *Soil*; by *Culture*, the *Planting*, *Fencing*, *Watering*, *Dressing*, *Pruning* and *Cutting*; of all which briefly.

a Sed neque quàm multæ species, nec nomina quæ sint,
Est numerus, ———

VIRG. Geor. ii.

6. And

6. And *first* for their *Raising*, some there are,
a Spring of themselves unforc'd by human Care,
 Specified according to the various Disposition of the *Air* and *Soil* ;
b Some from their Seeds arise,
 As the *Oak*, *Chests-nut*, *Ash*, &c.
c Some to thick Groves from their own Roots do spring,
 As the *Elm*, *Alder*, &c. And there are others
d Grow without Root,
 As *Willows*, and all the *vimineous* Kinds, which are raised of *Sets* only.
e These Ways first Nature gave.

And that immortal Poet has so elegantly and comprehensibly describ'd, as I cannot pass :

- f Some Trees* their Birth to bounteous Nature owe ;
 For some without the Pains of Planting grow :
 With *Ofiers* thus the Banks of Brooks abound ;
 Sprung from the watry Genius of the Ground ;
 From the same Principles the grey Willows come,
 Herculean Poplar, and the tender Broom :
 But some such Seeds inclos'd in Earth arise ;
 For thus the mast-ful Chests-nut mates the Skies.
 Hence rise the branching Beech, and vocal Oak,
 Where Jove of old oraculously spoke.
 Some from the Root a rising Wood disclose ;
 Thus Elms, and thus the salvage Cherry grows.
 Thus the green Bays that binds the Poets Brows,
 Shoots, and is shelter'd by the Mother's Boughs.
 These Ways of Planting Nature did ordain,
 For Trees and Shrubs, and all the Sylvan Reign.
 Others there are, by late Experience found, &c.

For thus we see there are more Ways to the *Wood* than one, and she has furnish'd us with Variety of Expedients.

^a ——— nullis hominum cogentibus, ipsæ
 Sponte sua veniunt ———

^b Pars autem posito surgunt de semine.

^c Pullulat ab radice aliis densissima Silva.

^d Nil radicis egent ———

^e Hos natura modos primum dedit ———

^f Principio arboribus varia est natura creandis ;
 Namque aliæ, nullis hominum cogentibus, ipsæ
 Sponte sua veniunt, camposque, & flumina late
 Curva tenent : ut molle siler, lentæque genistæ,
 Populus, & glauca canentia fronde salicæ
 Pars autem posito surgunt de semine : ut altæ
 Castaneæ, nemorumque Jovi quæ maxima frondet
 Æsculus, atque habita Graiis oracula quercus.
 Pullulat ab radice aliis densissima Silva :
 Ut cerasis, ulmisque : etiam Parnassia laurus
 Parva sub ingenti matris se protegit umbra.
 Hos natura modos primum dedit : his genus omne
 Silvarum fruticumque viret, nemorumque sacrorum,
 Sunt alii, quos ipse via sibi reperit usus, &c.

VIRG. Geor. ii.

INTROD.

7. And here we might fall into a deep *philosophical Research*, whether the *Earth* it self in some Place thereof or other, even without *Seed, Branch, or Root, &c.* would produce every Kind of *Vegetable*, as it manifestly does divers Sorts of *Grass* and *Plants*? (*viz.*) the *Tre-foil*, or *Clover*, in *succulent Land*; in dry Ground, *May* and *Rag-weeds*; in the very moist, *Ros-solis, Argentina, Flags, &c.* and the very barren, *Fern, Broom* and *Heath, &c.* So *Virgil* notes sterile places for the *Pitch-tree*; we our wet and *uliginous* for *Birch, Alder, &c.* The more lofty, poor, and *perflatile*, for *Tew, Juniper, Box*, and the like. And we read in the *Natural Histories* of divers *Countries*, that the *Cedar, Palmetos, Queen-Pines, Ebony, Nutmeg, Cinnamon, &c.* for *Trees*; the *Tulip, Hyacinth, Crocus, &c.* for *Flowers*; are sometimes, and in some Regions, *Aborigines*, descended immediately from the *Genius* of the *Soils, Climate, Sun, Shade, Air, Winds, Water, nitrous Salts, Rocks, Banks, Shores*, and (like the *Negros-heads* in the *Barbadoes*) as some imagine, even without *Seed*, or at least any perceptible *Rudiment*. Let it not then be imputed an impertinent *Digression*, if upon this Occasion of *spontaneous* and *equivocal* Productions, we mention how that inveterate *Dispute*, which has exercis'd so many *Naturalists* and *Philosophers* (about *Misselto*) has lately been decided by an evident Experiment, and the Testimony of the most curious and learned *Botanists*, by the *Seeds* of that *Excrescence*; which being inserted into an Hole made in the *Bark* of the *White Poplar*, produces the *Plant*, which has hitherto rais'd so many Years Controversy. (See Mr. *Ray's Hist. Plant.* p. 1583, and *Appendix*, p. 1918.)

But after all this, there are who suppose some *previous* seminal Disposition to be lurking, and dispers'd in every Part of the *Earth* (in what *Molacule*, or subtle *Contexture*, they cannot discover) which tho' haply not at first so perfect as the maturer *Seeds* of their after peculiar *Plants*; yet such as are fit for the *Sun* and *Influences* to operate on, 'till they have prepar'd, discufs'd, and excited the *seminal* and *prolifick* Virtue to exert it self and awake out of Sleep, in which they lie as in their *Causes*, freeing themselves from those Impediments which hindred their *Specification* and *Nativity*. This Conception the learned *Gassendus* would illustrate by the latent *Fire* in *Flints*, which never betrays it self till it be forced out by *Collision*: But which yet, methinks, does not so fully enlighten this *Hypothesis*, which we only mention: For the Design of this *Discourse* is not to persuade *Men* to sit still, and let *Nature* work alone, but to aid and assist *her* as much as they are able, from *Seeds* and *Plants* already perfected, and qualified for more speedy *Propagation*. It not being in any Sort my Meaning throughout all this *Discourse*, as if (where I speak of *spontaneous Productions*) I believed that any *Vegetables* raised themselves, without some *predisposed* qualified *Seed* or *Principle*: But by *spontaneous*, I understand such *Trees* and *Plants* as were not sown or cultivated by human Industry; as most of our *Forest-Trees* never were, and yet had their Original from perfect *Seeds*. And if I think the same of all *Animals*, even to the minutest *Worm* and *Insect*; there are so many learned Persons and Experiments to justify it, that I need say no more. Most ingenious, in the mean time, is what some upon an accurate and narrow Guess have not feared to pronounce; namely, that all Planting by *Seed* was but a Kind of *Inoculation*; and Propagation

gation by *Cyons* and *Sprouts*, but a *subteranean Graffing*. And up-INTROD. on this Account I am the more willing to assent, that in *removing* of wild Trees taken out of incumbered Places (so it be performed with all due Circumstances) there may happen considerable *Improvements*; since as there is something in *Super-graffing*, or the Repetition of *Graffing*, for the Inlargement and Melioration of *Fruit*, so there may be also in a careful *Removal*; especially the *Tree* being of a Kind apt to dilate its *Roots*, and taken whilst those *Roots* may be safely and intirely transferred; and likewise, because it is presumed that most *Trees* propagated by *Seeds*, emit a principal *Root* very deep into the Earth, which frequently extracting but a coarser *Nutrimment* (though it may haply yield a close and firmer *Timber*) is not yet so apt to shoot and spread, as what are by *Removal* deprived of that *Root*, and by being more *impregnate* with the *Sun*, *Dews*, and heavenly *Influences* near the Surface, enabled to produce larger, more delicate and better tasted *Fruit*; supposing *Nuts*, *Mast*, or *Berries*; for we would not go out of our *Forest* for Instances. And yet even in these Descents of the *top Root*, it sometimes penetrating to a Vein of some rich *Marl* or other Mould, the extraordinary Flourishing and Expedition of Growth, will soon give Notice of it. But to make some *Trial* of this, it were no difficult Matter, when one plants a *Nursery* or *Grove*, to experiment what the *Earth*, as far as the *Roots* are like to reach, will advance and discover to us.

8. In the mean time, it has been stily controverted by some, whether were better to raise *Trees* for *Timber* and the like Uses, from their *Seeds* and first *Rudiments*; or to *transplant* such as we find have either raised themselves from their *Seeds*, or spring from the *Mother-Roots*? Now that to produce them immediately of the *Seed* is the better Way, these *Reasons* may seem to evince.

First, because they take soonest. *Secondly*, because they make the *straitest* and most uniform Shoot. *Thirdly*, because they will neither require *staking* nor *watering* (which are two very considerable *Articles*.) And *lastly*, for that all *transplanting* (though it much improves *Fruit-trees*) unless they are taken up the first Year or two, is a considerable Impediment to the Growth of *Forest-trees*. And though it be true, that divers of those which are found in *Woods*, especially *Oaklings*, young *Beeches*, *Ash*, and some others, spring from the self-sown *Mast* and *Keys*; yet being for the most part dropp'd, and disseminated among the half-rotten Sticks, musty Leaves, and Perplexities of the *Mother-Roots*, they grow scraggy; and being overdripp'd, become squalid and apt to gather Moss,

^a Which checks their Growth, and makes their Bodies pine.

Nor can their *Roots expand*, and spread themselves as they would do, if they were *sown*, or had been *planted* in a more open, free, and ingenuous *Soil*. And that this is so, I do affirm upon *Experience*, that an *Acorn* sown by Hand in a *Nursery*, or Ground where it may be free from these Incumbrances, shall in two or three Years out-strip a *Plant* of twice that Age, which has either been *self-sown* in the *Woods*, or removed; unless it fortune, by some favourable Accident, to have been scattered into a more natural, penetrable, and better qualified Place: But this Disproportion is

^a Crescentique adimunt foetus, uruntque ferentem.

Geor. ii.

INTROD. yet infinitely more remarkable in the *Pine*, and the *Wall-nut Tree*, where the *Nut* set into the Ground does usually overtake a *Tree* of *ten Years* Growth which was planted at the same Instant; and this is a *Secret* so generally misrepresented by most of those who have treated of these Sort of *Trees*, that I could not suffer it to pass over without a particular *Remark*; so as the noble *Poet* (with Pardon for receding from so venerable *Authority*) might be mistaken, when he delivers this Observation as *universal*, to the Prejudice of *Sowing*, and raising *Woods* from their Rudiments:

^a *Trees which from scatter'd Seeds to spring are made,
Come slowly on, for our Grand-childrens Shade.*

And, indeed, I know divers are of this Opinion; and possibly in some luckier *Soils*, and where extraordinary Care is had in *transplanting* and removing Cumbrances, &c. there may be Reason for it: But I affirm it *ὡς ἐν πολλῷ*, and for the most part, and find I have the Suffrage of another, no inelegant *Poet*, if not in a full Assent to my *Affertion*, yet in the Choice of my Procedure for their Perfection.

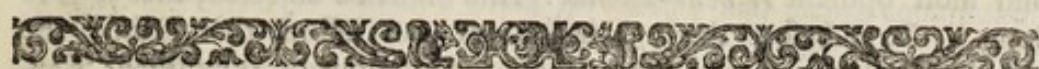
^b ——— *Though Suckers which the Stock repair,
Will with thick Branches crowd the empty Air;
Or the Ground-Oak transplanted, Boughs may shoot,
Yet no such Grove does with my Fancy suit,
As what from Acorns set on even Rows,
In open Fields at their due Distance grows.
What though your Ground long Time must fallow lie,
And Seedling-Oaks yield but a slow Supply?
No Walks else can be for like Beauty prais'd:
For, certain 'tis that Plants from Acorns rais'd,
As to the Center deeper Fibers spread,
So to the Zenith more advance their Head:
Be it that Plants for natural Moisture pine,
And as expos'd, at Change of Soil decline;
Or that the Acorn with its native Mould,
Does thrive and spread, and firm Alliance hold.*

^a Nam quæ feminibus jactis se sustulit arbor
Tarda venit; seris factura nepotibus umbram.

Geor. l. ii.

^b ——— Quamvis ipsa de stirpe parentis
Pullulet, & tenues tollat se quercus in auras,
Aut mutata solo, ramis exsulet opacis;
Forma tamen nemoris non sit mihi gratior ulla,
Quam quod per campos, posito de semine, crevit.
Et quamquam sit agro prælongum tempus inert
Ducendum, ac tardæ surgant de semine quercus,
His tamen, his longe veniunt felicius umbræ.
Nam certum est de glânde satas radicibus imis
Altius in terram per se descendere plantas:
Majoresque adeo in cœlum profunderè ramos.
Seu quod dediscant mutatam semina matrem,
Degeneremque ferant alieno ex ubere prolem:
Sive quod ipsa sibi cognatæ inolescere terræ
Glans primo melius paulatim assuevit ab ortu.

RAPINUS Hort. l. ii.



DENDROLOGIA.

BOOK I.

CHAP. I.

Of the Earth, Soil, Seed, Air and Water.

1. **I**T is not my Intention here to speak of *Earth*, as one of the common reputed *Elements*; of which I have long since published an ample Account, in an express *Treatise* (annexed to this Volume) which I desire my *Reader* to peruse; since it might well commute for the total *Omission* of this *Chapter*, did not Method seem to require something briefly to be said: Which first, as to that of *Earth*, we shall need at present to penetrate no deeper into her Bosom, than after paring off the *Turf*, scarrifying the upper Mould, and digging convenient *Pits* and *Trenches*, not far from the natural Surface, without disturbing the several *Strata* and remoter *Layers*, whether of *Clay*, *Chalk*, *Gravel*, *Sand*, or other successive *Layers*, and *Concrets Fossil* (though all of them useful sometimes, and agreeable to our *Foresters*) though few of them what one would choose before the under *Turf*, *black*, *brown*, *gray* and *light*, and breaking into short Clods, and without any disagreeable Scent, and with some Mixture of *Marl*, or *Loam*, but not clammy; of which I have particularly spoken in that *Treatise*.

CHAP. I.
EARTH.

2. In the mean Time, *this* of the *Soil* (which I think is a more proper Term for *Composts*) or Mould rather, being of greater Importance for the Raising, Planting, and Propagation of Trees in general, must at no hand be neglected, and is therefore on all Occasions mentioned in almost every *Chapter* of our ensuing Discourse: I shall therefore not need to assign it any Part, when I have affirmed in general, that most *Timber-Trees* grow and prosper well in any tolerable *Land* which will produce *Corn* or *Rye*, and which is not in Excess *stony*, in which nevertheless there are some *Trees* delight, or altogether *Clay*, which few or none do naturally effect; and yet the *Oak* is seen to prosper in it, for its Toughness preferred before any other by many Workmen, though of all *Soils* the *Cow-Pasture* doth certainly exceed, be it for what Purpose soever of planting *Wood*. Rather therefore we should take Notice how many great *Wits* and *ingenious* Persons, who have Leisure and Faculty, are in Pain for *Improvements* of their *Heaths* and barren *Hills*, cold and starving Places, which causes them to be neglected and despaired of; whilst they flatter their Hopes and vain Expectations with fructifying Liquors, *Chymical Menstruums*, and such vast Conceptions; in the mean Time that one may shew them as *beathy* and *hopeless* Grounds, and barren *Hills* as any in *England*, that do now bear, or lately have born *Woods*, *Groves*, and *Copses*, which yield the *Owners* more *Wealth* than the richest
and

SOIL.

BOOK I. and most opulent *Wheat-Lands*: And if it be objected, that it is so long a Day before these *Plantations* can afford that Gain; the *Brabant Nurseries*, and divers Home-Plantations of *industrious Persons*, are sufficient to convince the Gain-sayer. And when by this *Husbandry* a few *Acorns* shall have supplied the neighbouring *Regions* with young *Stocks* and *Trees*, the Residue will become *Groves* and *Cop-ses* of infinite Delight and Satisfaction to the *Planters*. Besides, we daily see what *coarse Lands* will bear these *Stocks* (suppose them *Oaks*, *Wall-nuts*, *Chest-nuts*, *Pines*, *Fir*, *Asb*, *Wild-Pears*, *Crabs*, &c.) and some of them (as for Instance the *Pear* and the *Fir*, or *Pine*) strike their *Roots* through the roughest and most impenetrable *Rocks* and Clefts of *Stone* it self; and others require not any *rich* or *pinguid*, but very moderate *Soil*; especially, if committed to it in *Seeds*, which allies them to their *Mother* and *Nurse* without Renitency or Regret: And then considering what Assurances a little *Care* in easing and stirring of the Ground about them, for a few Years, does afford them; what cannot a strong *Plow*, a *Winter Mellowing*, and *Summer Heats*, incorporated with the pregnant *Turf*, or a slight Assistance of *Lime*, *Loam*, *Sand*, rotten *Compost*, discreetly mixed (as the Case may require) perform even in the most unnatural and obstinate *Soil*? And in such Places where antiently *Woods* have grown, but are now unkind to them, the Fault is to be reformed by this *Care*; and chiefly by a sedulous *Extirpation* of the old Remainders of *Roots*, and latent *Stumps*, which by their *Mustiness*, and other pernicious Qualities, sowre the Ground, and poison the *Conception*; and herewith let me put in this Note, that even an over-rich and pinguid Composition, is by no means the proper *Bed* either for *Seminary* or *Nursery*, whilst even the natural *Soil* it self does frequently discover and point best to the particular *Species*, though some are for all Places alike: Nor should the *Earth* be yet perpetually cropp'd with the *same*, or other *Seeds*, without due *Repose*, but lie some time *fallow* to receive the Influence of *Heaven*, according to good Husbandry. But I shall say no more of these *Particulars* at this Time, because the rest is sprinkled over this whole *Work* in their due Places; wherefore we hasten to the following *Title*, namely, the Choice and Ordering of the *Seeds*.

3. Choose your *Seed* of that which is perfectly *mature*, *ponderous* and *sound*; commonly that which is easily shaken from the *Boughs*, or gathered about *November*, immediately upon its spontaneous Fall, or taken from the *Tops* and *Summities* of the fairest and soundest *Trees* is best, and does (for the most part) direct to the proper Season of *inter-ring*, &c. according to *Institution*. For,

*a Nature her self, who all created first,
Invented Sowing, and the wild Plants nurs'd:
When Mast and Berries from the Trees did drop,
Succeeded under by a numerous Crop.*

Yet this is to be considered, that if the *Place* you sow in be too cold for an *autumnal* Semination, your *Acorns*, *Mast*, and other *Seeds* may be prepared for the *Vernal*, by being barrel'd or potted up in moist *Sand*, or *Earth stratum s. s.* during the *Winter*; at the Expi-

^a Nam specimen sationis, & insitionis origo
Ipsa fuit rerum primum natura creatrix:
Arboribus quoniam baccae, glandesque caducae
Tempestiva dabant pullorum examina subter, &c.

ration whereof you will find them *sprouted*; and being committed to the Earth, with a tender Hand, as apt to *take* as if they had been sown with the most early, nay, with great Advantage: By this means too, they have escaped the *Vermin* (which are prodigious Devourers of *Winter* sowing) and will not be much concern'd with the increasing Heat of the Season, as such as being crude, and *unfermented*, are newly sown in the Beginning of the *Spring*, especially in hot and loose Grounds; being already in so fair a Progress by this artificial Preparation, and which (if the Provision to be made be very great) may be thus managed: Choose a fit Piece of *Ground*, and with Boards (if it have not that *Position* of it self) design it three *Foot* high; lay the first *Foot* in fine Earth, another of Seeds, *Acorns*, *Mast*, *Keys*, *Nuts*, *Haws*, *Holly-Berries*, &c. promiscuously or separate, with (now and then) a little *Mould* sprinkled amongst them; the third *Foot* wholly Earth: Of these preparatory *Magazines* make as many and as much larger ones as will serve your Turn, continuing it from time to time as your *Store* is brought in. The same for ruder Handlings, may you also do by burying your Seeds in dry *Sand*, or pulveriz'd Earth, *barrelling* them (as I said) in *Tubs*, or laid in Heaps in some deep *Cellar*, where the Rigour of the *Winter* may least prejudice them; and I have filled old *Hampers*, *Bee-hives* and *Boxes* with them, and found the like Advantage, which is to have them ready for your *Seminary*, as before hath been shew'd, and exceedingly prevent the Season. There be also who affirm, that the careful Cracking and Opening of *Stones*, which include the *Kernels*, as soon as ripe, precipitate *Growth*, and gain a *Year's* Advance; but this is erroneous. Now if you gather them in moist Weather, lay them a drying, and so keep them till you *sow*, which may be as soon as you please after *Christmas*. If they spire out before you sow them, be sure to commit them to the Earth before the *Sprout* grows dry, or else expect little from them: And whenever you sow, if you prevent not the little *Field-Mouse*, he will be sure to have the better Share. See *Chap. XVIII*.

4. But to pursue this to some farther Advantage, as to what concerns the Election of your *Seed*, it is to be considered, that there is a vast Difference (what if I should affirm more than an *hundred Years*) in *Trees* even of the same *Growth* and *Bed*, which I judge to proceed from the Variety and Quality of the *Seed*: This, for *Instance*, is evidently seen in the *Heart*, *Procerity* and Stature of *Timber*; and therefore choose not your *Seeds* always from the most fruitful *Trees*, which are commonly the most *aged*, and decayed; but from such as are found most *solid* and *fair*: Nor, for this Reason, covet the largest *Acorns*, &c. but (as *Husbandmen* do their *Wheat*) the most *weighty*, *clean* and *bright*: This Observation we deduce from *Fruit-Trees*, which we seldom find to bear so kindly and plentifully from a *sound Stock*, *smooth Rind*, and *firm Wood*, as from a *rough*, *lax*, and *untoward Tree*; which is rather prone to spend it self in *Fruit* (the ultimate Effort, and final Endeavour of its most delicate *Sap*) than in solid and close *Substance* to encrease the *Timber*. And this shall suffice, though some happily might here recommend to us a more accurate *microscopical* Examen, to interpret their most secret *Schematisms*, which were an over *Nice-ty* for these great *Plantations*.

5. As concerning the *Medicating* and *Insuccation* of *Seeds*, or enforcing the *Earth* by rich and generous *Composts*, &c. for *Trees* of these

BOOK I. Kinds, I am no great Favourer of it; not only because the *Charge* would much discourage the *Work*; but for that we find it unnecessary, and for most of our *Forest-trees*, noxious; since even where the Ground is too fertile, they thrive not so well; and if a *Mould* be not proper for one Sort, it may be fit for another: Yet I would not (by this) hinder any from the Trial, what Advance such *Experiments* will produce: In the mean Time, for the simple *Imbibition* of some *Seeds* and *Kernels*, when they prove extraordinary *dry*, as the Season may fall out, it might not be amiss to *macerate* them in *Milk* or *Water* only, a little *impregnated* with *Cow-dung*, &c. during the space of twenty-four Hours, to give them a *Spirit* to sprout and *cheat* the sooner; especially if you have been retarded in your *sowing* without our former Preparation: But concerning the *Mould*, *Soiling* and Preparations of the *Ground*, I refer you to my late Treatise of *Earth*, if what you meet with in *this* do not abundantly encounter all those Difficulties.

6. Being thus provided with *Seeds* of all Kinds, I would advise to raise *Woods* by sowing them *apart* in several Places destin'd for their Growth, where the *Mould* being prepar'd (as I shall shew hereafter) and so qualified (if Election be made) as best to suit with the Nature of the *Species*, they may be sown *promiscuously*, which is the most natural and *rural*; or in streight and even *Lines*, for *Hedge-rows*, *Avenues* and *Walks*, which is the more *ornamental*: But because some may choose rather to draw them out of *Nurseries*; that the *Culture* is not much different, nor the *Hinderance* considerable (provided they be early and carefully removed) I will finish what I have to say concerning these *Trees* in the *Seminary*, and shew how they are *there* to be raised, *transplanted*, and *governed* till they can shift for themselves.

AIR.

As to the *Air* and *Water*, they are certainly of almost as great Importance to the *Life* and Prosperity of *Trees* and *Vegetables*; and therefore it is to be wish'd for and sought, where they are defective; and which commonly follow, or indicate the Nature of the Soil, or the *Soil* of them (taking *Soil* here promiscuously for the *Mould*) that they be neither too *keen* or *sharp*, too *cold* or *hot*, not infected with Fogs and poisonous Vapours, or expos'd to *sulphurous* Exhalations, or *frigid* Winds, reverberating from Hills and other ill-situate Eminencies, pressing down the incumbent Particles so tainted or convey'd through the inclosed Valleys; but such as may gently enter and *pervade* the *Cenabs* and *Vessels* destin'd and appointed for their Reception, *Intromission*, Respiration and Passage, in almost continual Motion; in a Word, such as is most agreeable to the Life of *Man*, the inverted *Head* compared to the *Root*, both *Vegetables* and *Animals* alike affected with those necessary Principles, *Air* and *Water*, soon suffocated and perishable for the want of either, duly qualified with their proper Mixts, be it *Nitre*, or any other vegetable Matter; though we neither *see*, nor distinctly *taste* it: So as all *Aquatics*, how deeply soever submerg'd, could not subsist without this active *Element* the *Air*.

WATER.

The same Qualification is (as we said) required in *Water*, to which 'tis of so near Alliance, and whose Office it is not only to *humectate*, *mollify* and prepare both the *Seeds* and *Roots* of *Vegetables*, to receive the Nutrition, *Pabulum*, and Food, of which this of *Water* as well as *Air* are the proper *Vehicles*, insinuating what they carry into the numerous *Pores*, and through the *Tubes*, *Canals*, and other emulgent Passages and Percolations to the several *Vessels*, where (as in a *Stomach*) it is elaborated,

elaborated, concocted and digested, for Distribution through every Part of the Plant; and therefore had need be such as should *feed*, not *starve*, infect or corrupt; which depends upon the Nature and Quality of the *mix'd*, with what other Virtue, *Spirit*, *Mineral*, or other Particles, accompanying the purest Springs (to Appearance) passing through the closest Strainers. This therefore requires due Examination, and sometimes Exposure to the *Air* and *Sun*, and accordingly the Crudity and other Defects taken off and qualified: All which, *Rain-Water*, that has had its natural *Circulation*, is greatly free from, so it meets with no noxious Vapours in the Descent, as it must do passing through *fuliginous* Clouds of *Smoak* and *Soot*, over and about great *Cities*, and other *Vulcanos*, continually vomiting out their acrimonious, and sometimes pestiferous Fervor, infecting the ambient *Air*, as it perpetually does about *London* and for many adjacent Miles, as I have elsewhere * shew'd.

See Chap. V.
Book III.

* Bume-fugium.

In the mean Time, whether *Water* alone is the Cause of the solid and bulky Part, and consequently of the Augmentation of *Trees* and Plants, without any thing more to do with that *Element* (though as it serves to transport some other Matter) is very ingenuously *discuss'd*, and curiously enquired into by Dr. *Woodward*, in his *History of the Earth*, fortified with divers nice Experiments, too large to be here inserted: The Sum is, that *Water*, be it of *Rain* or the *River* (superior or inferior) carries with it a certain *superfine terrestrial* Matter, not destitute of vegetative Particles; which gives Body, Substance, and all other Requisites to the Growth and Perfection of the Plant, with the Aid of that due *Heat* which gives Life and Motion to the *Vehicles* Passage through all the Parts of the *Vegetable*, continually *ascending*, till (having sufficiently *saturated* them) it transpires the rest of the *Liquid* at the *Summit* and *Tops* of the Branches into the *Atmosphere*, and leaving some of the less *refined* Matter in a *viscid Honey-dew*, or other *Exsudations* (often perceived on the Leaves and Blossoms) anon *descending* and joining again with what they meet, repeat this Course in perpetual *Circulation*: Add to this, That from hence those *Regions* and Places, crowded with numerous and thick standing *Forest-Trees* and Woods (which hinder the necessary *Evolution* of this superfluous Moisture and Intercourse of the *Air*) render those Countries and Places more subject to *Rain* and *Mists*, and consequently *unwholesome*; as is found in our *American* Plantations, as formerly nearer us in *Ireland*; both since so much improved by felling and clearing these *spacious Shades*, and letting in the *Air* and *Sun*, and making the Earth fit for Tillage and Pasture, that those gloomy Tracts are now become *healthy* and *habitable*. It is not to be imagined how many noble *Seats* and Dwellings in this Nation of ours (to all Appearance well situated) are for all that unhealthful, by Reason of some *Grove* or *Hedge-rows* of antiquated dotard Trees; nay, sometimes a single *Turf* only (especially the falling *autumnal* Leaves neglected to be taken away) filling the Air with musty and noxious Exhalations; which being *ventilated* by *Glades* cut through them, for Passage of the stagnant Vapours, have been cur'd of this Evil, and recovered their Reputation.

But to return to where we left; *Water* in this Action, imbib'd with such Matter, applicable to every *Species* of Plants and Vegetables, does not, as we affirmed, operate to the full Extent and Perfection of what it gives and contributes of necessary and *constituent* Matter, without the *Soil* and Temper of the *Climate* co-operate; which otherwise retards

BOOK I. tards both the Growth and Substance of what the Earth produces, sensibly altering their Qualities, if some friendly and *genial Heat* be wanting to exert the prolifick Virtue: This we find, that the hot and warmer Regions produce the tallest and goodliest Trees and Plants, in Stature and other Properties far exceeding those of the same *Species*, born in the cold *North*; so as what is a *Giant* in the *one*, becomes a *Pumilo*, and, in Comparison, but a shrubby *Dwarf* in the *other*, deficient of that active *Spirit*, which elevates and spreads its prolifick Matter and continual Supplies without Check, and is the Cause of not only the *Leaves* deserting the Branches, whilst those Trees and Plants of the more benign *Climate* are clad in *perennial* Verdure; and those herbacious Plants, which with us in the hottest Seasons hardly perfect their Seeds before *Winter*, and require to be near their genial Beds and Nurse, and sometimes the artificial Heat of the *Hot-Bed*: Lastly, To all this I would add that other chearful Vehicle, *Light*; which the gloomy and *torpent North* is so many Months depriv'd of; the too long Seclusion whereof is injurious to our *Exotics*, kept in the *Conservatories*; since however tempered with Heat, and duly refreshed, they grow sickly, and languish without the Admission of *Light* as well as *Air*, as I have frequently found.

CHAP. II.

Of the Seminary; and of Transplanting.

SEMINARY. I. **Q**UI *Vineam, vel Arbustum constituere volet, Seminaria prius facere debet*, was the Precept of *Columella*, Lib. iii. Cap. v. speaking of *Vineyards* and *Fruit-trees*; and doubtless we cannot pursue a better Course for the Propagation of *Timber-trees*: For though it seem but a trivial Design, that one should make a *Nursery* of *Foresters*; yet it is not to be imagined, without the Experience of it, what prodigious *Numbers* a very small *Spot* of Ground, well cultivated, and destin'd for this Purpose, would be able to furnish towards the sending forth of yearly *Colonies* into all the naked Quarters of a *Lordship* or *Demesne*; being with a pleasant *Industry* liberally distributed amongst the *Tenants*, and disposed of about the *Hedge-rows*, and other waste and uncultivated Places for *Timber*, *Shelter*, *Fuel* and *Ornament*, to an incredible Advantage. This being a cheap and laudable Work, of so much *Pleasure* in the Execution, and so certain a *Profit* in the Event; to be but *once* well done (for, as I affirm'd, a very small *Plantarium* or *Nursery* will in a few Years stock a vast Extent of Ground) hath made me sometimes in Admiration at the universal Negligence, as well as rais'd my Admiration, that *Seeds* and *Plants* of such different Kinds, should, like so many tender *Babes* and *Infants*, suck and thrive at the same Breasts: Though there are some indeed will not so will prosper in Company, requiring peculiar *Juices*: But this Niceness is more conspicuous in *Flowers*, and the *Herbacious* Offspring, than in *Foresters*, which require only diligent Weeding and frequent Cleansing, till they are able to shift for themselves; and as their Vessels enlarge and *introsume* more copious Nourishment, often starve their Neighbours. Thus much for the Nursery and *Conservanea Silva*.

2. Having therefore made Choice of such *Seeds* as you would sow, by taking and gathering them in their just *Season*, that is, when dropping

ping ripe; and (as has been said) from fair thriving Trees; and found out some fit Place of Ground, well fenced, respecting the South-East, rather than the full South, and well protected from the North and West: CHAP. II.

^a *He that for Wood his Field would sow,
Must clear it of the Shrubs that grow;
Cut Brambles up, and the Fern mow.*

This done, let it be broken up the Winter before you sow, to mellow it; especially if it be a Clay, and then the Furrow would be made deeper; or so at least, as you would prepare it for Wheat: Or you may Trench it with the Spade, by which Means it will the easier be cleansed of whatsoever may obstruct the putting forth, and insinuating of the tender Roots: Then having given it a second stirring, immediately before you sow, cast and dispose it into Rills, or small narrow Trenches, of four or five Inches deep, and in even Lines, at two Foot interval, for the more commodious Runcation, Hawing, and Dressing the Trees: Into these Furrows (about the New or Increasing Moon) throw your Oak, Beach, Ash, Nuts, all the Glandiferous Seeds, Mast and Key-bearing Kinds, so as they lie not too thick, and then cover them very well with a Rake, or fine-tooth'd Harrow, as they do for Pease: Or, to be more accurate, you may set them as they do Beans (especially the Nuts and Acorns) and that every Species by themselves, for the Roboraria, Glandaria, Ulmaria, &c. which is the better Way: This is to be done at the latter End of October, for the Autumnal sowing; and in the lighter Ground about February, for the Vernal. For other Seminations in general, some divide the Spring in three Parts; the Beginning, Middle and End; and the like of the Autumn, both for sowing and planting, and accordingly prepare for the Work such Nursery Furniture, as seems most agreeable to the Season.

^b *Then see your hopeful Grove with Acorns sown;
But e'er your Seed into the Field be thrown,
With crooked Plough first let the lusty Swain
Break up, and stubborn Clods with Harrow plain;
Then, when the Stem appears, to make it bear,
And lighten the hard Earth with Hough, prepare:
Hough in the Spring, nor frequent Culture fail,
Lest noxious Weeds o'er the young Wood prevail.
To barren Ground with Toil large Manure add;
Good Husbandry will force a Ground that's bad.*

^a Qui serere ingenuum volet agrum,
Liberat prius arva fruticibus;
Falce rubos, filicemque refecat.

BORTH. l. ii. Met.

^b Proinde nemus sparsa cures de glande parandum:
Sed tamen ante tuo mandes quam semina campo;
Ipse tibi duro robustus vomere fossor
Omne solum subigat late, explanetque subactum.
Cumque novus filio primum de germine ramus
Findit humum, rursus ferro versanda bicorni
Constita verè novo tellus, cultuque frequenti
Exercenda, herbæ circum ne forte nocentes
Proveniant, germenque ipsum radicibus urant.
Nec cultu campum cunctantem urgere frequenti,
Et saturare fimo pudeat, si forte resistat
Culturæ: nam tristis humus superanda colendo est.

RAPINUS, l. ii.

BOOK I. Note, that six *Bushels* of *Acorns* will sow or plant an *Acre*, at one Foot's Distance. And if you mingle among the *Acorns* the Seeds of *Genista spinosa*, or *Furs*, they will come up without any Damage, and for a while needs no other Fence, and will be kill'd by the Shade of the young *Oaklings*, before they become able to do them any Prejudice.

One *Rule* I must not omit, That you cast no Seeds into the Earth whilst it either actually *rains*, or that it be over *sobb'd*, till moderately dry.

To this might something be expected concerning the *watring* of our *Seminaries* and new *Plantations*; which indeed require some useful Directions (especially in that you do by *Hand*) that you pour it not with too great a Stream on the *Stem* of the *Plant*, which washes and drives away the Mould from the Roots and Fibers; but at such Distance, as it may *percolate* into the Earth, and carry its Vertue to them, with a shallow *Excavation*, or *circular Basin*, about the Stalk; and which may be defended from being too suddenly exhausted and drunk up by the *Sun*, and taken away before it grow mouldy. The *tender Stems* and *Branches* should yet be more gently refreshed, lest the too *intense Rays* of the *Sun* darting on them, cause them to wither, as we see in our *fibrous Flower-Roots* newly set: In the mean Time, for the more ample young Plantations of *Forest* and other *Trees*, I should think the *Hydrantick Engine* (call'd the *Quench-fire*) (described in the *Philosophical Transaction*, Number 128.) might be made very useful, rightly manag'd, and not too violently pointed against any *single Trees*, but so exalted and directed, as the Stream being spread, the Water might fall on the Ground like Drops of *Rain*; which I should much prefer before the *Barrels* and *Tumbral Way*. *Rain*, *River*, or *Pond-waters* reserved in *Tubs* or *Cisterns*, simple or enrich'd, and abroad in the *Sun*, should be frequently stirred, and kept from Stagnation.

4. Your *Plants* beginning now to peep, should be *earthed* up, and comforted a little, especially after breaking of the greater *Frosts*, and when the swelling Mould is apt to spue them forth; but when they are about an *Inch* above Ground, you may, in a *moist* Season, draw them up where they are too *thick*, and set them immediately in other *Lines* or *Beds* prepar'd for them; or you may plant them in double *Fosses*, where they may abide for good and all, and to remain till they are of a competent Stature to be *transplanted*; where they should be set at such *Distances* as their several *Kinds* require; but if you draw them only for the thinning of your *Seminary*, prick them into some empty *Beds* (or a *Plantarium* purposely design'd) at one Foot *interval*, leaving the rest at two or three.

5. When your *Seedlings* have stood thus till *June*, bestow a slight digging upon them, and scatter a little *mungy*, half-rotten *Litter*, *Fern*, *Bean-hame* or old *Leaves* among them, to preserve the *Roots* from scorching, and to entertain the Moisture; and then in *March* following (by which Time it will be quite consum'd, and very mellow) you shall chop it all into the *Earth*, and mingle it together: Continue this *Process* for two or three Years successively, for till *then* the Substance of the *Kernel* will hardly be spent in the Plant, which is of main Import; but then (and that the Stature of your young *Imps* invite) you may plant them forth, carefully taking up their *Roots*, and cutting the *Stem* within an *Inch* of the Ground (if the *Kind*, of which hereafter, suffer the *Knife*) set them where they are to continue: If thus you reduce them to the Distance of forty Foot, the Intervals may be planted

planted with *Ash*, which may be fell'd either for *Poles* or *Timber*, without the least Prejudice of the *Oak*: Some repeat the *Cutting*, we spake of, the second Year, and after *March* (the *Moon* decreasing) re-cut them at half a Foot from the *Surface*, and then meddle with them no more: But this (if the *Process* be not more severe than needs) must be done with a very sharp *Instrument*, and with Care, lest you violate and unsettle the *Root*; which is likewise to be practis'd upon all those which you did not *transplant*, unless you find them very thriving *Trees*; and then it shall suffice to *prune* off the *Branches*, and spare the *Tops*; for this does not only greatly establish your *Plants*, by diverting the *Sap* to the *Roots*, but likewise frees them from the Injury and Concussions of the *Winds*, and makes them to produce handsome, straight *Shoots*, infinitely preferable to such as are abandon'd to *Nature* and *Accident*, without this Discipline: By this Means the *Oak* will become excellent *Timber*, shooting into straight and single *Stems*: The *Chest-nut*, *Ash*, &c. multiply into *Poles*, which you may reduce to *Standards* at Pleasure. To this I add, That as oft as you make your annual *Transplanting* out of the *Nursery*, by drawing forth the choicest *Stocks*, the Remainder will be improved by a due stirring and turning of the *Mould* about their *Roots*.

But that none be discouraged, who may upon some Accident be de-^{Transplant-}firous or forced to *transplant* *Trees*, where the partial or unequal^{ing.} Ground does not afford sufficient Room or Soil to make the Pits equally capacious (and so apt to nourish and entertain the *Roots*, as where are no Impediments) the worthy Mr. *Brotherton* (whom we shall have occasion to mention more than once in this Treatise) speaking of the *Increase* and Improvement of *Roots*, tells us of a large *Pinafter*, two Foot and a half *Diameter*, and about sixty Foot in Height, the lowest Boughs being thirty Foot above the Ground, which did spread and flourish on all Sides alike, though it had no *Root* at all towards three *Quarters* of its Situation, and but *one Quarter* only, into which it expanded its *Roots* so far as to seventy and eighty Foot from the Body of the Tree: The Reason was, its being planted just within the *Square Angle* of the Corner of a deep thick and strong Stone-Wall, which was a kind *Wharfing* against a *River* running by it, and so could have Nourishment but from one Quarter. And this I likewise might confirm of two *Elms*, planted by me about thirty-five Years since; which being little bigger than *Walking-Staves*, and set on the very Brink of a Ditch or narrow Channel (not always full of Water) *wharfed* with a Wall of a Brick and half in Thickness (to keep the Bank from falling in) are since grown to goodly and equally spreading Trees, of near two Foot *Diameter* solid Timber, and of Stature proportionable. The Difference between *this*, and that of the *Pine*, being their having *one Quarter* more of Mould for the *Roots* to spread in; but which is not at all discovered by the Exuberance of the Branches in either Part. But to return to *Planting*, where are no such Obstacles.

6. *Theophrastus*, in his third Book *de Causis*, Cap. vii. gives us great Caution in Planting, to preserve the *Roots*, and especially the *Earth* adhering to the smallest *Fibrils*, which should by no Means be shaken off, as most of our *Gardeners* do, to trim and *quicken* them, as they pretend, which is to cut them shorter; though I forbid not a very small *topping* of the stragling Threads, which may else hinder the spreading of the rest, &c. Not at all considering, that those tender *Hairs* are the very

Mouths

BOOK I. *Mouths* and *Vehicles* which suck in the Nutriment, and transfuse it into all the Parts of the *Tree*, and that these once perishing, the thicker and larger Roots, hard and less spongy, signify little but to establish the *Stem*; as I have frequently experimented in *Orange-Trees*, whose *Fibres* are so very obnoxious to rot, if they take in the least Excess of Wet: And therefore *Cato* advises us to take Care that we bind the *Mould* about them, or transfer the *Roots* in *Baskets*, to preserve it from forsaking them; as now our *Nursery-men* frequently do, by which they of late are able to furnish our *Grounds*, *Avenues* and *Gardens* in a Moment with Trees and other Plants, which would else require many Years to appear in such Perfection: For this Earth being already applied, and fitted to the *Overtures* and *Mouths* of the *Fibres*, it will require some Time to bring them in *Appetite* again to a new *Mould*, by which to repair their Loss, furnish their *Stock*, and proceed in their wonted *Oeconomy* without manifest Danger and Interruption: Nor less ought our Care to be in the making and dressing of the *Pits* and *Fosses* into which we design our *Transplantation*, which should be prepared and left some Time open to macerating *Rains*, *Frosts* and *Sun*, that may resolve the compacted *Salt* (as some will have it) render the Earth friable, mix and qualify it for Aliment, and to be more easily drawn in and digested by the *Roots* and analogous *Stomach* of the *Trees*: This, to some Degree may be artificially done, by burning of *Straw* in the newly opened *Pits*, and drenching the *Mould* with *Water*, especially in over-dry Seasons, and by meliorating barren Ground with sweet and comminuted *Latations*. Let therefore this be received as a *Maxim*, never to plant a *Fruit* or *Forest-tree* where there has lately been an old decay'd one taken up, till the *Pit* be well ventilated and furnish'd with fresh *Mould*.

7. The Author of the Natural History, *Pliny*, tells us, it was a vulgar *Tradition* in his Time, that no *Tree* should be removed under two Years old, or above three. *Cato* would have none transplanted less than five Fingers in *Diameter*; but I have shew'd why we are not to attend so long for such as we raise of *Seedlings*. In the Interim, if these Directions appear too busy or *operose*, or that the *Plantation* you intend be very ample, a more compendious *Method* will be the confused sowing of *Acorns*, &c. in *Furrows*, two Foot asunder, covered at three Fingers Depth, and so for three Years cleansed, and the first *Winter* cover'd with Fern without any farther Culture, unless you transplant them: But as I shew'd before in *Nurseries*, they would be cut an *Inch* from the Ground, and then let stand till *March* the second Year, when it shall be sufficient to disbranch them to one only Shoot, whether you suffer them to stand, or remove them elsewhere. But to make an *Essay* what *Seed* is most agreeable to the *Soil*, you may by the thriving of a promiscuous *Semination* make a Judgment of

a What each Soil bears, and what it does refuse;

Transplanting those which you find least agreeing with the *Place*; or else by copying the *Starvelings* in the Places where they are newly sown, cause them sometimes to overtake even their untouch'd *Contemporaries*.

a Quid quæque ferat regio, & quid quæque recuset.

Something may here be expected about the fittest *Season* for this Work of *Transplanting*; of which having spoken in another * *Treatise* annex'd to this (as well as in divers other Places throughout this of *Forest-trees*) I shall need add little, after I have recommended the earliest *Removals*, not only of all the sturdy Sort in our *Woods*, but even of some less tender Trees in our *Orchards*, *Pears*, *Apples*, *Vulgar Cherries*, &c. whilst we favour the delicate and tender *Murals*, and such as are *pithy*, as the *Wall-nut*, and some others. But after all, what says the plain *Wood-man*, speaking of *Oaks*, *Beech*, *Elms*, *Hawthorns*, and even what we call *wild* and *Hedge-Fruit*? "Set them," says he, at *All-hallontide*, and *command* them to prosper; set them "at *Candlemas*, and *intreat* them to grow". Nor needs it Explanation.

8. But here some may enquire what *Distances* I would generally assign to *transplanted Trees*? To this somewhat is said in the ensuing *Periods*, and as Occasion offers; though the promiscuous rising of them in *Forest-work*, *wild* and *natural*, is to us, I acknowledge, more pleasing than all the studied Accuracy in ranging of them; unless it be where they conduct and lead us to *Avenues*, and are planted for *Visitas* (as the *Italians* Term is) in which Case, the Proportion of the *Breadth* and *Length* of the *Walks*, &c. should govern, as well as the Nature of the *Tree*; with this only Note, That such Trees as are rather apt to spread than mount (as the *Oak*, *Beech*, *Wall-nut*, &c.) be disposed at *wider* Intervals than the *other*, and such as grow best in *Consort*, as the *Elm*, *Ash*, *Lime-tree*, *Sycamore*, *Fir*, *Pine*, &c. Regard is likewise to be had to the Quality of the *Soil*, for this Work: *V. G.* If *Trees* that affect *cold* and *moist* Grounds be planted in *hot* and *dry* Places, then set them at *closer* Order; but *Trees* which love *dry* and *thirsty* Grounds, at farther *Distance*. The like Rule may also guide in Situations exposed to impetuous *Winds* and other Accidents, which may serve for general *Rules* in this Piece of *Tactics*. In the mean Time, if you plant for *Regular Walks*, or any single Trees, a competent Elevation of the Earth in *Circle*, and made a little hollow like a shallow *Basin* (as I already mention'd) for the Reception of Water, and refreshing the Roots, sticking *Thorns* about the Edges, to protect them from *Cattle*, were not amiss. *Fruit-trees* thus planted, if *Beans* be set about them, produces a little *Crop*, and will shade the Surface, perhaps without any Detriment: But this more properly belongs to *Pomona*. Most Shrubs of *Ever-green*, and some Trees may be planted very near one another: *Myrtles*, *Laurel*, *Bays*, *Cyprus*, *Yew*, *Ivy*, *Pomegranates* and others, also need little Distance, and indeed whatever is proper to make *Hedges*: But for the *Oak*, *Elm*, *Wall-nut*, *Firs*, and the taller Timber-Trees, let the dismal Effects of the late *Hurricane* (never to be forgotten) caution you never to plant them too near the *Mansion* (or indeed any other House) that so if such Accident happen, their Fall and Ruin may not reach them.

9. To leave nothing omitted which may contribute to the Stability of our *transplanted Trees*, something is to be premised concerning their *Staking*, and securing from external Injuries, especially from *Winds* and *Cattle*; against both which, such as are planted in *Copses*, and for ample *Woods*, are sufficiently defended by the *Mounds* and their closer Order; especially if they rise of *Seed*: But where they are exposed in single Rows, as in *Walks* and *Avenues*, the most effectual Course is to *empale* them with three good *Quarter Stakes* of competent Length,

BOOK I. set in *triangle*, and made fast to one another by short Pieces above and beneath; in which a few *Brambles* being stuck, secure it abundantly, without that choaking or fretting, to which *Trees* are obnoxious that are only single *staked* and *bushed*, as the vulgar Manner is: Nor is the Charge of this so considerable, as the great *Advantage*, accounting for the frequent Reparations which the other will require. Where *Cattle* do not come, I find a good Piece of *Rope*, tied fast about the Neck of *Trees* upon a *Wisp* of *Straw*, to preserve it from galling, and the other End tightly strein'd to a *Hook* or a *Peg* in the Ground (as the *Shrouds* in *Ships* are fastened to the *Masts*) sufficiently stablishes my *Trees* against the western Blasts without more Trouble; for the Winds of other *Quarters* seldom infest us. But these *Cords* had need be well *pitch'd*, to preserve them from Wet, and so they will last many Years. I cannot in the mean Time conceal what a noble Person has assured me, That in his goodly *Plantations* of *Trees* in *Scotland*, where they are continually exposed to much greater and more impetuous *Winds* than we were usually acquainted with, he never *stakes* any of his *Trees*, but upon all Disasters of this Kind, causes only his Servants to redress, and set them up again as often as they happen to be overthrown; which he has affirm'd to me, thrives better with them, than with those which he has *staked*; and that at last they strike root so fast, as nothing but the *Ax* is able to prostrate them. And their is good Reason for it in my Opinion, whilst these *Concussions* of the *Roots* loosning the Mould, not only make room for their more easy Insinuations, but likewise open and prepare it to receive and impart the better Nourishment. It is in another Place I suggest, that transplanted *Pines* and *Firs*, for want of their penetrating *Tap-roots*, are hardly consistent against these *Gusts* after they are grown high; especially where they are set close, and in *Tufts*, which betrays them to the greater Disadvantage: And therefore such *Trees* do best in *Walks*, and at competent *Distances*, where they escape tolerably well: Such therefore as we design for *Woods* of them, should be sow'd and never remov'd. In the mean Time, many *Trees* are also propagated by *Cuttings* and *Layers*; the *Ever-greens* about *Bartholomew-tide*; other *Trees* within two or three Months after, when they will have all the *Sap* to assist them: Every Body knows the Way to do it, is by flitting the *Branch* a little way, when it is a little cut *directly* in, and then to plunge it half a Foot under good Mould, and leaving as much of its Extremity above it, and if it comply not well, to peg it down with an *Hook* or two, and so when you find it competently *rooted*, to cut it off beneath, and plant it forth. Other Expedients there are, by *twisting* the Part, or *baring* it of the *Rind*; and if it be out of reach of the Ground, to fasten a *Tub* or *Basket* of *Earth* near the *Branch*, fill'd with a succulent Mould, and kept as fresh as may be. For *Cuttings*, about the same Season, take such as are about the bigness of your *Thumb*, setting them a *Foot* in the *Earth*, and near as much out. If it be of soft Wood, as *Willows*, *Poplar*, *Alders*, &c. you may take much larger *Trunchions*, and so tall as *Cattle* may not reach them; if *harder*, those which are young, small and more tender; and if such as produce a *Knur*, or *burry* Swelling, set that Part into the Ground, and be sure to make the *Hole* so wide, and point the End of your *Cutting* so smooth, as that in setting, it violate and strip none of the *Bark*; the other Extream may be slanted, and so treading the *Earth* close, and keeping it *moist*, you will seldom fail of Success:

By

By the *Roots* also of a thriving lusty and sappy Tree, more may be propagated; to effect which, early in *Spring*, dig about its *Foot*, and finding such as you may with a little cutting bend upwards, raise them above Ground three or four Inches, and they will in a short Time make *Shoots*, and be fit for *Transplantation*; or in this Work you may quite separate them from the Mother-*Roots*, and cut them off: By *baring* likewise the bigger *Roots* discreetly, and hacking them a little, and then covering with fresh Mould *Matres* and Mother-*Roots*, *Nepotes*, *Succours*, *Traduces* and rooted Setts, may be raised in abundance; which drawing competent *Roots*, will soon furnish store of Plants; and this is practicable in *Elms* especially, and all such Trees as are apt of themselves to put forth *Suckers*; but of this more upon Occasion* hereafter.

And now to prevent *Censure* on this tedious and prolix *Introduction*, I cannot but look on it as the *Basis* and Foundation of all the *Structure*, rising from this *Work* and *Endeavour* of mine; since from *Station*, *Sowing*, continual *Culture* and *Care*, proceed all we really enjoy in the World: Every Thing must have *Birth* and Beginning, and afterwards, by Diligence and prudent Care, form'd and brought to Shape and Perfection. Nor is it enough to cast *Seeds* into the Ground, and leave them there, as the *Ostrich* does her *Eggs* in the *Lybian* Sands, without minding them more (because *Nature* has depriv'd her of Understanding) but great Diligence is to be used in governing them, not only till they spring up, but till they are arriv'd to some *Stature* fit for *Transplantation*, and to be sent *Abroad*; after the same Method that our *Children* should be educated, and taken Care of from their *Birth* and *Cradle*; and afterwards, whilst they are under *Padagogues* and Discipline (for the forming of their Manners and Persons) that they contract no ill *Habits*, and take such *Plys* as are so difficult to rectify and smooth again without the greatest Industry. For Prevention of this in our *Seminary*, the like Care is requisite; whilst the young *Imps* and *Seedlings* are yet tender and flexible, and require not only different Nourishment and Protection from too much *Cold*, *Heat*, and other Injuries, but due and skilful Management in *dressing*, *redressing* and *pruning*, as they grow capable of being brought into Shape, and of hopeful Expectation, when Time has rendred them fit for the Use and Service requir'd, according to their Kinds. He therefore that undertakes the *Nursery*, should be knowing not only in the *Choice* of the *Seeds*, *where*, *when*, and *how* to sow them; but to know what Time of *Gestation* they require in the *Womb* of their *Mother-Earth* before *Parturition*; that so he may not be surprized with her delivering some of them sooner, or later than he expects them; for some will lie *two*, nay *three* Years, e'er they peep; most others *One*, and some a *Quarter*, or a *Month* or two; whilst the *tardy* and less forward so tire the Hopes of the *Husbandman*, that he many times digs up the *Plats* and *Beds* in which they were sown, despairing of a Crop, sometimes ready to spring and come up, as I have found by Experience to my Loss: Those of hard *Shell* and *Integument* will lie longer buried than others; for so the *Libanus Cedar*, and most of the *Coniferous Firs*, *Pines*, &c. shed their *Seeds* late, and sometimes remain two *Winters* and as many *Summers*, to open their *Scales* glued so fast together, without some external Application of *Fire* or *warm Water*, which is yet not so natural as when they open of themselves. The same may be observed of some *minuter* *Seeds*, even among the *Olitories*; as that of *Parsley*, which will hardly spring

* For the transplanting and removing of full-grown Forest-Trees, and others, See Chap. iii. §. 10.

BOOK I. in less than a Year; so *Beet-feed*, part in the *second* and *third*, &c. which upon inspecting the *Skins* and *Membranes* involving them, would be hard to give a Reason for. To *accelerate* this, they use *Imbibitions* of piercing *Spirits*, *Salts*, *Emollients*, &c. not only to the *Seeds*, but to the *Soil*, which we seldom find much signify, but either to produce *Abortion* or *Monsters*; and being forc'd to *hasty* Birth, become nothing so hardy, healthful and lasting, as the *Conception* and *Birth* they receive from *Nature*. These *Observations* premised in general, after I have recommended to our industrious *Planters* the *Appendix* or *Table* of the several Sorts of *Soil* and *Places* that are *proper*, or at least may seem so; or that are *unfit* for certain Kinds of *Trees* (as well *Foresters* and others, annex'd to this *Work*) I should proceed to *Particulars*, and boldly advance into the thickest of the *Forest*, did not *Method* seem to require something briefly to be spoken of *Trees* in general, as they are under the Name of *Plants* and *Vegetables*, especially such as we shall have occasion to discourse of in the following *Work*; though we also take in some less vulgarly known and familiar, of late indenizon'd among us, and some of them very useful.

By *Trees* then is meant, a *lignous* woody *Plant*, whose Property is for the most Part, to grow up and erect it self with a single *Stem* or *Trunk*, of a thick and more compacted Substance and Bulk, branching forth large and spreading Boughs; the whole Body and external Part, cover'd and invested with a thick Rind or *Cortex*, more hard and durable than that of other Parts; which, with expanding *Roots*, penetrate and fixes them in the Earth for Stability (and according to their Nature) receive and convey Nourishment to the Whole: And these *Terræ-filii* are what we call *Timber-Trees*, the chief Subject of our following Discourse.

Trees are likewise distinguish'd into other *subordinate Species*, *Fruticis*, *Frutages* and *Shrubs*; which are also *lignous* Trees, though of a lower and humbler Growth, less spreading, and rising up in several Stems, emerging from the same *Root*, yielding Plenty of *Suckers*; which being separated from it, and often carrying with them some small Fibre, are easily propagated and planted out for a numerous Store: And this (being clad with a more tender *Bark* or *Fibre*) seems to differ the *Frutex* from other *arborious* Kinds; since as to the *Shaft* and Stems of such as we account *Dwarf* and *Pumilo* with us, they rise often to tall and stately Trees, in the more genial and benign Climes.

Suffrutrices are *Shrubs* lower than the former, *lignescant* and more approaching to the stalky Herbs, *Lavender*, *Rue*, &c. but not apt to decay so soon, after they have seeded; whilst both these Kinds seem also little more to differ from one another, than do *Trees* from them; all of them consisting of the same Variety of Parts, according to their Kinds and Structure, cover'd with some woody hard *membranous* or tender Rind, suitable to their Constitution, and to protect them from outward Injuries; producing likewise *Buds*, *Leaves*, *Blossoms* and *Flowers*, pregnant with *Fruit*, and yielding *Saps*, *Liquors* and *Juices*, *Lachrymæ*, *Gums*, and other *Exsudations*, though diversifying in *Shape* and *Substance*, *Tast*, *Odour*, and other *Qualities* and *Operations*, according to the Nature of the *Species*; the various Structure and Contexture of their several Vessels and *Organs*, whose Office it is to supply the whole Plant with all that is necessary to its *Being* and *Perfection*, after a *stupendous*, though *natural*, Process; which minutely,

to describe, and *analogically* compare, as they perform their Functions CHAP. III.
(not altogether so different from Creatures of *animal Life*) would require an *Anatomical Lecture*; which is so learnedly and accurately done to our Hands by Dr. Grew, Malpighius, and other ingenious Naturalists.

But besides this *general Definition*, as to what is meant by *Trees*, *Frutexes*, &c. They are likewise *specifically* distinguish'd by other *Characters*, *Leaves*, *Buds*, *Blossoms*, &c. but especially by what they produce of more Importance, by their *Fruit* ye shall know them: *V. G.*

The *Glandiferae*, Oaks and *Ilex's* yield *Acorns*, and other useful *Excrescencies*: The *Mast-bearers* are the *Beech*, and such as include their Seeds and Fruit in rougher Husks; as the *Chestnut-Tree*, &c. The *Walnut*, *Hazle*, *Avelans*, &c. are the *Nuciferae*, &c. To the *Coniferae*, *Resiniferae*, *Squammiferae*, &c. belong the whole Tribe of *Cedars*, *Firs*, *Pines*, &c. *Apples*, *Pears*, *Quinces*, and several other *Edule* Fruits; *Peaches*, *Abricots*, *Plums*, &c. are reduc'd to the *Pomiferae*: The *Bacciferae*, are such as produce *Kernels*, *Sorbs*, *Cherries*, *Holley*, *Bays*, *Laurel*, *Yew*, *Juniper*, *Alder*, &c. and all the *Berry-bearers*. The *Genistæ* in general, and such as bear their Seeds in *Cods*, come under the Tribe of *Siliquosæ*: The *Lanuginæ* are such as bed their Seeds in a *cottony Down*.

The *Ash*, *Elm*, *Tilia*, *Poplar*, *Hornbeam*, *Willow*, *Salices*, &c. are distinguish'd by their *Keys*, *Tongues*, *Samera*, *Pericurpia* and *Theca*, small, flat and husky *Skins*, including the *Seeds*, as in so many *Foliols*, *Bags* and *Purses*, fine *membranous* Cases, *Catkins*, *Palms*, *Julus's*, &c. needless to be farther mention'd here, being so particularly describ'd in the *Chapters* following; as are also the various *Evergreens* and *Exoticks*.

CHAP. III.

Of the Oak.

1. **R**Obur, the Oak; I have sometimes consider'd it very seriously, what should move *Pliny* to make a whole *Chapter* of one only *Line*, which is less than the *Argument* alone of most of the rest in his huge *Volume*: But the Weightiness of the *Matter* does worthily excuse him, who is not wont to spare his *Words*, or his *Reader*. *Glandiferi maximè generis omnes, quibus bonos apud Romanos perpetuus. "Mast-bearing-Trees were principally those which the Romans held in chief-est Repute. Lib. xvi. Cap. iii.* And in the following, where he treats of *Chaplets*, and the Dignity of the *Civic Coronet*, it might be composed of the *Leaves* or *Branches* of any *Oak*, provided it were a *bearing Tree*, and had *Acorns* upon it, and was (as * *Macrobius* tells * *Saturn.* us) recorded among the *felices Arborea*; but this *καλλὴν ἐξαρων* lib. xi. cap. xvi. was interwoven, and twisted with *Thorns* and *Briars*; and the *Garland* carried to usher the *Bride* to her Husband's House, intimating that happy State was not exempt from its *Pungencies* and *Cares*. It is then for the Esteem which these *wise* and glorious *People* had of this *Tree* above all others, that I will first begin with the *Oak*; and indeed it carries it from all other *Timber* whatsoever, for building of *Ships* in general,
F and

BOOK I. and in particular being tough, bending well, strong and not too heavy, nor easily admitting Water.

2. 'Tis pity that the several Kinds of *Oak* are so rarely known amongst us, that where-ever they meet with *Quercus*, they take it promiscuously for our common *Oak*; as likewise they do $\Delta\rho\upsilon\varsigma$, which comprehends all *Mast-bearing* Trees whatsoever (which I think they have no *Latin* Word for) And in the *Silva Glandifera* were reckon'd the *Chestnut*, *Ilix*, *Esculus*, *Cerris*, *Suber*, &c. various *Species* rather than different Trees, *white*, *red*, *black*, &c. among our *American* Plantations (especially the *long-stalked* *Oak*, not as yet much taken Notice of) We shall here therefore give an Account of *four* only; *two* of which are most frequent with us; for we shall say little of the *Cerris* or *Ægilops*, goodly to look on, but for little else: Some have mistaken it for *Beech*, whereas indeed it is a Kind of *Oak* bearing a small round *Acorn* almost covered with the *Cup*, which is very rugged, the Branches loaded with a long *Moss* hanging down like dishevel'd Hair, which much annoys it. $\Phi\acute{\alpha}\gamma\omicron\varsigma$ is indeed doubtless a *Species* of *Oak*; however by the *Latins* usually apply'd to the *Beech*, whose Leaf exceedingly differs from that of the *Oak*, as also the *Mast* and *Bark* rugged, and growing among the Hills and Mountains; the other in the Valleys, and perhaps but few of them in *Italy*. *Physicians*, *Naturalists* and *Botanists* should therefore be curious how they describe and place such Trees, mention'd by *Theophrastus* and others, under the same *Denomination* as frequently they do; being found so very different when accurately examin'd. There is likewise the *Esculus*, which though *Vitruvius*, *Pliny*, *Dalcampius* and others take for a smaller Kind, *Virgil* celebrates for its spreading, and profound *Root*; and this *Dalcampius* will therefore have to be the *Platyphyllos* of *Theophrastus*, and as our *Botanists* think, his *Phegos*, as producing the most edible Fruit. But to confine our selves; the *Quercus Urbana*, which grows more upright, and being clean and lighter is fittest for *Timber*: And the *Robur*, or *Quercus Silvestris*, (taking *Robur* for the general Name, if at least *contradistinct* from the rest) which (as the Name imports) is of a vast robust and inflexible Nature, of an hard black *Grain*, bearing a smaller *Acorn*, and affecting to spread in *Branches*, and to put forth his *Roots* more above Ground; and therefore in the Planting, to be allow'd a greater Distance, *viz.* from *twenty-five*, to *forty Foot* (nay, sometimes as many *Yards*) whereas the other shooting up more erect, will be contented with *fifteen*. This Kind is farther to be distinguished by its fullness of *Leaves*, which *tarnish*, and becoming yellow at the *Fall*, do commonly cloath it all the *Winter*; the *Roots* growing very deep and stragling. The Author of *Britannia Baconica*, speaks of an *Oak* in *Lanbadron-Park* in *Cornwall*, which bears constantly *Leaves* speckled with white; and of another, call'd the *pointed Oak*: Others have since been found at *Fridwood*, near *Sittingbourn* in *Kent*; as also *Sycamore* and *Elms*, in other Places mentioned by the learned Dr. *Plot* in his *Natural History* of *Oxfordshire*; which I only mention here, that the Variety may be compar'd by some ingenious Person thereabouts, as well as the Truth of the fatal *Præ-admonition*, of *Oaks* bearing strange *Leaves*: Besides that famous *Oak* of *New Forest* in *Hampshire*, which puts forth its Buds about *Christmas*, but wither'd again before Night; and was order'd (by our late King *Charles II.*) to be inclos'd with a *Pale* (as I find it mentioned in the last Edition of Mr. *Camden's Britannia*)

And

And so was *another* before this, which his *Grandfather*, King *James* went to visit, and caused *Benches* to be plac'd about it; which giving it Reputation, the People never left hacking of the Boughs and Bark till they kill'd the Tree; as I am told, they have serv'd that famous Oak near *White-Ladys*, which hid and protected our late *Monarch* from being discovered and taken by the *Rebel-Soldiers*, who were sent to find him, after his almost miraculous Escape at the Battel of *Worcester*. In the mean Time, as to this extraordinary *Precofeness*, the like is reported of a certain *Walnut-tree*, as well as of the famous *White-thorns* of *Glassenbury*, and *Blackthorns* in several Places. Some of our common Oaks bear their Leaves green all Winter, but they are generally *Pollards*, and such as are shelter'd in warm Corners and Hedge-rows. To speak then particularly of Oaks, and generally of all other Trees of the same Kind (by some infallible Characters) Notice should be taken of the Manner of their Spreading, Stature and Growth, Shape and Size of the Acorn, whether Single or in Clusters, the Length or Shortness of the Stalks, Roundness of the Cup, Breadth, Narrowness, Shape and Indentures of the Leaf; and so of the Bark, Textures, asperous or smooth, brown or bright, &c. Though most (if not all of them) may rather be imputed to the Genius and Nature of the Soil, Situation, or Goodness of the Seed, than either to the pretended Sex or Species. And these Observations may serve to discover many accidental Varieties in other Trees, without nicer Distinctions; such as are fetch'd from professed Botanists; who make it not so much their Study to plant and propagate Trees, as to Skill in their Medicinal Virtues, and other Uses; always excepting our learned Countryman Mr. Ray, whose incomparable Work omits nothing useful or desirable on this Subject; wanting only the Accomplishments of well-designed Sculptors. There is likewise a Kind of *Hemeris* or Dwarf-Oak (like the *Robur vij. Clusii*) frequent in *New-England*; and the White one of *Virginia*, a most stately Tree, which (bearing Acorns) might easily be propagated here, if it were worth the while.

3. I shall not need to repeat what has already been said, Chap. ii. concerning the raising of this Tree from the Acorn; they will also endure the laying, but never to Advantage of Bulk or Stature: It is in the mean Time the Propagation of these large spreading Oaks, which is especially recommended for the Excellency of the Timber, and that his Majesty's Forests were well and plentifully stored with them; because they require Room and Space to amplify and expand themselves, and would therefore be planted at more remote Distances, and free from all Incumbrances: And this upon Consideration, how slowly a full grown Oak mounts upwards, and how speedily they spread, and dilate themselves to all Quarters, by Dressing and due Culture; so as above forty Years Advance is to be gain'd by this only Industry: And if thus his Majesty's Forests and Chases were stored, viz. with this spreading Tree at handsome Intervals, by which Grazing might be improved for the feeding of Deer and Cattle under them (for such was the old Saltus) benignly visited with the Gleams of the Sun, and adorned with the distant Landskips appearing through the Glades and frequent Valleys;

^a (—————betwixt
 Whose Rows the azure Sky is seen immix'd
 With Hillocks, Vales and Fields, as now we see
 Distinguish'd in a sweet Variety;
 Such Places which wild Apple-trees throughout
 Adorn, and happy Shrubs grow all about)

As the *Poet* describes his *Olive-Groves*, nothing could be more ravishing; for so we might also sprinkle *Fruit-trees* amongst them (of which hereafter) for *Cyder*, and many singular Uses, and should find such goodly *Plantations* the boast of our *Rangers*, and *Forests* infinitely preferable to any Thing we have yet beheld, *rude* and *neglected* as they are: I say, when his *Majesty* shall proceed (as he hath *designed*) to animate this laudable *Pride* into *Fashion*, *Forests* and *Woods* (as well as *Fields* and *Inclosures*) will present us with another Face than now they do. And here I cannot but applaud the worthy *Industry* of old *Sir Harbottle Grimstone*, who (I am told) from a very small *Nursery* of *Acorns*, which he sowed in the neglected Corners of his Ground, did draw forth such Numbers of *Oaks* of competent Growth, as being planted about his *Fields* in even and uniform Rows, about one hundred Foot from the *Hedges*, bush'd and well water'd till they had sufficiently fixed themselves, did wonderfully improve both the Beauty and the Value of his *Demefnes*. But I proceed,

4. Both these *Kinds* would be taken up very young, and *transplanted* about *October*; some yet for these hardy and late springing *Trees*, defer it till the Winter be well over; but the Earth had need be moist; and though they will grow tollerably in moist Grounds, yet do they generally affect the *sound, black, deep* and *fast* Mould, rather warm than over wet and cold, and a little *rising*; for this produces the firmest *Timber*; though my Lord *Bacon* prefers that which grows in the moister Grounds for *Ship-timber*, as the most tough, and less subject to *rift*. But let us hear *Pliny*: "This is a general Rule, saith he; What "Trees soever they be which grow tollerably, either on *Hills* or *Valleys*, arise to greater Stature, and spread more amply in the *lower* "Ground: But the *Timber* is far better, and of a finer *Grain*, which "grows upon the *Mountains*, excepting only *Apple* and *Pear-trees*." And in *Cap. xxxix. Lib. xvi.* "The *Timber* of those *Trees* which "grow in *moist* and *shady* Places is not so good as that which comes from "a more exposed Situation, nor is it so close, substantial and durable: "Upon which he much prefers the *Timber* growing in *Tuscany*, before that towards the *Venetian* Side, and upper Part of the *Gulph*." And that *Timber* so grown, was in greatest Esteem long before *Pliny*, we have the *Spear* of *Agamemnon*——

* See what *Vossius* has written in his *Observations* on *Catullus*, p. 204. *Indomitus turbo contorquens flamine*——

* from a Tree so exposed; and *Didymus* gives the Reason, *Τὰ γὰρ ἐν ἀνέμῳ* (says he) *πλείον γυμναζέμεθα δένδρα σιέρα, &c.* For that being continually *Weather-beaten*, they become *hardier* and *tougher*: Otherwise, that which is *Wind-shaken*, never comes to good; and therefore when we speak of the *Climate*, 'tis to be understood of *Valleys* rather

^a (Carula distinguens inter plaga currere posset
 Per tumulos, & convalles, composque profusa:
 Ut nunc esse vides vario distincta lepore
 Omnia, quæ pomis intersita dulcibus ornant
 Arbustisque tenent felicibus obsita circum,)

than *Hills*, and in *calm* Places, than *exposed*, because they shoot CHAP. III.
 straight and upright. The Result of all is, that upon Occasion of *spe-*
cial Timber, there is a very great and considerable Difference; so as
 some *Oaken-Timber* proves manifestly weaker, more spongy, and soon-
 er decaying than other. The like may be affirm'd of *Ash*, and other
 Kinds; and generally speaking, the *close-grained* is the stoutest and
 most permanent: But of this, let the Industrious consult that whole
tenth Chapter in the *second Book* of *Vitruvius*, where he expressly
 treats of this Argument, *De Abiete supernate & infernate, cum Apen-*
nini descriptione: Where we note concerning *Oak*, that it neither pros-
 pers in very *hot*, nor excessive *cold* Countries; and therefore there is
 little good of it to be found in *Africa*, or indeed, the lower and most
 southern Parts of *Italy* (but the *Venetians* have excellent *Timber*) nor
 in *Denmark* or *Norway* comparable to ours; it chiefly affecting a tem-
 perate *Climate*, and where they grow naturally in abundance, 'tis a pro-
 mising Mark of it. If I were to make Choice of the *Place*, or the
Tree, it should be such as grows in the best *Cow-Pasture*, or Up-land
Meadow, where the *Mould* is rich and sweet (*Suffolk* affords an ad-
 mirable Instance) and in such *Places* you may also *transplant* large
Trees with extraordinary Success: And therefore it were not amiss to
 bore and search the Ground where you intend to plant or sow, before
 you fall to work; since Earth too *shallow* or *rocky* is not so proper for
 this *Timber*; the *Roots* fix not kindly, and though for a Time they may
 seem to flourish, yet they will dwindle: In the mean Time, 'tis won-
 derful to consider how strangely the *Oak* will penetrate to come to a
marly Bottom; so as where we find this Tree to prosper, the Indication
 of a fruitful and excellent Soil is certain, even by the Token of this na-
 tural *Augury* only; so as by the Plantation of this Tree and some others,
 we have the Advantage of Profit rais'd from the Pregnancy, Substance
 and Depth of our Land; whilst by the *Grass* and *Corn* (whose *Roots*
 are but a few Inches deep) we have the Benefit of the Crust only.

5. But to discourage none, *Oaks* prosper exceedingly even in Gravel
 and moist *Clays*, which most other Trees abhor; yea, even the coldest
Clay-Grounds that will hardly graze: But these *Trees* will frequently
 make *Stands*, as they encounter Variety of Footing, and sometimes pro-
 ceed again vigorously, as they either penetrate beyond, or out-grow
 their Obstructions, and meet better Earth; which is of that Conse-
 quence, that I dare boldly affirm, more than an *hundred* Years Advance
 is clearly gained by *Soil* and *Husbandry*. I have yet read, that there
 grow *Oaks* (some of which have contained ten Loads apiece) out of
 the very Walls of *Silcester* in *Hants*, which seem to strike Root in
 the very Stones; and even in our renowned *Forest* of *Dean* it self,
 some goodly *Oaks* have been noted to grow upon Ground, which has
 been as it were a *Rock* of ancient *Cinders*, buried there many Ages
 since. It is indeed observed, that *Oaks* which grow in rough *stony*
Grounds, and obstinate *Clays*, are long before they come to any con-
 siderable Stature (for such Places, and all sort of *Clay*, is held but a
Step-Mother to *Trees*) but in Time they afford the most excellent *Tim-*
ber, having stood long, and got good Footing. The same may we af-
 firm of the *lightest* Sands, which produces a smoother-grain'd *Timber*,
 of all other the most useful for the *Joyner*; but that which grows in
Gravel is subject to be *frow* (as they term it) and brittle. What Im-
 provement the stirring of the Ground about the *Roots* of *Oaks* is to the

BOOK I. *Trees*, I have already hinted; and yet in *Copses*, where they stand warm, and so thickned with the *Under-wood*, as this Culture cannot be practised, they prove in Time to be goodly *Trees*. I have of late tried the *Grafting* of *Oaks*, but as yet with slender Success: *Ruellius* indeed affirms it will take the *Pear* and other *Fruit*; and if we may credit the *Poet*,

^a *The sturdy Oak does golden Apples bear:*

^b *And under Elms Swine do the Mast devour.*

Which I conceive to be the more probable, for that the *Sap* of the *Oak* is of an unkind Tincture to most *Trees*. But for this Improvement, I would rather advise *Inoculation*, as the ordinary *Elm* upon the *Witch-Hazel*, for those large *Leaves* we shall anon mention, and which are so familiar in *France*.

6. That the transplanting of young *Oaks* gains them ten Years *Advance*, some happy Persons have affirmed: From this Belief, if in a former *Impression* I have desired to be excused, and produced my Reasons for it, I shall not persist against any sober Man's *Experience*; and therefore leave this *Article* to their Choice, since (as the *Butchers* Phrase is) Change of *Pasture* makes fat *Calves*; and so *Transplantations* of these hard Wood-trees when young, may possibly, by an happy Hand, in fit Season, and other Circumstances of *Soil*, *Sun*, and *Room* for Growth, be an Improvement: But as for those who advise us to plant *Oaks* of too great a Stature, they hardly make any considerable Progress in an *Age*; and therefore I cannot encourage it, unless the Ground be extraordinarily qualified, or that the *Oak* you would transplant, be not above six or seven Foot growth in Height: Yet if any be desirous to make *Tryal* of it, let their *Stems* be of the smoothest and tenderest *Bark*; for that is ever an Indication of *Youth*, as well as the Paucity of their *Circles*, which in disbranching and cutting the Head off, at five or six Foot Height (a Thing, by the Way, which the *French* usually spare when they transplant this *Tree*) may (before you stir their *Roots*) serve for the more certain *Guide*; and then plant them immediately, with as much Earth as will adhere to them, in the Place destined for their *Station*; abating only the * *Tap-Root*, which is that down-right, and stubby Part of the *Roots* (which all *Trees* raised of *Seeds* do universally produce) and quickning some of the rest with a sharp *Knife* (but sparing the *Fibrous*, which are the main *Suckers* and *Mouths* of all *Trees*) spread them in the *Foss*, or *Pit*, which hath been prepared to receive them: I say in the *Foss*, unless you will rather trench the whole *Field*, which is incomparably the best, and infinitely to be preferred before narrow *Pits* and *Holes* (as the Manner is) in Case you plant any Number considerable, the Earth being hereby made loose, easier and penetrable for the *Roots*, about which you are to cast that *Mould*, which (in opening of the *Trench*) you took from the *Surface*, and purposely laid a-part; because it is sweet, mellow, and better impregnated. But in this *Work*, be circumspect never to inter your *Stem* deeper than you found it standing; for profound burying very frequently destroys a *Tree*, though an *Error* seldom observed: If therefore the

* Which yet some, upon good Experience, will not allow in transplanting young Oaks; affirming the taking them up without any Abatement, or the least Wound, does exceedingly advance the Growth of this Tree above such as are deprived of it.

^a — Aurea duræ
Mala ferant quercus.

^b Glandemque sues fregere sub Ulmo.

Ecl. viii.

Georg.

Roots be sufficiently covered to keep the *Body* steady and erect, it is CHAP. III.
 enough; and the not minding of this trifling *Circumstance*, does very
 much deceive our ordinary *Wood-men*, as well as *Gardeners*; for most
Roots covet the *Air* (though that of the *Quercus Urbano* least of
 any) for like the *Esculus*,

^a *How much to Heaven her tow'ring Head ascends,
 So much to'ards Hell her piercing Root extends.*

And the Perfection of *that*, does almost as much concern the Prosperity
 of a *Tree*, as of *Man* himself, since *Homo* is but *Arbor inversa*;
 which prompts me to this *curious*, but important, *Advertisement*, that
 the *Position* be likewise sedulously observed.

7. For the Southern Parts being more *dilated*, and the *Pores* exposed
 (as evidently appears in their *horizontal Sections*) by the constant
Excentricity of the *hyberbolical Circles* of all *Trees* (save just un-
 der the *Æquator*, where the *Circles* concentre, as we find in those
 hard Woods which grow there) ours being now on the *sudden*, and at
 such a Season converted to the *North*, does *starve* and destroy more
Trees (how careful soever Men have been in ordering the *Roots*, and
 preparing the *Ground*) than any other *Accident* whatsoever (neglect of
staking, and *defending* from *Cattle* excepted) the Importance whereof
 caused the best of *Poets*, and most experienced in this *Argument*, giving
 Advice concerning this *Article*, to add,

^b *The Card'nal Points upon the Bark they sign,
 And as before it stood, in the same Line
 Place to warm South, or the obverted Pole:
 Such Force has Custom in each tender Soul.*

Which *Monition*, though *Pliny* and some others think good to ne-
 glect or esteem *indifferent*, I can confirm from frequent Losses of my
 own, and by particular *Tryals*; having sometimes *transplanted* great
Trees at *Midsummer* with Success (the *Earth* adhering to the *Roots*)
 and miscarried in others, where this *Circumstance* only was omitted.

To observe therefore the *Coast* and *Side* of the *Stock* (especially of
Fruit-trees) is not such a Trifle as by some pretended: For if the *Air*
 be as much the *Mother* or *Nurse*, as *Water* and *Earth* (as more than
 probable it is) such blossoming *Plants* as court the Motion of the *Me-
 ridian Sun*, do, as 'twere, evidently point out the Advantage they re-
 ceive by their *Position*, by the Clearness, Politure, and comparative
 Splendor of the *South-side*: And the frequent *Mossiness* of most *Trees*
 on the opposite *Side*, does sufficiently note the Unkindness of that
Aspect; most evident in the *Bark* of *Oaks* white and smooth; the *Trees*
 growing more kindly on the *South-side* of an *Hill*, than those which are
 exposed to the *North*, with an hard, dark, rougher and more mossie
Integument, as I can now demonstrate in a prodigious Coat of it, in-
 vesting some *Pyracanth*s which I have removed to a *Northen* dripping
Shade. I have seen (writes a worthy Friend to me on this Occasion)

^a — Quæ quantum vertice ad auras
 Athereas, tantum radice in Tartara tendit.

Geor. l. ii.

^b Quinetiam Cœli regionem in cortice signant,
 Ut quo quæque modo steterit, quâ parte calores
 Austrinos tulerit, quæ terga obverterit axi,
 Restituant: Adeo in teneris consuefcere multum est.

Geor. l. i.

BOOK I. whole *Hedge-rows* of *Apples* and *Pears*, that quite perish'd after that Shelter was removed: The good *Husbands* expected the contrary, and that the *Fruit* should improve, as freed from the *Prædations* of the Hedge; but Use and Custom made that Shelter necessary; and therefore (saith he) a *Stock* for a Time is the weaker, taken out of a *Thicket*, if it be not well protected from all sudden and fierce Invasions, either of crude *Air* or *Winds*. Nor let any be deterr'd, if being to remove many *Trees*, he shall esteem it too consumptive of Time; for with a Brush dipped in any white Colour or *Oaker*, a thousand may be marked as they stand, in a Moment; and that once done, the Difficulty is over. I have been the larger upon these two *Remarks*, because I find them so material, and yet so much neglected.

8. There are other *Rules* concerning the *Situation* of *Trees*; the former *Author* commending the *North-East Wind* both for the Flourishing of the *Tree*, and Advantage of the *Timber*; but to my Observation in our *Climates*, where those sharp *Winds* do rather flanker than blow fully opposite upon our *Plantations*, they thrive best; and there are as well other Circumstances to be considered, as they respect *Rivers* and *Marshes* obnoxious to unwholsome and poisonous *Fogs*, *Hills* and *Seas*, which expose them to the Weather; and those *silvi-fragi Venti*, our cruel and tedious *western Winds*; all which I leave to Observation, because these *Accidents* do so universally govern, that it is not easy to determine farther, than that the *Timber* is commonly better qualified, which hath endured the *colder Aspects* without these Prejudices. And hence it is that *Seneca* observes, *Wood* most exposed to the *Winds* to be the most *strong* and *solid*; and that therefore *Chiron* made *Achilles's* Spear of a *Mountain Tree*; and of those the best, which grow thin, not much shelter'd from the *North*. Again, *Theophrastus* seems to have special Regard to *Places*; exemplifying in many of *Greece*, which exceed others for good *Timber*, as doubtless do our *Oaks* in the *Forest* of *Dean* all others of *England*: And much certainly there may reasonably be attributed to these Advantages for the Growth of *Timber*, and of almost all other *Trees*, as we daily see by their general Improprosperity, where the Ground is a *hot Gravel*, and a *loose Earth*. An *Oak* or *Elm* in such a Place, shall not in an *hundred Years*, overtake one of *fifty*, planted in its *proper Soil*; though next to this, and (haply) before it, I prefer the good *Air*. But thus have they such vast *Junipers* in *Spain*; and the *Ash* in some Parts of the *Levant* (as of old near *Troy*) so excellent, as it was after mistaken for *Cedar*, so great was the Difference; as now the *Cantabrian*, or *Spanish*, exceeds any we have elsewhere in *Europe*. And we shall sometimes in our own *Country* see *Woods* within a little of each other, and, to all Appearance, growing on the same Soil, where *Oaks* of twenty Years Growth or forty, will, in the same Bulk, contain their Double in *Heart* and *Timber*; and that in one, the *Heart* will not be so big as a Man's *Arm*, when the *Trunk* exceeds a Man's *Body*. This ought therefore to be weighed in the first Plantation of *Copses*, and a good *Eye* may discern it in the first Shoot; the Difference proceeding doubtless from the Variety of the Seed; and therefore great Care should be had of its Goodness, and that it be gathered from the best Sort of *Trees*, as was formerly hinted, *Chap. i.*

9. *Veterem Arborem Transplantare*, was said of a difficult Enterprize: Yet before we take leave of this Paragraph, concerning the *Transplanting* of great *Trees*, and to shew what is possible to be effected in this

Kind,

Kind, with Cost and Industry; Count *Maurice* (the late Governour of *Brasil* for the *Hollanders*) planted a *Grove* near his delicious *Paradise* of *Friburgh*, containing six Hundred *Coco-trees* of *eighty* Years Growth, and *fifty* Foot high to the nearest Bough: These he wafted upon *Floats* and *Engines*, four long Miles; and planted them so luckily, that they bare abundantly the very first Year; as *Gasper Barlaeus* hath related in his elegant Description of that Prince's Expedition. Nor hath this only succeeded in the *Indies* alone; Monsieur *de Fiat* (one of the *Mareschals* of *France*) hath with huge *Oaks* done the like at *Fiat*. Shall I yet bring you nearer Home? A Great Person in *Devon*, planted *Oaks* as big as twelve *Oxen* could draw, to supply some Defect in an *Avenue* to one of his Houses; as the Right Honourable the Lord *Fitz-Harding*, late *Treasurer* of His Majesty's Household, assured me; who had himself likewise practised the removing of great *Oaks* by a particular Address extremely Ingenious, and worthy the Communication.

10. Choose a *Tree* as big as your *Thigh*, remove the Earth from about him; cut through all the *collateral* Roots, till with a competent Strength you can enforce him down upon one Side, so as to come with your *Ax* at the *Top-root*; cut *that* off, redress your *Tree*, and so let it stand covered about with the *Mould* you loosened from it, till the next Year, or longer if you think good; then take it up at a fit Season; it will likely have drawn new tender Roots apt to take, and sufficient for the *Tree*; where-soever you shall *transplant* him. Some are for laying bare the whole *Roots*, and then dividing it into four Parts, in Form of a *Cross*, to cut away the interjacent *Rootlings*, leaving only the *Cross* and Master-Roots, that were spared to support the *Tree*; and then covering the Pit with fresh *Mould* (as above) after a Year or two, when it has put forth, and furnished the *Interstices* you left between the *Cross-roots*, with Plenty of new *Fibres* and tender Shoots, you may safely remove the *Tree* it self, so soon as you have loosened and reduced the four *decussated* Roots, and shortened the *Top-roots*: And this Operation is done without stooping or bending the *Tree* at all: And if in removing it, with as much of the Clod about the new Roots as possible, it would be much the better.

- A, The Trunk, or Body of the Tree, next the Ground; which is the Centre of the Crofs Master-Roots, b b b b, growing from the old Stock, c c c the smaller Roots and Fibres emerging from those Crofs-Roots, which are to be cut off discreetly, sparing a few of the tenderest.*
- d, Shewing how they all are to be cleansed between the Interstices, cut close to the Crofs, or Star-Roots.*

Pliny notes it as a common Thing, to re-established huge *Trees*, which have been blown down, Part of their Roots torn up, and the Body prostrate; and, in particular, of a *Fir*, that when it was to be *transplanted*, had a *Top-root* which went no less than *eight* Cubits *perpendicular*; and to these I could super-add (by woful Experience) where some *Oaks*, and other old *Trees* of mine, tore up with their Fall and Ruin, Portions of Earth (in which their former spreading Roots were engaged) little less in Bulk and Height than some ordinary Cottages and Houses, built on the Common: Such Havock was the Effect of the late prodigious *Hurricane*. But to proceed. To facilitate the *Removal* of such monstrous *Trees*, for the *Adornment* of some particular *Place*, or the *Rarity* of the *Plant*, there is this farther *Expedient*: A little before the hardest *Frosts* surprize you, make a square *Trench* about your *Tree*, at such Distance from the *Stem* as you judge sufficient for the *Root*; dig this of competent Depth, so as almost quite to undermine it, by placing *Blocks* and *Quarters* of Wood, to sustain the *Earth*; this done, cast in as much *Water* as may fill the *Trench*, or at least sufficiently wet it, unless the Ground were very moist before. Thus let it stand, till some very hard *Frost* do bind it firmly to the *Roots*, and then convey it to the *Pit* prepared for its new Station, which you may preserve from *freezing*, by laying Store of warm *Litter* in it, and so close the Mould the better to the stragling *Fibres*, placing what you take out about your new Guest, to preserve it in Temper: But in Case the Mould about it be so *ponderous* as not to be removed by an ordinary Force; you may then raise it with a *Crane* or *Pully*, hanging between a *Triangle* (or like *Machine*) which is made of three strong and tall *Limbs* united at the Top, where a *Pully* is fastened, as the *Cables* are to be under the *Quarters* which bear the Earth about the *Roots*: For by this Means you may weigh up, and place the whole weighty *Clod* upon a *Trundle*, *Sledge*, or other *Carriage*, to be conveyed and *replanted* where you please, being let down perpendicularly into the Place by the Help of the aforesaid *Engine*: And by this *Address* you may *transplant* *Trees* of a wonderful *Stature* without the least Disorder; and many Times without *topping*, or Diminution of the *Head*, which is of great Importance, where this is practised to supply a *Defect*, or remove a *Curiosity*.

11. Some advise, that in planting of *Oaks*, &c. *four* or *five* be suffered to stand very near to one another, and then to leave the most *prosperous*, when they find the rest to disturb his Growth; but I conceive it were better to plant them at such Distances, as they may least incommode one another: For *Timber-trees*, I would have none nearer than *forty* Foot, where they stand *closest*; especially of the spreading Kind.

12. *Lastly*, *Trees* of ordinary *Stature* *transplanted* (being first well *watered*) must be sufficiently *staked* and *bush*ed about with *Thorns*, or with something better, to protect them from the Concussions of the *Winds*,
and

and from the casual *rubbing*, and poisonous brutting of *Cattle* and *Sheep*, the *Oyliness* of whose *Wool* is also very noxious to them; till being well grown and fixed (which by *seven* Years will be to some competent Degree) they shall be able to withstand all accidental *Invasions*, but the *Ax*; for I am now come to their *Pruning* and *Cutting*, in which Work the *Seasons* are of main Importance.

13. Therefore, if you would propagate *Trees* for *Timber*, cut not off their *Heads* at all, nor be too busie with Lopping: But if you desire *Shade* and *Fuel*, or bearing of *Mast* alone, lop off their *Tops*, *sear*, and unthriving *Branches* only: If you intend an outright *felling*, expect till *November*; for this *premature* Cutting down of *Trees* before the *Sap* is perfectly at rest, will be to your exceeding Prejudice, by Reason of the *Worm*, which will certainly breed in *Timber* which is felled before that Period: But in case you cut only for the *Chimney*, you need not be so punctual as to the Time; yet for the Benefit of what you let stand, observe the *Moon's* Increase if you please. The Reason of these Differences is, because *this* is the best Season for the *Growth* of the Tree which you do not fell, the *other* for the *Durableness* of the *Timber* which you *do*: Now that which is to be *burnt* is not so material for *lasting*, as the *Growth* of the Tree is considerable for the *Timber*: But of these Particulars more at large in *Chap. iii. Book iii.*

14. The very *Stumps* of *Oak*, especially that Part which is dry, and above Ground, being well *grubb'd*, is many Times worth the Pains and Charge, for sundry *rare* and *hard* Works; and where *Timber* is dear. I could name some, who abandoning this to *Workmen* for their *Pains* only, when they perceived the great Advantage, repented of their Bargain, and undertaking it themselves, were Gainers above half: I wish only for the Expedition of this *knotty* Work, some effectual *Engine* were devised; such as I have been told a worthy Person of this Nation made use of, by which he was able with *one Man*, to perform more than with *twelve Oxen*; and surely, there might be much done by fastning of *Iron-Hooks* and *Fangs* about one Root, to extract another; the *Hook* chained to some portable *Screw* or *Winch*: I say, such an Invention might effect Wonders, not only for the Extirpation of Roots, but the prostrating of huge Trees: That small *Engine*, which by some is called the *German Devil*, reformed after this Manner, and duly applied, might be very expedient for this Purpose; and therefore we have exhibited the following Figure, and submit it to Improvement and Trial.



a, The Hand that keeps the Rope b, close upon the Cylinder c, which is moved by a Pinnion of three or four Teeth d, which moves a large Iron-Wheel f, e, the Handle put upon the Spindle of the Pinnion, to turn it withal.

The whole Frame is let into a bigger Piece of Wood, viz. h, being about four Foot in Length, and one in Breadth; and the other End of the Roller, or Cylinder, is sustained by a lesser Block of Wood (i) g, the Plate which holds the Wheel and Pinnion in the larger Block. Note,

That the Cylinder may be made of good tough Iron, about four Inches in Diameter, and fourteen or sixteen Inches in Length, and the toothed Wheel f, of the like Stuff, and of a Thickness proportionable: The rest is obvious.

But this is to be practised only where you design a final *Extirpation*; for some have drawn *Suckers* even from an old *stub Root*, but they certainly perish by the *Moss* which invades them, and are very subject to grow rotten. *Pliny* speaks of one *Root*, which took up an entire *Acre* of Ground, and *Theophrastus* describes the *Lycean Platanus* to have spread an hundred Foot; if so, the *Argument* may hold good for their Growth after the *Tree* is come to its Period. They made *Cups* of the *Roots* of *Oaks* heretofore; and such a Curiosity *Athenæus* tells us was

was carved by *Thericleus* himself; and there is a Way so to tinge Oak, CHAP. III.
after long burying and soaking in *Water* (which gives it a wonderful
Politure) as that it has frequently been taken for a coarse *Ebony*:
Hence even by *Floating*, comes the *Bohemian Oak*, *Polish* and other
Northern Timber, to be of such excellent Use for some Parts of *Ship-*
ping: But the *Blackness* which we find in *Oaks*, that have long lain
under Ground (and may be call'd *Subterranean Timber*) proceeds from
some *Vitriolic Juice* of the Bed in which they lie, which makes it very
weighty; but (as the excellent Naturalist and learned *Physician*
Dr. Sloane observes) it dries, splits, and becomes light, and much im-
pairs.

15. There is not in *Nature* a Thing more obnoxious to *Deceit*, than
the buying of *Trees standing*, upon the Reputation of their *Appear-*
ance to the *Eye*, unless the *Chapman* be extraordinarily judicious; so
various are their hidden and concealed *Infirmities*, till they be felled
and *sawn* out: So as if to any Thing *applicable*, certainly there is no-
thing which does more perfectly confirm it, than the most flourishing
Outside of *Trees*, *Fronti nulla fides*. A *Timber-tree* is a *Merchant-*
Adventurer, you shall never know what he is worth till he be dead.

16. *Oaks* are in some Places (where the Soil is *especially* qualified)
ready to be cut for *Copse* in *fourteen Years* and sooner; I compute from
the first *Semination*; though it be told as an Instance of high En-
couragement (and as indeed it merits) that a *Lady* in *Northampton-*
shire sowed *Acorns*, and lived to cut the *Trees* produced from them,
twice in *two* and *twenty Years*, and both as well grown as most are in
sixteen or *eighteen*. This yet is certain, that *Acorns* set in *Hedge-rows*,
have in thirty Years born a *Stem* of a Foot *Diameter*. Generally *Copse-*
wood should be cut *close*, and at such *Intervals* as the Growth requires;
which being seldom constant, depends much on the *Places* and the *Kinds*,
the *Mould* and the *Air*, and for which there are extant particular
Statutes to direct us; of all which more at large hereafter. *Oak* for
Tan-bark may be felled from *April* to the last of *June*, by a *Statute*
in the 1 *Jacobi*. And here some are for the *disbarking* of *Oaks*, and
so to let them stand before they fell.

17. To enumerate now the incomparable *Uses* of this *Wood*, were USES.
needless; but so precious was the Esteem of it, that of *old* there was
an express *Law* amongst the *twelve Tables*, concerning the very ga-
thering of the *Acorns*, though they should be found fallen into another
Man's Ground: The *Land* and the *Sea* do sufficiently speak for the Im-
provement of this excellent Material; *Houses* and *Ships*, *Cities* and
Navies are built with it; and there is a *Kind* of it so *tough*, and ex-
tremely compact, that our sharpest *Tools* will hardly enter it, and scarce-
ly the very *Fire* it self, in which it consumes but slowly, as seeming to
partake of a *ferruginous* and *metalline* shining Nature, proper for sun-
dry robust *Uses*. It is doubtless of all *Timber* hitherto known, the most
universally useful and strong; for though some *Trees* be harder, as *Box*,
Cornus, *Ebony*, and divers of the *Indian Woods*; yet we find them
more fragil, and not so well qualified to support great Incumbencies and
Weights, nor is there any *Timber* more *lasting*, which Way soever used.
There has (we know) been no little Stir amongst learned Men, of what
Material the *Cross* was made on which our Blessed *Saviour* suffered:
Venerable Bede in *Collectaneis*, affirms it to have been framed of
several Woods, namely, *Cypress*, *Cedar*, *Pine* and *Box*; and to
confirm

BOOK I. confirm it, St. Hierom has cited *Isaiab vi. 13. Gloria Libani ad te veniet, & Buxus & Pinus simul ad ornandum locum Sanctificationis meæ, & locum Pedum meorum significabo*; but following the *Version* of the LXX, he reads in *Cupressò, Pinu & Cedro, &c.* Others insert the *Palm*, and so compose the *Gibbet* of no less than four different *Timbers*, according to the old Verse:

a *Nail'd were his Feet to Cedar, to Palm his Hands,
Cypress his Body bore, Title on Olive stands:*

And for this of the *Palm*, they fetch it from that of *Cant. vii. 8.* where 'tis said, *Ascendam in Palmam, & apprehendam fructus ejus*, and from other *allegorical* and *mysterious* Expressions of the sacred *Text*, without any manner of Probability; whilst by *Alphonsus Ciacconius, Lipsius, Angelus Rocca, Falconius*, and divers other learned Men (writing on this Subject) and upon accurate Examination of the many Fragments pretended to be Parcels of it, 'tis generally concluded to have been the *Oak*, and I do verily believe it; since those who have described those *Countries*, assure us there is no Tree more frequent; which (with Relation to several Celebrations and *Mysteries* under *Oaks* in the *Old Testament*) has been the Subject of many fine Discourses. Nor is it likely they should choose, or assemble so many Sorts of *Woods* with that Curiosity, to execute one upon, whom they esteemed a *Malefactor*; besides, we read how heavy it was, which *Cypress, Cedar* and *Palm* are not in Comparison with *Oak*; whilst *Gretser* denies all this, *Lib. i. Cap. vi.* and concludes upon his accurate Examination of several Fragments yet extant, that 'tis not discernable of what *Timber* it was framed. We might add to these, the furious Zeal of the bloody and malicious *Jews* (to see our Blessed Lord inhumanly executed) could not possibly allow Leisure to frame a *Gibbet* of so many rare and curious Materials: Let this therefore pass for an errant *Legend*.

That which is *twined* and a little *wreathed* (easily to be discerned by the *Texture* of the *Bark*) is best to support *Burthens* for *Posts, Columns, Summers, &c.* for all which our *English Oak* is infinitely preferable to the *French*, which is nothing so *useful*, nor comparably so *strong*; insomuch as I have frequently admired at the sudden failing of most goodly *Timber* to the *Eye*, which being employed to these *Uses*, does many Times most dangerously fly in sunder, as wanting that native *Spring* and *Toughness* which our *English Oak* is indued withal. And here we forget not the Stress which Sir *H. Wotton*, and other *Architects* put even in the very *Position* of their Growth, their native Streightness and Loftiness for *Columns, Supporters, Cross-Beams, &c.* and 'tis found that the rough-grain'd Body of a *stubbed Oak*, is the fittest *Timber* for the *Case* of a *Cyder-Mill*, and such like *Engines*, as best enduring the Unquietness of a ponderous Rolling-Stone. For *Shingles, Pales, Laths, Cooper's Ware, Clap-board* for *Wainscot* (the ancient

* And therefore were
Joiners
call'd *Intestini-
ary*. See
Leg. ii. Cod.
Theodof.

* *Intestina Opera* and Works within Doors) and some *Pannels* are curiously veined, of much Esteem in former Times, till the finer-grain'd *Spanish* and *Norway Timber* came amongst us, which is likewise of a whiter Colour. There is in *New England* a certain *red Oak*, which

a Quatuor ex lignis Domini Crux dicitur esse, &c.
Pes Crucis est Cedrus, Corpus tenet alta Cupressus;
Palma manus retinet, Titulo lætatur Oliva.

being felled, they season in some moist and muddy Place, which branches into very curious Works. It is observed that *Oak* will not easily glue to other *Wood*, no not very well with its own Kind; and some Sorts will never cohere tollerably, as the *Box* and *Horn-beam*, though both hard Woods; so, nor *Service* with *Cornell*, &c. *Oak* is excellent for *Wheel-Spokes*, *Pins* and *Pegs* for *Tyling*, &c. Mr. *Blith* makes *Spars* and small Building *Timber* of *Oaks* of eleven Years Growth, which is a prodigious Advance, &c. The smallest and straightest is best, discovered by the upright *Tenor* of the *Bark*, as being the most proper for cleaving: The knotttiest for *Water-Works*, *Piles*, and the like, because 'twill drive best, and last longest; the crooked, yet firm, for *Knee-Timber* in *Shipping*, *Mill-Wheels*, &c. In a Word, how absolutely necessary the *Oak* is above all the Trees of the Forest in *Naval-Architecture*, &c. consult *Whitson*, Lib. i. Cap. xiii.

Were planting of these *Woods* more in Use, we should banish our *Hoops* of *Hazel*, &c. for those of good *Copse-Oak*, which being made of the younger *Shoots*, are exceeding tough and strong: One of them being of *Ground-Oak*, will out-last six of the best *Ash*; but this our *Coopers* love not to hear of, who work by the *Great* for *Sale*, and for others. The smaller *Trunchions* and *Spray*, make *Billet*, *Bovine* and *Coals*; and the *Bark* is of Price with the *Tanner* and *Dyer*, to whom the very *Saw-dust* is of Use, as are the *Ashes* and *Lee* for *Bucking* Linnen, and to cure the *Ropishness* of *Wine*: And 'tis probable the *Cups* of our *Acorns* would tan *Leather* as well as the *Bark*, I wonder no Body makes the Experiment, as it is done in *Turky* with the *Valonia*, which is a Kind of *Acorn* growing on the *Oaks*. The *Ground-Oak* while young, is used for *Poles*, *Cudgels* and *Walking-Staffs*, much come into Mode of late, but to the *Wast* of many a hopeful *Plant*, which might have proved good *Timber*; and I the rather declaim against the Custom, because I suspect they are such as are for the most Part cut and stolen by idle Persons, and brought up to *London* in great Bundles, without the Knowledge or Leave of the *Owners*, who would never have gleaned their *Copses* for such trifling Uses. Here I am again to give a general Notice of the peculiar Excellency of the *Roots* of most *Trees*, for fair, beautiful, *chamleted* and lasting *Timber*, applicable to many Purposes; such as formerly made *Hafts* for *Daggers*, *Hangers*, *Knives*, *Handles* for *Staves*, *Tobacco-Boxes*, and elegant *Joyners-Work*, and even for some *Mathematical Instruments* of the larger Size, to be had either in, or near the *Roots* of many *Trees*; however 'tis a Kindness to premonish *Stewards* and *Surveyors*, that they do not negligently wast those *Materials*: Nor may we here omit to mention *Tables* for *Painters*, which heretofore were used by the most famous *Artists*, especially the curious Pieces of *Raphael*, *Durer* and *Holbin*, and before that of *Canvass*, and much more lasting: To these add the *Galls*, *Mistletoe*, *Polypod*, *Agaric* (used in *Antidotes*) *Uva*, *Fungus*'s to make *Tinder*, and many other useful *Excrescencies*, to the Number of above twenty, which doubtless discover the Variety of *Transudations*, *Percolations* and *Contextures* of this admirable *Tree*; but of the several *Fruits*, and *Animals* generated of them, and other *Trees*, *Francisco Redi* promises an express Treatise, in his *Esperienze intorno alla Generatione de gl' Insetti*, already published. *Pliny* affirms, That the *Galls* break out all together in one *Night*, about the Beginning of *June*, and arrive to their full Growth in one *Day*;
this

BOOK I. this I should recommend to the Experience of some extraordinary vigilant *Wood-man*, had we any of our *Oaks* that produced them, *Italy* and *Spain* being the nearest that do. *Galls* are of several Kinds, but grow upon a different *Species* of *Robur* from any of ours, which never arrive to any Maturity; the *white* and *imperfected* are the best; of all which, and their several *Species*, see *Jasp. Baubinus*, and the excellent *Malpighius*, in his Discourse *de Gallis*, and other *morbous* Tumours, raised by, and producing *Insects*, infecting the Leaves, Stalks and Branches of this Tree with a venomous Liquor or Froth, wherein they lay and deposite their *Eggs*, which bore and perforate these *Excrefcences*, when the *Worms* are hatch'd, so as we see them in *Galls*.

What Benefit the *Mast* does universally yield (once in two Years at least) for the fattening of *Hogs* and *Deer*, I shall shew upon another Occasion, before the Conclusion of this Discourse. A Peck of *Acorns* a Day, with a little *Bran*, will make an *Hog* ('tis said) increase a Pound Weight *per Diem* for two Months together. They give them also to *Oxen* mingled with *Bran*, chop'd or broken; otherwise they are apt to sprout and grow in their Bellies. Others say, they should first be macerated in Water, to extract their Malignity; *Cattle* many times perishing without this Preparation. *Cato* advises the *Husbandman* to reserve two hundred and forty *Bushels* of *Acorns* for his *Oxen*, mingled with a like Quantity of *Beans* and *Lupines*, and to drench them well. But in Truth, they are more proper for *Swine*, and being so made small, will fatten *Pidgeons*, *Peacocks*, *Turkeys*, *Pheasants* and *Poultry*; nay, 'tis reported, that some *Fishes* feed on them, especially the *Tunny*, in such Places of the *Coast* where *Trees* hang over Arms of the *Sea*. *Acorns*, *Esculus ab Esca* (before the Use of *Wheat-Corn* was found out) were heretofore the Food of Men, nay, of *Jupiter* himself (as well as other *Productions* of the Earth) till their luxurious *Palates* were debauched: And even in the *Romans* Time, the Custom was in *Spain* to make a *second Service* of *Acorns* and *Mast* (as the *French* now do of *Marrons* and *Chestnuts*) which they likewise used to roast under the *Embers*.

^a ————— fed with the oaken Mast,
The aged Trees themselves in Tears surpass'd.

And Men had indeed *Hearts* of Oak; I mean, not so hard, but *Health* and *Strength*, and liv'd naturally, and with Things easily *parable* and plain.

^b Blest Age o'th' World, just Nymph, when Man did dwell
Under thy Shade, whence his Provision fell;
Sallads the Meal, Wildings were the Differt:
No Tree yet learn'd, by ill-Example, Art,
With insidious Fruit to symbolize,
As in an Emblem, our Adulteries.

^a ————— & quernâ glande repasta
Æquâsse annosâs vivendo copora Quercus.

^b Fœlix illa ætas mundi, justissima Nympe,
Cum dabat umbra domum vivam tua, cum domus ipsa
Decidua Dominos pascebat fruge quietos,
Solâque præbebant Sylvestria poma secundas
Gramineis epulas mensis; nondum arte magistra
Arbor Adulteriis præluserat insita nostris, &c.

As the sweet *Poet* bespeaks the *Dryad*; and therefore it was not call'd *Quercus* (as some *Etymologists* fancied) because the *Pagans* (*quaribantur Responſa*) had their *Oracles* under it, but because they sought for *Acorns*: But 'tis in another * Place where I shew you what this *Acorn* was; and even now I am told, that those small young *Acorns* which we find in the *Stock-Doves* Crows, are a delicious Fare, as well as those incomparable *Salads* of young Herbs taken out of the *Maws* of *Partridges* at a certain Season of the Year, which gives them a Preparation far exceeding all the Art of *Cookery*. Oaks bear also a *Knur* full of a *Cottony* Matter, of which they anciently made *Wick* for their *Lamps* and *Candles*; and among the *Selectiora Remedia* of *Jo. Prævotius*, there is mention of an Oil è *querna glande* chymically extracted, which he affirms to be of the longest Continuance, and least consumptive of any other whatsoever for such Lights, *ita ut uncia singulis mensibus vix absumatur continuo igne*: The ingenious Author of the Description of the Western Islands of *Scotland*, tells us, That (upon his own Experience) a Rod of *Oak* of four, five, six or eight Inches about, being twisted like a *Wyth*, boiled in *Wort*, well dried, and kept in a little Bundle of *Barley-Straw*, and then steeped again in *Wort*, causes it to ferment, and procures *Yest*: The Rod should be cut before *Mid-May*, and is frequently used in this manner to furnish *Yest*, and being preserved, will serve, and produce the same Effect many Years together; and (as the *Historian* affirms) that he was shew'd a Piece of a thick *Wyth*, which had been kept for making *Ale* with for above twenty Years, &c. In the mean Time, the *Leaves* of *Oaks* abundantly congested on *Snow*, preserve it as well for *Wine*, as a deep *Pit*, or the most artificial *Refrigeratory*. Nor must we pass by the sweet *Mel-dews*, so much more copiously found on the *Leaves* of this Tree than any other; whence the industrious *Bees* gather such abundance of *Honey*, as that instead of carrying it to their *Hives*, they glut themselves to Death: But from this ill Report (hastily taken up by *Euricius Cordus*) our learned Mr. *Ray* has vindicated this temperate and abstemious useful Creature. *Varro* affirms, they made *Salt* of *Oak* Ashes, with which they sometimes seasoned *Meat*, but more frequently made use of it to sprinkle among, and fertilize their *Seed-Corn*: Which minds me of a certain *Oak* found buried some where in *Transylvania*, near the *Salt-Pits*, that was entirely converted into an hard *Salt*, when they came to examine it by cutting. This *Experiment* (if true) may possibly encourage some other Attempts for the multiplying of *Salt*: Nor less strange is that which some report of a certain *Water* some where in *Hungary*, which transmutes the *Leaves* of this Tree into *Brass*, and *Iron* into *Copper*. Of the *Galls* is made trial of *Spaw-water*, and the *Ground* and *Basis* of several *Dies*, especially sadder Colours, and are a great Revenue to those who have Quantities of them: Nor must I forget *Ink*, composed of *Galls* ʒiij, *Copperas* ʒij, *Gum-Arabic* ʒi: Beat the *Galls* grossly, and put them into a Quart of *Claret*, or *French-Wine*, and let them soak for eight or nine Days, setting the Vessel (an earthen glazed Pitcher is best) in the hot Sun, if made in Summer; in Winter near the Fire, stirring it frequently with a wooden Spatula: Then add the *Copperas* and *Gum*, and after it has stood a Day or two, it will be fit to use. There are a world of Receipts more, of which see *Caneparius de Atramentis*. Of the very *Moss* of the *Oak*, that which is *white*, composes the choicest *Cypress-Powder*,

Book I. *der*, which is esteemed good for the Head; but *Impostors* familiarly vend other *Mosses* under that Name, as they do the *Fungi* (excellent in *Hemorrhages* and *Fluxes*) for the true *Agaric*, to the great Scandal of *Physick*. Young red *oaken* Leaves decocted in *Wine*, make an excellent *Gargle* for a sore *Mouth*; and almost every Part of this *Tree* is soveraign against *Fluxes* in general, and where *Astringents* are proper. The *Dew* that impearls the Leaves in *May*, insolated, *meteorizes* and sends up a *Liquor*, which is of admirable Effect in *Ruptures*: The *Liquor* issuing out between the *Bark* (which looks like *Treacle*) has many soveraign Vertues; and some affirm, the Water stagnate in the hollow Stump of a newly fell'd *Oak*, is as effectual as *Lignum Sanctum* in the Foul Disease, and also stops a *Diarrhæa*: And a *Water* distill'd from the *Acorns*, is good against the *Pthisick*, *Stitch* in the Side, and heals inward *Ulcers*, breaks the *Stone*, and refrigerates *Inflammations*, being applied with Linnen dipp'd therein: Nay, the *Acorns* themselves eaten fasting, kill the *Worms*, provoke *Urine*, and (some affirm) break even the *Stone* it self. The *Coals* of *Oak* beaten and mingled with *Honey*, cures the *Carbuncle*; to say nothing of the *Viscus's*, *Polypods*, and other *Excreescences*, of which innumerable Remedies are composed, noble *Antidotes*, *Syrups*, &c. Nay, 'tis reported, that the very *Shade* of this *Tree* is so wholesome, that the *sleeping*, or lying under it, becomes a present *Remedy* to *Paralyticks*, and recovers those whom the mistaken malign Influence of the *Walnut-tree* has smitten: But what is still more strange, I read in one *Paulus*, a *Physician* of *Denmark*, That an Handful or two of small *Oak* Buttons, mingled with *Oats*, given to *Horses* which are black of Colour, will in few Days eating alter it to a fine *Dapple Grey*, which he attributes to the *Vitriol* abounding in this *Tree*. To conclude; And upon serious Meditation of the various Uses of this and other *Trees*, we cannot but take Notice of the admirable Mechanism of *Vegetables* in general, as in particular in this *Species*; that by the Diversity of *Percolations* and *Strainers*, and by *Mixtures*, as it were of Divine *Chymistry*, various *Concoctions*, &c. the *Sap* should be so green on the indented *Leaves*, so lustily *esculent* for hardier and rustick Constitutions in the *Fruit*; so flat and pallid in the *Atramental Galls*; and haply, so prognostick in the *Apple*; so suberous in the *Bark* (for even the *Cork-tree* is but a coarser *Oak*) so ouzie in the *Tanner's-Pit*; and in that Subduction so wonderfully *specifick* in corroborating the *Entrails* and *Bladder*, *Reins*, *Loins*, *Back*, &c. which are all but the Gifts and Qualities, with many more, that these robust *Sons of the Earth* afford us; and that in other *Specificks*, even the most despicable and vulgar *Alder* imparts to us in its *Rind*, *Leaves*, *Buds*, *Blossoms*, *Berries*, *Ears*, *Pith*, *Bark*, &c. Which Hint may also carry our Remarks upon all the Varieties of *Shape*, *Leaf*, *Seed*, *Fruit*, *Timber*, *Grain*, *Colour*, and all those other *Forms* that *Philosophers* have enumerated; but which were here too many for us to repeat. In a Word, so great and universal is the Benefit and Use of this *Poly-Crest*, that they have prohibited the transporting it out of *Norway*, where there grows abundance. Let us end with the Poet:

Of the Ilex
and Cork
(reckon'd a-
mong the
Glandiferus)
see Book ii.
Cap. v. and

of the sacred and mysterious Mistletoe, Book iii. Cap. i. See also more of *Quercus*, Mr. Ray's *Hist. Plan.* Tom. iii. Cap. de *Quercus*, Tom. ii. p. 1390.

^a *When Ships of bloody Combat we prepare,
Oak affords Plank, and arms our Men of War;
Maintains our Fires, makes Ploughs to till the Ground:
For Use no Timber like the Oak is found.*

CHAP. IV.

Of the Elm.

1. **U***lmus* the *Elm*, there are *four* or *five* Sorts, and from the Difference of the *Soil* and *Air* divers *spurious*: Two of these Kinds are most worthy our Culture, the *Vulgar*, viz. the *Mountain Elm*, which is taken to be the *Oriptelea* of *Theophrastus*; being of a less jagged and smaller Leaf; and the *Vernacula*, or *French Elm*, whose Leaves are thicker, and more florid, *glabrous* and smooth, delighting in the lower and moister Grounds, where they will sometimes rise to above an hundred Foot in Height, and a prodigious Growth, in less than an *Age*; my self having seen one planted by the Hand of a *Countess* living not long since, which was near twelve Foot in *Compass*, and of an *Height* proportionable; notwithstanding the numerous Progeny which grew under the Shade of it, some whereof were at least a Foot in *Diameter*, that for want of being seasonably *transplanted*, must needs have hindered the Procerity of their ample and indulgent *Mother*: I am persuaded some of these were *Viviradices* & *Traduces*, produced of the falling *Seeds*.

ELM.

2. For though both these Sorts are raised of *Appendices*, or *Suckers*, (as anon we shall describe) yet this latter comes well from the *Samara*, or *Seeds*, and therefore I suppose it to be the antient *Atinia*, for such an *Elm* they acknowledge to be raised of *Seeds*, which being ripe about the beginning of *March* (though frequently not till the following Month) will produce them; as we might have seen abundantly in the *Gardens* of the *Thulleries* and that of *Luxemburg* at *Paris*, where they usually sow themselves, and come up very thick; and so do they in many Places of our Country, though so seldom taken notice of, as that it is esteem'd a *Fable* by the less observant and ignorant *Vulgar*: Let it therefore be tried in Season, by turning and raking some fine Earth, often refreshed, under some amply spreading Tree, or to raise them of their *Seeds* (being well dried a Day or two before) sprinkled on Beds prepared of good loamy fresh Earth, and sifting some of the finest Mould thinly over them, and watering them when Need requires. Being risen (which may be within four or five Months) an Inch above Ground (refreshed and preserved from the scraping of *Birds* and *Poultry*) comfort the tender Seedlings by a second sifting of more fine Earth, to establish them; thus keep them clean *weeded* for the first *two Years*, and cleansing the Side-boughs; or till being of fitting Stature to remove into a *Nursery* at wider Intervals and even Rows, you may *thin* and *transplant* them in the same Manner as you were directed for young *Oaks*; only they

^a Si quando armandæ naves, & bella paranda,
Det quercus nautis tabulata, det arma furori
Bellantum; det ligna foco, det aratra colono
Aut aliis aliis porro sumatur in usus.

BOOK I. shall not need above one Cutting, where they grow less regular and hopeful. But because this is an *Experiment* of some *Curiosity*, obnoxious to many Casualties, and that the producing them from the *Mother-roots* of greater Trees is very facile and expeditious (besides the Numbers which are to be found in the *Hedge-rows* and *Woods*, of all plantable Sizes) I rather advise our *Forester* to furnish himself from those Places.

3. The *Suckers* which I speak of, are produced in abundance from the *Roots*, whence being *dextrously* separated, after the Earth has been well loosened, and planted about the End of *October*, they will grow very well; nay, the *Stubs* only, which are left in the Ground after a *Felling* (being fenced in as far as the *Roots* extend) will furnish you with Plenty, which may be *transplanted* from the *first Year* or *two*, successively, by slipping them from the *Roots*, which will continually supply you for many Years, after that the Body of the Mother-tree has been cut down: And from hence probably is sprung that (I fear) Mistake of *Salmasius* and others, where they write of the growing of their *Chips* (I suppose having some of the Bark on) scatter'd in hewing of their *Timber*; the Error proceeding from this, that after an *Elm-tree* has been *fell'd*, the numerous *Suckers*, which shoot from the Remainders of the *latent* *Roots*, seem to be produced from this Dispersion of the *Chips*: Let this yet be more accurately examined; for I pronounce nothing *magisterially*, since it is so confidently reported.

4. I have known *Stakes* sharpen'd at the Ends for other Purposes, take root familiarly in moist Grounds, and become Trees; and divers have essay'd, with extraordinary Success, the *Trunchions* of the Boughs and Arms of *Elms* cut to the scantling of a Man's Arm, about an *Ell* in Length. These must be chopp'd on each Side opposite, and laid into *Trenches* about half a Foot deep, covered about two or three Fingers deep with good Mould. The Season for this Work is towards the *Exit* of *January*, or early in *February*, if the Frosts impede not; and after the first Year, you may cut or saw the *Trunchions* off in as many Places as you find Cause, and as the Shoots and rooted Sprouts will direct you for *Transplantation*. Another Expedient for the Propagation of *Elms* is this: Let *Trenches* be sunk at a good Distance (*viz.* twenty or thirty Yards) from such Trees as stand in *Hedge-rows*, and in such Order as you desire your *Elms* should grow: Where these Gutters are, many young *Elms* will spring from the small *Roots* of the adjoining Trees. Divide (after one Year) the Shoots from their Mother-roots (which you may dextrously do with a sharp *Spade*) and these *transplanted*, will prove good Trees without any Damage to their Progenitors. Or do thus, lop a young *Elm*, the *Lop* being about three Years Growth; do it in the latter End of *March*, when the Sap begins to creep up into the Boughs, and the Buds ready to break out; cut the Boughs into Lengths of four Foot slanting, leaving the *Knot* where the *Bud* seems to put forth in the Middle: Inter these short Pieces in *Trenches* of three or four Inches deep, and in good Mould well trodden, and they will infallibly produce you a Crop; for even the smallest *Suckers* of *Elms* will grow, being set when the Sap is newly stirring in them. There is yet a *fourth* Way no less expeditious, and frequently confirmed with excellent Success; *Bare* some of the Master-Roots of a vigorous Tree within a Foot of the *Trunk*, or thereabouts, and with your *Axe* make several Chops, putting a small Stone into every *Cleft*, to hinder their Closure, and give

Access

Access to the Wet; then cover them with three or four Inch-thick of Earth; and thus they will send forth Suckers in abundance (I assure you, one single *Elm* thus well ordered, is a fair *Nursery*) which after two or three Years you may separate and plant in the *Ulmarium*, or Place designed for them; and which if it be in *Plumps* (as they call them) within ten or twelve Foot of each other, or in *Hedge-rows*, it will be the better: For the *Elm* is a Tree of Consort, sociable, and so affecting to grow in Company, that the very best which I have ever seen, do almost touch one another: This also protects them from the Winds, and causes them to shoot of an extraordinary *Height*; so as in little more than forty Years, they even arrive to a Load of *Timber*, provided they be sedulously and carefully cultivated, and the Soil propitious. For an *Elm* does not thrive so well in the *Forest*, as where it may enjoy Scope for the Roots to dilate and spread at the Sides, as in *Hedge-rows* and *Avenues*, where they have the *Air* likewise free: Note, That they spring abundantly by *Layers* also.

5. There is besides these Sorts we have named, one of a more scabrous harsh Leaf, but very large, which becomes an huge *Tree* (frequent in the Northern Counties) and is distinguished by the Name of the *Witch-hazel* in our *Statute Books*, as serving formerly to make *long Bows* of; but the *Timber* is not so good as the *first* more vulgar; but the *Bark* at Time of Year, will serve to make a coarse *Bast-rope* with.

6. Of all the *Trees* which grow in our *Woods*, there is none which does better suffer the Transplantation than the *Elm*; for you may remove a *Tree* of twenty Years Growth with undoubted Success: It is an Experiment I have made in a *Tree* almost as big as my Waist; but then you must totally *disbranch* him, leaving only the *Summit* entire; and being careful to take him up with as much Earth as you can, refresh him with abundance of Water. This is an excellent and expeditious Way for Great Persons to plant the *Accesses* of their Houses with; for being disposed at sixteen or eighteen Foot *Interval*, they will in a few Years bear goodly Heads, and thrive to Admiration. Some that are very cautious, *emplaster* the Wounds of such over-grown *Elms* with a Mixture of *Clay* and *Horse-dung*, bound about them with a Wisp of *Hay* or fine *Moss*, and I do not reprove it, provided they take Care to temper it well, so as the *Vermin* nestle not in it. But for more ordinary Plantations, younger *Trees*, which have their *Bark* smooth and tender, clear of *Wens* and *tuberous Bunches* (for those of that Sort seldom come to be stately *Trees*) about the Scantling of your Leg, and their Heads trimmed at five or six Foot Height, are to be preferred before all other. *Cato* would have none of these Sorts of *Trees* to be removed till they are five or six Fingers in *Diameter*; others think they cannot take them too young; but Experience (the best *Mistress*) tells us, that you can hardly Plant an *Elm* too big. There are who pare away the *Root* within two Fingers of the *Stem*, and quite cut off the *Head*; but I cannot commend this extream Severity, no more than I do the strewing of *Oats* in the Pit; which *fermenting* with the Moisture and frequent *Waterings*, is believed much to *accelerate* the putting forth of the *Roots*; not considering that for Want of *Air* they corrupt and grow musty, which more frequently suffocates the *Roots*, and endangers the whole *Tree*.

7. I have affirmed how patient this *Tree* is of *Transplantation*; not only for that I observe so few of them to grow wild in *England*, and where it may not be suspected, but they or their Predecessors have been planted by some industrious Hand; but for that, those incomparable

Book I. *Walks and Vistas* of them, both at *Aranjuez*, *Casal del Campo*, *Madrid*, the *Escorial*, and other Places of Delight, belonging to the King and *Grandees* of Spain, are planted with such as they report *Philip* the Second caused to be brought out of *England*; before which (as that most Honourable Person, the *Earl of Sandwich*, when his Majesty's *Ambassador Extraordinary* at that Court, writ to me) it does not appear there were any of those *Trees* in all Spain. But of that *Plantation*, see it more particularly described in *Chapter VIII. Book III.* of this Discourse, whither I refer my *Reader*: Whilst (as to my own Inclination) I know of no *Tree* amongst all the *Foresters*, becoming the almost interminat *Lontananza* of *Walks and Vistas*, comparable to this majestick Plant: But let us hear it as sweetly advised as described.

^a *An Elm for graceful Verdure, bushy Bough,
A lofty Top, and a firm Rind allow.
Plant Elm in Borders, on the Grass-Plots List,
Branches of Elm into thick Arbours twist;
A Gallery of Elm draw to the End,
That Eyes can reach, or a breath'd Race extend.*

8. The *Elm* delights in a *sound, sweet and fertile Land*, something more inclined to *loamy Moisture*, and where good *Pasture* is produced; though it will also prosper in the *gravelly*, provided there be a competent *Depth of Mould*, and be refreshed with *Springs*; in Defect of which, being planted on the very *Surface* of the *Ground* (the *Swarth* pared first away, and the *Earth* stirred a *Foot* deep or more) they will undoubtedly succeed; but in this *Trial*, let the *Roots* be handsomely spread, and covered a *Foot* or more in *Height*, and above all, firmly staked. This is practicable also for other *Trees*, where the *Soil* is overmoist or unkind: For as the *Elm* does not thrive in too *dry, sandy, or hot* Grounds, no more will it abide the *cold* and *spungy*; but in Places that are competently fertile, or a little elevated from these Annoyances, as we see in the *Mounds*, and casting up of *Ditches*, upon whose Banks the *Female Sort* does more naturally delight; though it seems to be so much more addicted to *some* Places than to *others*, that I have frequently doubted, whether it be a pure *Indigene* or *Translatitious*; and not only because I have hardly ever known any considerable *Woods* of them (besides some few *Nurseries* near *Cambridge*, planted I suppose for *Store*) but almost continually in *Tufts*, *Hedge-rows* and *Mounds*; and that *Shropshire*, and several other Counties, and rarely any beyond *Stamford* to *Durham*, have any growing in many Miles together: Indeed *Camden* mentions a Place in *Yorkshire*, called *Elmet*; and *V. Bede, Eccl. Hist. l. xi. c. xiv.* (speaking of a Fire happening there, and describing of the Harm it did thereabout, *Ulmarium* or *Ulmelum*) *Evasit autem Ignem Altare, quia lapidum erat, & servatur adhuc in Monasterio R. Abbatis & Presbyteri Thrythwulf, quod in Sylva Elmete est*; but

^a Ut viror est ulmo letus, ramique comantes,
Arduus, atra petens & levi cortice truncus.
Ulmum adhibe ordinibus, quoties fudenda per hortum,
Sunt serie spatia ingenti, texendaque totis
Æstivos contra soles umbracula campis:
Una alias inter texendis aptior ulmus
Marginibus spatiorum, exornandoque vireto.
Seque adeo series, plano super æquore, tendat
Ulmorum tractu longo; quantum ipsa tuentum
Lumina, vel gressus valeant lustrare sequentum.

neither does this speak it miraculous (for the *Altar* it seems was *Stone*) or that the *Elms* grew spontaneously. In the mean time, some affirm they were first brought out of *Lombardy*, where indeed I have observed very goodly Trees about the rich Grounds, with *Pines* among them, *vitelus almi*; for I hear of none either in *Saxony* or *Denmark*, nor in *France* (growing wild) who all came and preyed upon us after the *Romans*. But leaving this to the Learned.

9. The *Elm* is, by reason of its aspiring and tapering Growth (unless it be *topp'd* to enlarge the *Branches*, and make them spread low) the least offensive to Corn and *Pasture-grounds*; to both which, and the *Cattle*, they afford a benign *Shade*, *Defence*, and agreeable *Ornament*: But then as to *Pastures*, the wandering Roots (apt to infect the Fields and Grass with innumerable *Suckers*) the leading *Mother-root* ought to be quite separated on that Part, and the *Suckers* irradiated. The like should be done where they are placed near Walks of *Turf* or *Gravel*.

10. It should be planted as *shallow* as might be; for as we noted, deep *interring* of *Roots* is amongst the *Catholick* Mistakes; and of *this* the greatest to which *Trees* are obnoxious. Let new-planted *Elms* be kept moist by frequent Refreshings upon some half-rotten *Fern* or *Litter* laid about the Foot of the *Stem*; the Earth a little stirred and depressed for the better Reception and Retention of the *Water*.

11. *Lastly*, Your Plantation must above all things be carefully preserved from *Cattle* and the Concussions of impetuous *Winds*, till they are out of reach of the *one*, and sturdy enough to encounter the *other*.

12. When you *lop* the Side-boughs of an *Elm* (which may be about *January* for the *Fire*, and more frequently, if you desire to have them *tall*, or that you would form them into *Hedges*, for so they may be kept *plashed*, and thickned to the highest Twig, affording both a magnificent and august Defence against the *Winds* and *Sun*) I say, when you trim them, be careful to indulge the *Tops*, for they protect the *Body* of your *Trees* from the *Wet*, which always invades those Parts first, and will in Time *perish* them to the very Heart; so as *Elms* beginning thus to decay, are not long prosperous. Sir *Hugh Plat* relates (as from an expert *Carpenter*) that the Boughs and Branches of an *Elm* should be left a Foot long next the *Trunk* when they are *lopped*; but this is, to my certain Observation, a very great Mistake either in the *Relator* or *Author*; for I have noted many *Elms* so disbranched, that the remaining *Stubs* grew immediately *hollow*, and were as so many *Conduits*, or *Pipes*, to hold, and convey the *Rain* to the very *Body* and *Heart* of the *Tree*.

13. There was a *Cloyster* of the right *French Elm* in the little *Garden* near to Her Majesty's the Queen-Mother's Chappel at *Somerſet-houſe*, which were (I suppose) planted *there* by the Industry of the *F. F. Capuchines*, that would have directed you to the incomparable Use of this noble *Tree* for *Shade* and *Delight*, into whatever *Figure* you will accustom them. I have my self procured some of them from *Paris*, but they were so abused in the Transportation, that they all *perish'd* save *one*, which now flourishes with me: I have also lately grafted *Elms* to a great Improvement of their Heads. *Virgil* tells us they will join in Marriage with the *Oak*, and they would both be tried; and that with the more probable Success, for such *lignous* Kinds, if you *graft* under the Earth, *upon* or *near* the very *Root* it self, which is likely to enter-

BOOK I. tain the *Cyon* better than when more exposed, till it be well fixt, and have made some considerable Progress.

14. When you would *fell*, let the *Sap* be perfectly in Repose, as it is commonly about *November* or *December*, even to *February*, after the *Frost* hath well nipped them: I have already alledged my Reason for it; and I am told, that both *Oak* and *Elm* so cut, the very *Saplings* (whereof *Rafters*, *Spars*, &c. are made) will continue as long as the very *Heart* of the *Tree*, without Decay. In this Work, cut your *Kerfe* near to the Ground; but have a Care that it suffer not in the *Fall*, and be ruined with its own Weight: This depends upon your *Wood-man's* Judgment in *disbranching*, and is a necessary Caution to the *felling* of all other *Timber-trees*. If any begin to *doat*, pick out such for the *Ax*, and rather trust to its *Successor*: And if cutting over-late, by floating them two or three Months in the *Water*, it prevents the *Worm*, and proves the best of *Seasons*.

USES.

15. *Elm* is a *Timber* of most singular Use, especially where it may lie continually *dry* or *wet*, in Extreams; therefore proper for *Water-works*, *Mills*, the *Ladles* and *Soles* of the *Wheel*, *Pipes*, *Pumps*, *Aquæ-duçts*, *Pales*, *Ship-planks* beneath the *Water-line*; and some that has been found buried in *Bogs* has turned like the most polished and hardest *Ebony*, only discerned by the Grain: Also for *Wheel-wrights*, *Handles* for the *single Hand-saw*, *Rails* and *Gates* made of *Elm* (thin sawed) is not so apt to rive as *Oak*: The knotty for *Naves*, *Hubs*; the straight and smooth for *Axle-trees*, and the very *Roots* for curiously dappled Works, scarce has any Superior for *Kerbs* of *Coppers*, *Feather-edge* and *Weather-boards* (but it does not without Difficulty admit the *Nail* without *boring*) *Chopping-blocks*, *Blocks* for the *Hat-maker*, *Trunks* and *Boxes* to be covered with *Leather*; *Coffins*, for *Dressers* and *Shovelboard-tables* of great Length, and a lustrous Colour, if rightly seasoned; also for the *Carver*, by reason of the Tenor of the Grain, and Toughness which fits it for all those curious Works of *Frutages*, *Foliage*, *Shields*, *Statues*, and most of the Ornaments appertaining to the *Orders* of *Architecture*, and for not being much subject to warping; I find that of old, they used it even for *Hinges* and *Hooks* of *Doors*; but then, that Part of the *Plank* which grew towards the Top of the *Tree*, was in Work to be always reversed; and for that it is not so subject to rift; *Virtruvius* commends it both for *Tenons* and *Mortaises*; but besides these, and sundry other Employments, it makes also a second Sort of *Charcoal*; and finally (which I must not omit) the Use of the very *Leaves* of this *Tree*, especially of the *Female*, is not to be despised; for being suffered to dry in the *Sun* upon the Branches, and the *Spray* stripped off about the *Decrease* in *August* (as also where the *Suckers* and *Stolones* are supernumerary, and hinder the thriving of their *Nurses*) they will prove a great Relief to *Cattle* in *Winter*, and Scorching *Summers*, when *Hay* and *Fodder* is dear, they will eat them before *Oats*, and thrive exceedingly well with them; remember only to lay your *Boughs* up in some dry and sweet Corner of your *Barn*: It was for this the *Poet* praised them, and the *Epithet* was advised.

a ——— Fruitful in Leaves the *Elm*.

In some Parts of *Herefordshire* they gather them in Sacks for their *Swine*, and other *Cattle*, according to this *Husbandry*. But I hear an

ill Report of them for *Bees*, that surfeiting of the blooming *Seeds*, they are obnoxious to the *Lask*, at their first going Abroad in *Spring*, which endangers whole *Stocks*, if *Remedies* be not timely adhibited; therefore 'tis said in great *Elm* Countries they do not thrive; but the Truth of which I am yet to learn. The green Leaf of the *Elms* contused, heals a green *Wound* or *Cut*, and boiled with the *Bark*, consolidates fractured *Bones*. All the Parts of this *Tree* are *abstersive*, and therefore sovereign for the consolidating *Wounds*; and assuage the Pains of the *Gout*: But the *Bark* decocted in common Water, to almost the Consistence of a *Syrup*, adding a third Part of *Aqua Vitæ*, is a most admirable Remedy for the *Ischiadica* or *Hippain*, the Place being well rubbed and chafed by the Fire. Other wonderful Cures performed by the *Liquor*, &c. of this *Tree*, see Mr. *Ray's History of Plants*, Lib. xxv. Cap. i. Sect. 5. And for other *Species* of the *Elm*, his *Supplement*, Tom. iii. ad Cap. de ulmo. Tom. ii. p. 1428.

CHAP. V.

Of the Beech.

1. **T**HE *Beech* [*Fagus*] (of two or three Kinds) and numbred BEECH. amongst the glandiferous Trees, I rank here before the *Martial Ash*, because it commonly grows to a greater Stature. But here I may not omit a *Note* of the accurate *Critic Palmerius*, upon a Passage in *Theophrastus*, where he animadverts upon his *Interpreter*, and shews Exercit. in Theophrasti. l. iii. c. ix. that the antient *Φηγὸς* was by no means the *Beech*, but a Kind of *Oak*; for that the Figure of the *Fruit* is so widely unlike it, *that* being round, *this* triangular; and both *Theophrastus* and *Pausanias* make it indeed a In Arcad. Species of *Oak*, (as already we have noted in *Chap. iii.* wholly differing in *Trunk*, as well as *Fruit* and *Leaf*; to which he adds (what determines the Controversy) *ξύλον τῆς φηγὸς ἰσχυρότατον καὶ ἀσπίσιον*, &c. That it is of a firmer Timber, not obnoxious to the *Worm*; neither of which can so confidently be said of the *Beech*. Yet *La Cerda* too seems guilty of the same Mistake: But leaving this, there are of our *Fagi*, two or three Kinds with us, the *Mountain* (where it most affects to grow) which is the whitest, and most sought after by the *Turner*; and the *Campestral*, or wild, which is of a blacker Colour, and more durable. They are both to be raised from the *Mast*, and govern'd like the *Oak* (of which amply) and that is absolutely the best Way of furnishing a *Wood*; unless you will make a *Nursery*, and then you are to treat the *Mast* as you are instructed in the *Chapter of Ashes*, sowing them in *Autumn*, or later, even after *January*, or rather nearer the *Spring*, to preserve them from *Vermin*, which are very great Devourers of them. But they are likewise to be planted of young *Seedlings*, to be drawn out of the Places where the fruitful Trees abound. In transplanting them, cut off only the Boughs and bruised Parts two Inches from the *Stem*, to within a Yard of the *Top*, but be very sparing of the *Root*; this for such as are of pretty Stature. They make spreading Trees, and noble *Shades* with their well furnish'd and glistering *Leaves*, being set at forty Foot Distance, but they grow taller, and more upright in the *Forests*, where I have beheld them at eight and ten Foot, shoot into very long *Poles*; but neither so apt for *Timber* nor *Fuel*: The *Shade* unpropitious

BOOK I. tious to *Corn* and *Grass*, but sweet, and of all the rest, most refreshing to the weary *Shepherd* — *Lentus in umbra, Echoing Amaryllis* with his *Oaten Pipe*. *Mabillon* tells us, in his *Itinerary*, of the old *Beech* at *Villambrosa*, to be still flourishing (and greener than any of the rest) under whose Umbrage the famous *Eremit Gualbertus* had his *Cell*.

This Tree planted in *Pallisade*, affords a useful and pleasant Skreen to shelter *Orange* and other tender *Cafe-trees* from the parching Sun, &c. growing very tall, and little inferior to the *Horn-beam*, or *Dutch-Elm*. In the Valleys (where they stand warm, and in Confort) they will grow to a stupendous *Procerity*, though the Soil be stony and very barren: Also upon the *Declivities*, Sides, and Tops of high *Hills*, and *Chalky Mountains* especially; for though they thrust not down such deep and numerous Roots as the *Oak*, and grow to vast Trees, they will strangely insinuate their *Roots* into the Bowels of those seemingly impenetrable Places, not much unlike the *Fir* it self, which with *this* so common Tree, the Great *Cæsar* denies to be found in *Brittany*; *Materia cujusque generis, ut in Gallia, præter Fagum & Abietem*; but certainly from a grand Mistake, or rather, for that he had not travelled much up into the Country: Some will have it *Fagus* instead of *Ficus*, but that was never reckon'd among the *Timber-trees*: *Virgil* reports it will graff with the *Chestnut*.

USES.

2. The *Beech* serves for various Uses of the *Housewife*;

^a Hence, in the *World's best Years*, the humble Shed
Was happily and fully furnished:

Beech made their Chests, their Beds and the Joyn'd-Stools;
Beech made the Board, the Platters, and the Bowls.

With it the *Turner* makes *Dishes*, *Trays*, *Rims* for *Buckets*, and other Utensils, *Trenchers*, *Dresser-boards*, &c. likewise for the *Wheeler*, *Joyner*, for large *Screws*; and *Upholster* for *Sellies*, *Chairs*, *Stools*, *Bedsteads*, &c. for the *Bellows-maker*, and *Husbandman* his *Shovel* and *Spade-graffs*; *Floats* for *Fishers Nets* instead of *Corks*, is made of its *Bark*; for *Fuel*, *Billet*, *Bavin* and *Coal*, though one of the least lasting; not to omit even the very *Shavings* for the *Fining* of *Wines*. *Peter Crescentius* writes, that the *Ashes* of *Beech*, with proper Mixture, is excellent to make *Glass* with. If the *Timber* lie altogether under *Water*, 'tis little inferior to *Elm*, as I find it practised and asserted by *Shipwrights*: Of old they made their *Vasa Vinde-miatoria* and *Corbes Messoria* (as we our Pots for *Strawberries*) with the *Rind* of this *Beech*, nay, and Vessels to preserve *Wine* in, and that curiously wrought *Cup* which the *Shepherd* in the *Bucolicks* wagers withal, was engraven by *Alcimedon* upon the *Bark* of this Tree: And an happy Age it seems:

^b ————— no Wars did Men molest,
When only Beechen-Bowls were in Request.

^a Hinc olim juvenis Mundi melioribus annis,
Fortunatarum domuum non magna Supellex
Tota petebatur; Sellas Armaria, Lectos,
Et Menfas dabat, & Lances & Pocula Fagus, &c.

COULEII PL. l. ix.

^b ————— nec Bella fuerunt,
Faginus estabat dum Scyphus ante dapes.

TIBUL.

Of the thin *Lamina*, or *Scale*, of this Wood (as our *Cutlers* call it) are made *Scabards* for Swords, and *Band-boxes*, superinduc'd with thin *Leather* or *Paper*, *Boxes* for *Writings*, *Hat-cases*, and formerly *Book-Covers*. I wonder we cannot *split* it our selves, but send into other *Countries* for such *Trifles*. In the Cavities of these *Trees*, *Bees* much delight to hive themselves: Yet for all this, you would not wonder to hear me deplore the so frequent Use of this *Wood*, if you did consider that the Industry of *France* furnishes that Country for all *Domestick Utensils* with excellent *Walnut*, a Material infinitely preferable to the best *Beech*, which is indeed good only for *Shade* and for the *Fire*, as being brittle, and exceedingly obnoxious to the *Worm*, where it lies either *dry*, or *wet* and *dry*, as has been noted; but being put ten Days in *Water*, it will exceedingly resist the *Worm*: To which, as I said, it is so obnoxious, that I wish the Use of it were, by a *Law*, prohibited all *Joyners*, *Cabinet-makers*, and such as furnish *Tables*, *Chairs*, *Bedsteads*, *Coffers*, *Screws*, &c. They have a Way to black and polish it, so as to render it like *Ebony*, and with a Mixture of *Soot* and *Urine*, imitate the *Walnut*; but as the Colour does not last, so neither does the Wood it self (for I can hardly call it *Timber*) soon after the *Worm* has seized it, unless one *sponge* and imbibe it well with the *Oyl* of *Spike*, where they have made *Holes*. *Ricciolus* indeed much commends it for *Oars*; and some say, that the vast *Argo* was built of the *Fagus*, a good Part of it at least, as we learn out of *Apollonius*; this will admit of Interpretation; the *Fagus* yet by *Claudian* is mentioned with the *Alder*,

a So he that to export o'er Sea his Wares,
A Vessel builds, and to expose prepares
His Life to Storms, first Beech and Alder cuts,
And measuring them, to various Uses puts.

But whilst we thus condemn the *Timber*, we must not omit to praise the *Mast*, which fatts our *Swine* and *Deer*, and hath in some Families even supported Men with * Bread: *Chios* indured a memorable Siege by the Benefit of this *Mast*; and in some Parts of *France* they now grind the *Buck* in *Mills*: It affords a sweet *Oyl*, which the poor People eat most willingly: But there is yet another Benefit which this Tree presents us; that its very *Leaves* (which make a natural and most agreeable *Canopy* all the Summer) being gathered about the Fall, and somewhat before they are much *Frost-bitten*, afford the best and easiest *Mattresses* in the World to lay under our *Quilts* instead of *Straw*; because, besides their *Tenderness* and loose lying together, they continue sweet for seven or eight Years long, before which Time *Straw* becomes musty and hard; they are thus used by divers Persons of Quality in *Dauphine*; and in *Switzerland* I have sometimes lain on them to my great Refreshment; so as of this Tree it may properly be said,

b The Wood's an House; the Leaves a Bed.

a Sic qui vecturus longinqua per æquora merces
Molitur tellure ratem, vitæque procellis
Objectare parat, Fagos metitur, & Alnos,
At varium rudibus silvis accommodat usum, &c.

b ———— Silva domus, cubilia frondes,

BOOK I. Being pruned, it heals the *Scar* immediately, and is not apt to put forth so soon again as other Trees.

The stagnate *Water* in the hollow *Trees* cures the most obstinate *Tetters*, *Scabs* and *Scurfs*, in *Man* or *Beast*, fomenting the Part with it; and the *Leaves* chewed, are wholsome for the *Gums* and *Teeth*, for which the very *Buds*, as they are in Winter hardned and dried upon the Twigs, make good *Tooth-pickers*. *Swine* may be driven to *Mast* about the End of *August*: But it is observed, that where they feed on't before it be mature, it intoxicates them for a while; and that generally their Fat is not so good and solid, but drips away too soon. In the mean Time, the *Kernels* of the *Mast* are greedily devoured by *Squirrels*, *Mice*, and above all, the *Dormice*, who harbouring in the hollow Trees, grow so fat, that in some Countries Abroad, they take infinite Numbers of them (I suppose) to eat; and what Relief they give *Thrushes*, *Black-birds*, *Feldefares* and other Birds, every Body knows. See *Mithiolus* in *Discord*. Lib. i. of what they suffer in *Carinthia*, *Carniola*, and *Itiria*. Supplement to this *Transact*. Vid. *Ray's* Tom. iii. Lib. xxv. *Dendrologia Fugo*. Tom. ii. p. 1382.

CHAP. VI.

Of the Horn-beam.

HORN-
BEAM.

1. *Ostrys*, the *Horn-beam*, (by some called the *Horse-Beech*, from the Resemblance of the Leaf) in *Latin* (ignorantly) the *Carpinus* is planted of *Sets*; though it may likewise be raised from the *Julas* and *Seeds*, which being mature in *August*, should be sown in *October*, and will lie a Year in the *Bed*, which must be well and carefully shaded so soon as they peep: But the more expeditious Way is by *Layers* or *Sets*, of about an Inch *Diameter*, and cut within half a Foot of the Earth: Thus it will advance to a considerable Tree. The Places it chiefly desires to grow in are in cold *Hills*, stiff Ground, and in the barren and most exposed Parts of *Woods*. We have it no where more abounding in the *South*, than in the Woods of *Hertfordshire*; very few *Westward*.

USES.

2. Amongst other Uses which it serves for, as *Mill-Cogs*, &c. (for which it excels either *Tew* or *Crab*) *Toak-timber* (whence of old, and for that it was as well flexible as tough, 'twas called *ζυγία*) Heads of *Beetles*, Stocks and Handles of *Tools*: It is likewise for the *Turner's* Use excellent; good *Fire-wood*, where it burns like a *Candle*, and was of old so employed;

Carpinus tadas fissa faciesque dabit.

(For all which Purposes its extream Toughness and Whiteness commends it to the *Husbandman*). Being planted in small *Fosses* or *Trenches*, at half a Foot Interval, and in the single Row, it makes the noblest and the stateliest *Hedges* for long Walks in *Gardens*, or *Parks*, of any Tree whatsoever whose Leaves are *deciduous*, and forsake their Branches in Winter; because it grows tall, and so sturdy, as not to be wronged by the Winds: Besides, it will furnish to the very Foot of the *Stem*, and flourishes with a glossie and polished *Verdure*, which is exceeding delightful, of long Continuance, and of all other the harder Woods, the speediest

speediest Grower ; maintaining a slender upright *Stem*, which does not come to be bare and sticky in many Years ; it has yet this (shall I call it) *Infirmity*, that keeping on its *Leaf* till new ones thrust them off, 'tis clad in *Russet* all the Winter long. That admirable *Espalier-hedge* in the long middle Walk of *Luxemburgh Garden* at *Paris* (than which there is nothing more graceful) is planted of this Tree ; and so was that *Cradle*, or *Close-Walk*, with that perplexed *Canopy* which lately covered the Seat in his *Majesty's Garden* at *Hampton-Court*, and as now I hear, they are planted in Perfection at *New-Park*, the delicious *Villa* of the noble Earl of *Rocheſter*, belonging once to a near Kinsman of mine, who parted with it to King *Charles the First* of Blessed Memory. These *Hedges* are *Tonſile* ; but where they are maintained to fifteen or twenty Foot Height (which is very frequent in the Places before mentioned) they are to be cut, and kept in Order with a *Sithe* of four Foot long, and very little *falcated* ; this is fixed on a long *Sneed*, or ſtraight Handle, and does wonderfully expedite the trimming of theſe and the like *Hedges* : An oblong Square, *palifado'd* with this *Plant*, or the *Flemiſh Ormuſ*, as is that I am going to deſcribe, and may be ſeen in that inexhauſtible *Magazine* at *Brompton-Park* (cultivated by thoſe two induſtrious fellow Gardiners, Mr. *London*, and Mr. *Wiſe*) affords ſuch an *Urabraculum frondium*, the moſt natural, proper Station and Convenience for the Protection of our *Orange-trees*, *Myrtles* (and other rare *Perennials* and *Exoticks*) from the ſcorching Darts of the *Sun*, and Heat of Summer ; placing the *Caeſes*, *Pots*, &c. under this Shelter, when either at the firſt Peeping out of the *Winter Conſealve*, or during the increaſing Heat of Summer, they ſo are ranged and diſpoſed, as to adorn a noble *Area* of a moſt magnificent *Paradiſian Dining-Room* to the Top of *Hortulan* Pomp and *Blifs*, ſuperior to all the artificial Furniture of the greateſt Prince's Court. Here the *Indian Narciſſus*, *Tuberofes*, *Japan-Lillies*, *Jasmines*, *Jonquills*, *Lalaeſ*, *Periclymena*, *Rofes*, *Carnations* (with all the Pride of the *Parter*) intermixt between the *Tree-Caeſes*, flowry *Vaſes*, *Buſts* and *Statues*, entertain the *Eye*, and breath their *Redolent Odours* and *Perfumes* to the Smell : The golden *Fruit* and *Apples* of *Hesperides*, gratifie the *Taſte*, with the delicious *Ananas*, affecting all the *Senſories* ; whilſt the chearful Ditties of *Canorus Birds*, recording their innocent *Amours* to the Murmurs of the bubbling *Fountain*, delight the *Ear*, and with the charming *Accents* of the fair and vertuous *Sex* (preferable to all the admired Compoſure of the moſt ſkilful *Muſicians*) join Conſort in *Hymns* and *Hallelujahs* to the bountiful and glorious *Creator*, who has left none of the *Senſes* which he has not gratify'd at once, with their moſt agreeable and proper Objects.

But to return to *Brompton* : 'Tis not to be imagined what a ſurpriſing *Scene* ſuch a ſpacious *Salone*, tapiftried with the natural *Verdure* of the glittering *Foilage*, preſents the Spectator, and recompenſes the Toil of the ingenious *Planter* ; when, after a little Patience, he finds the ſlender *Plants*, ſet but at five or ſix Foot Diſtance (nor much more in Height, well prun'd and dreſs'd) aſcend to an Altitude ſufficient to ſhade and defend his *Paradiſian Treasure*, without excluding the milder *Gleams* of the glorious and radiant *Planet*, with his cheriſhing Influence and kindly Warmth, to all within the Incloſure, reſreſhed with the cooling and early *Dew*, pregnant with the ſweet *Exhalations* which the Indulgent *Mother* and Teeming *Earth* ſends up, to nourish and maintain her numerous and tender Off-ſpring.

But after all, let us not dwell *here* too long, whilst the *Inferences* to be derived from those tempting and temporary Objects, prompt us to raise our *Contemplations* a little on Objects yet more worthy our noblest Speculations, and all our Pains and Curiosity, representing that happy State above, namely, the *Cælestial Paradise*: Let us, I say, suspend our Admiration a while, of these *Terrestrial Gayeties*, which are of so short Continuance, and raise our Thoughts from being too deeply immersed and rooted in them, aspiring after those *supernal*, more lasting and glorious Abodes, namely, a *Paradise*; not like this of ours (with so much Pains and Curiosity) *made with Hands, but eternal in the Heavens*, where all the *Trees* are *Trees of Life*; the *Flowers* all *Amaranths*; all the *Plants* *Perennial*, ever verdant, ever pregnant; and where those who desire *Knowledge*, may fully *sate* themselves; taste freely of the *Fruit* of that *Tree* which cost the first *Gardiner* and Posterity so dear; and where the most voluptuous Inclinations to the Allurements of the *Senses*, may *take and eat*, and still be innocent; no *forbidden Fruit*; no *Serpent* to *deceive*, none to be deceived.

Hail! O hail then, and welcome, you blessed *Elyziums*, where a new State of Things expects us; where all the pompous and charming Delights that detain us here a while, shall be changed into *real* and *substantial* *Fruitions*, *eternal Springs*, and *Pleasure intellectual*, becoming the *Dignity* of our *Nature*!

I beg no Pardon for the *Application*, but deplore my no better *Use* of it; and that whilst I am thus upon the *Wing*, I must now *descend* so soon again.

Of all the *Foresters*, this preserves it self best from the Bruttings of *Deer*, and therefore to be kindly entertain'd in *Parks*: But the Reason why, with us, we rarely find them ample and spreading, is, that our *Husbandman* suffers too large and grown a *Lop*, before he cuts them off, which leaves such ghastly Wounds, as often proves exitial to the Tree, or causes it to grow deform'd and hollow, and of little worth but for the Fire; whereas, were they oftner taken off, when the *Lops* were younger, though they did not furnish so great Wood, yet the Continuance and Flourishing of the Tree, would more than recompence it. For this Cause,

3. They very frequently plant a *Clump* of these *Trees* before the Entries of most of the great *Towns* in *Germany*, to which they apply *Timber-frames* for Convenience, and the People to sit and solace in. *Scamozzi*, the *Architect*, says, That in his Time he found one whose Branches extended *seventy Foot* in Breadth; this was at *Vuimsen* near the *Necker*, belonging to the *Duke of Wirtemberg*: But that which I find planted before the Gates of *Strasburgh*, is a *Platanus*, and a *Lime-tree* growing hard by one another, in which is erected a *Pergola* eight Foot from the Ground, of *fifty Foot* wide, having ten *Arches* of twelve Foot Height, all shaded with their Foilage; and there is besides this, an over-grown *Oak*, which has an *Arbour* in it of sixty Foot Diameter: Hear we *Rapinus* describe the Use of the *Horn-beam* for these and other Elegancies.

^a In Walks the Horn-beam stands, or in a Maze,
Through thousand self-entangling Labyrinths strays:
So clasp the Branches lopp'd on either Side,
As though an Alley did two Walls divide:
This Beauty found, Order did next adorn
The Boughs into a thousand Figures shorn,
Which pleasing Objects Weariness betray'd,
Your Feet into a Wilderness convey'd:
Nor better Leaf on twining Arbor spread,
Against the scorching Sun to shield your Head.

EVELYN RAPINUS.

CHAP. VII.

Of the Ash.

1. **F**Raxinus the Ash, is with us reputed Male and Female, the one ^{ASH} affecting the higher Grounds; the other the Plains, of a whiter Wood, and rising many Times to a prodigious Stature; so as in forty Years from the Key, an Ash hath been sold for thirty Pounds Sterling: And I have been credibly informed, that one Person hath planted so much of this one Sort of Timber in his Life-time, as hath been valued worth fifty thousand Pounds to be bought. These are pretty Encouragements for a small and pleasant Industry. That there is a lower, and more knotty Sort, every Husbandman can distinguish.

2. The Keys, or Toungs, being gathered from a young thriving Tree when they begin to fall (which is about the End of October, and the ensuing Month) are to be laid to dry, and then sowed any Time betwixt that and Christmas; but not altogether so deep as your former Mafts. Thus they do in Spain, from whence it were good to procure some of the Keys from their best Trees: A very narrow Seminary will be sufficient to store a whole Country: They will lie a full Year in the Ground before they appear; therefore you must carefully fence them all that Time, and have Patience: But if you would make a considerable Wood of them at once, Dig or Plow a Parcel of Ground, as you would prepare it for Corn, and with the Corn, especially Oats (or what other Grain you think fittest) sow also good Store of Keys, some Crab-Kernels, &c. amongst them: Take off your Crop of Corn or Seed in its Season, and the next Year following, it will be covered with young Ashes, which will be fit either to stand (which I prefer) or be transplanted for divers Years after; and these you will find to be far better than any you can gather out of the Woods (especially Suckers, which are worth nothing) being removed at one Foot Stature (the sooner the better) for an Ash of two Years thus taken out of the Nursery, shall

^a In tractus longos facilis tibi Carpinus ibit,
Mille per errores, indeprehensoque recessus,
Et molles tendens secto seu pariete ramos,
Præbebit viridem diverso è margine scenam.
Primus bonos illi quondam, post additus ordo est,
Attonsaque comæ, & formis quæsitæ voluptas
Innumera, furtoque viâ, obliquoque recessu:
In tractus acta est longos & opaca vireta.
Quinetiam ægregiæ tendens umbracula frondis
Temperat ardentem ramis ingentibus æstus.

BOOK I. outstrip one of *Ten*, taken out of the *Hedge*; provided you defend them well from *Cattle*, which are exceedingly liquorish after their *Tops*: The Reason of this hasty *transplanting*, is to prevent their obstinate and deep rooting; *tantus amor terræ*—which makes them hard to be taken up when they grow older, and that being removed, they take no great Hold till the second Year, after which, they come away again; yet I have planted them of five and six Inches *Diameter*, which have thriven as well as the smaller *Wands*. You may *accelerate* their springing by laying the *Keys* in Sand, and some moist fine Earth. S. S. S. but lay them not too thick, or double, and in a *cover'd*, though *airy* Place for a *Winter*, before you sow them; and the second Year they will come away mainly; so you weed, trim and cleanse them. Cut not his *Head* at all (which being young, is pithy) nor by any Means the *fibrous* Part of the *Roots*; only that down-right, or *Tap-root* (which gives our *Husbandmen* so much Trouble in drawing) is to be totally abated: But this Work ought to be in the Increase of *October* or *November*, and not in the *Spring*. We are (as I told you) willing to spare his *Head* rather than the *Side Branches* (which whilst young, may be cut close) because being yet young, it is but of a spongy Substance; but being once well fixed, you may cut him as close to the Earth as you please; it will cause him to shoot prodigiously, so as in a few Years to be fit for *Pike-slaves*; whereas if you take him wild out of the *Forest*, you must of Necessity strike off the *Head*, which much impairs it. *Hedge-row Ashes* may the oftner be *decapitated*, and shew their *Heads* again sooner than other *Trees* so used. Young *Ashes* are sometimes in *Winter Frost-burnt*, black as *Coals*, and then to use the *Knife* is seasonable, though they do commonly recover of themselves slowly. In *South-Spain* (where, as we said, are the best) after the first Dressing, they let them grow till they are so big, as being cleft into four Parts, each Part is sufficient to make a *Pike-staff*: I am told there is a *Flemish Ash* planted by the *Dutchmen* in *Lincolnshire*, which in six Years grows to be worth *twenty Shillings* the Tree; but I am not assured whether it be the *Ash* or *Abeele*; either of them were, upon this Account, a worthy Encouragement, if at least the *latter* can be thought to bear that Price, which I much question: From these low Cuttings come our *Ground-Ashes*, so much sought after for *Arbours*, *Espaliers*, and other *Pole-Works*: They will spring in abundance, and may be reduced to one for a *Standard-tree*, or for *Timber*, if you design it; for thus, *Hydra* like, a *Ground-cut-Ash*

^a By *Havock*, *Wounds* and *Blows*,
More lively and luxuriant grows.

will be propagated from a *Bough* split off with some of the *old Wood*, a little before the *Bud* swells, but with Difficulty by *Layers*. Such as they reserve for *Spears* in *Spain*, they keep shrip'd up close to the *Stem*, and plant them in close Order, and moister Places. These they cut above the *Knot* (for the least *Nodosity* spoils all) in the Decrease of *January*, which were of the latest for us: It is reported that the *Ash* will not only receive its own Kind, but *graft*, or be *inoculated* with the *Pear* and *Apple*, but to what Improvement I know not.

^a Per damna, per cades, ab ipso
Ducit opes animūque ferro.

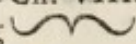
H O R.

3. It is by no means convenient to plant *Ash* in *Plow-lands*; for the *Roots* will be obnoxious to the *Coulter*; and the *Shade* of the Tree is malignant both to *Corn* and *Grass*, when the Head and Branches over-drip and *emaciate* them; but in *Hedge-rows* and *Plumps*, they will thrive exceedingly, where they may be disposed at nine or ten Foot Distance, and sometimes nearer: But in planting of a whole *Wood* of several Kinds of Trees for *Timber*, every *third* Set at least, would be an *Ash*. The best *Ash* delights in the best Land (which it will soon impoverish) yet grows in any, so it be not over-stiff, wet, and approaching to the *marshy*, unless it be first well drained: By the Banks of sweet and crystal *Rivers* and *Streams*, I have observed them to thrive infinitely. One may observe as manifest a Difference in the *Timber* of *Ashes*, as of the *Oak*; much more than is found in any one Kind of *Elm*, *cæteris paribus*: For so the *Ground-Ash* (like the *Oak*) much excels a Bough or Branch of the same Bulk, for Strength and Toughness; and in yet farther Emulation of the *Oak*, it has been known to prove as good and lasting *Timber* for *Building*, nay, preferred before it, where there has been Plenty of *Oak*; vast Difference there is also in the Strength of *Ground* and *Quartered Ash*: It is likewise remarkable that the *Ash*, like the *Cork-tree*, grows when the *Bark* is as it were quite peel'd off, as has been observed in several *Forests*, where the *Deer* have bared them as far as they could climb: Some *Ash* is curiously *camleted* and veined, I say, so differently from other *Timber*, that our skilful *Cabinet-makers* prize it equal with *Ebony*, and give it the Name of *Green Ebony*, which the *Customers* pay well for; and when our *Wood-men* light upon it, they may make what Money they will of it: But to bring it to that curious Lustre, so as 'tis hardly to be distinguished from the most curiously diaper'd *Olive*, they *varnish* their *Work* with the *China Varnish* (hereafter described) which infinitely excels *Linseed-oil*, that *Cardan* so commends, speaking of this *Root*. The Truth is, the *Bruscum* and *Molluscum*, to be frequently found in this *Wood*, is nothing inferior to that of *Maple* (of which hereafter) being altogether as exquisitely diaper'd, and waved like the *Gambes* of *Achates*; an eminent Example of divers strange Figures of *Fish*, *Men* and *Beasts*, Dr. *Plott* speaks of to be found in a *Dining-table* made of an old *Ash*, standing in a *Gentleman's House* somewhere in *Oxfordshire*: Upon which is mentioned that of *Jacobus Gasserellus*, in his Book of *Unheard-of Curiosities*; namely, of a *Tree* found in *Holland*, which being cleft, had in several Slivers, the Figures of a *Chalice*, a *Priest's Albe*, his *Stole*, and several other *pontifical Vestments*: Of this Sort was the *Elm* growing at *Middle-Aston* in *Oxfordshire*, a Block of which Wood being cleft, there came out a Piece so exactly resembling a *Shoulder of Veal*, that it was worthy to be reckoned among the *Curiosities* of this Nature.

4. The Use of *Ash* is (next to that of the *Oak* it self) one of the most universal: It serves the Soldier — *Æ Fraxinus utilis hastis*, and heretofore the *Scholar*, who made use of the inner *Bark* to write on, before the Invention of *Paper*, &c. The *Carpenter*, *Wheelwright*, *Cart-wright*, for *Ploughs*, *Axle-trees*, *Wheel-rings*, *Harrowes*, *Bulls*, *Oars*, the best Blocks for *Pullies* and *Sheffs*, as *Seamen* name them; for drying *Herrings*, no Wood like it, and the *Bark* for the tanning of *Nets*; and like the *Elm*, for the same Property (of not being so apt to split and scale) excellent for *Tenons* and *Mortaises*: Also for the *Cooper*, *Turner* and *Thatcher*: Nothing like it for our Garden

USES.

BOOK I. *Palisade-hedges, Hop-yards, Poles and Spars, Handles, Stocks for Tools, Spade-trees, &c.* In sum, the *Husbandman* cannot be without the *Ash* for his *Carts, Ladders* and other Tackling, from the *Pike* to the *Plow, Spear* and *Bow*; for of *Ash* were they formerly made, and therefore reckon'd amongst those *Woods*, which, after long *Tension*, has a natural *Spring*, and recovers its Position; so as in *Peace* and *War* it is a *Wood* in highest Request: In short, so useful and profitable is this *Tree* (next to the *Oak*) that every prudent *Lord* of a *Mannor*, should employ one Acre of Ground with *Ash* or *Acorns* to every twenty *Acres* of other Land; since in as many Years, it would be more worth than the Land it self. There is extracted an *Oyl* from the *Ash*, by the *Process* on other *Woods*, which is excellent to recover the *Hearing*, some Drops of it being distilled warm into the *Ears*; and for the *Caries* or *Rot* of the *Bones, Tooth-ach*, Pains in the *Kidneys*, and *Spleen*, the Anointing therewith is most soveraign. Some have used the *Saw-dust* of this Wood instead of *Guaiacum* with Success. The *Chymists* exceedingly commend the *Seed* of *Ash* to be an admirable Remedy for the *Stone*: But whether by the Power of *Magick* or *Nature*, I determine not. I have heard it affirmed with great Confidence, and upon Experience, that the *Rupture* to which many *Children* are obnoxious, is healed, by passing the *Infant* through a wide Cleft made in the *Bole* or Stem of a growing *Ash-tree*, through which the Child is to be made *pass*; and then carried a second Time round the *Ash*, caused to *repass* the same *Aperture* again, that the Cleft of the Tree suffered to *close* and *coalesce*, as it will, the *Rupture* of the Child, being carefully bound up, will not only abate, but be perfectly cured. The *Manna* of *Calabria* is found to *exsude* out of the Leaves and Boughs of this *Tree*, during the hot *Summer-Months*. Lastly, the white and rotten *dotard* Part composes a *Ground* for our Gallants *Sweet-powder*, and the *Trunchions* make the *third* Sort of the most durable *Coal*, and is (of all other) the sweetest of our *Forest Fuelling*, and the fittest for *Ladies Chambers*; it will burn even whilst it is green, and may be reckoned amongst the *ἐμπύρα ἐύλα*. To conclude, The very *dead Leaves* afford (like those of the *Elm*) relief to our *Cattle* in *Winter*; and there is a *Dwarf-fort* in *France* (if in Truth it be not, as I suspect, our *Witchen-tree*) whose *Berries* feed the poor People in *scarce* Years; but it bears no *Keys*, like to ours, which being *pickled* tender, afford a delicate *Salading*. But the *Shade* of the *Ash* is not to be endured, because the Leaves produce a noxious *Insect*; and for displaying themselves so very *late*, and falling very *early*, not to be planted for *Umbrage* or *Ornament*, especially near the *Garden*, since (besides their *predacious Roots*) the *Leaves* dropping with so long a *Stalk*, are drawn by Clusters into the *Worm-holes*, which foul the *Alleys* with their *Keys*, and suddenly infect the Ground. Note, that the *Season* for *Felling* of this *Tree*, must be when the *Sap* is fully at rest; for if you cut it down too early, or over-late in the Year, it will be so obnoxious to the *Worm*, as greatly to prejudice the *Timber*; therefore to be sure, fell not till the three *Mid-winter* Months, beginning about *November*: But in *lopping* of *Pollards* (as of *soft Woods*) Mr. *Cook* advises it should be towards the *Spring*, and that you do not suffer the *Lops* to grow too great: Also, that so soon as a *Pollard* comes to be considerably *hollow* at the *Head*, you suddenly cut it down, the *Body* decaying more than the *Head* is worth: The same he pronounces of taller *Ashes*, and where the *Wood-peckers* make Holes (who constantly indicate their being faulty)

ty) to *fell* it in the *Winter*. I am astonished at the universal Confidence CH. VIII. of some, that a *Serpent* will rather creep into the *Fire*, than over a *Twig*  of *Ash*: This is an old *Imposture* of * *Pliny's*, who either took it up up- * V. Chura- on *Truſt*, or we miſtake the *Tree*. Other *Species*, See *Raij Dendrolog.* fium, &c. de *T. iii. Lib. xxx. p. 95. De Fraxino, T. ii. p. 1704.* riperis.

C H A P. VIII.

Of the Cheſnut.

1. **T**H E next is the *Cheſnut*, [*Caſtanea*] of which *Pliny* reckons CHESTNUT. many Kinds, eſpecially about *Tarentum* and *Naples*; *Janus Cornarius*, upon that of *Aetius* (*Verbo Δρῦς*) ſpeaks of the *Lopimi*, as a nobler Kind, ſuch as the *Euboica*, which the *Italians* call *Maroni*, *quasi Caſtaneæ Maris*; but we commend thoſe of *Portugal* or *Bayonne*, chuſing the largeſt, brown and moſt *ponderous* for *Fruit*, ſuch as *Pliny* calls *Coctivæ*, but the leſſer ones to raiſe for *Timber*. They are produced beſt by *sowing* and *ſetting*; previous to which, let the *Nuts* be firſt ſpread to *sweat*, then cover them in *Sand*; a Month being paſt, plunge them in *Water*, reject the *Swimmers*; being dry'd for thirty Days more, ſand them again, and to the *Water-ordeal* as before. Being thus treated till the Beginning of *Spring*, or in *November*, ſet them as you would do *Beans*; and, as ſome practiſe it, drenched, for a *Night* or more, in new *Milk*; but without half this Preparation, they need only be put into the *Holes* with the Point upmoſt, as you plant *Tulips*: *Pliny* will tell you, they come not up, unleſs four or five be piled together in a Hole; but that is falſe, if they be good, as you may preſume all thoſe to be which paſs this *Examination*; nor will any of them fail: But being come up, they thrive beſt *unremoved*, making a great *ſtand* for at leaſt *two Years* upon every *transplanting*; yet if needs you muſt alter their *Station*, let it be done about *November*, and that into a light friable Ground, or moiſt *Gravel*, however they will grow even in *Clay*, *Sand*, and all mixed Soils, upon expoſed and bleak Places, and the pendent Declivities of *Hills* to the *North*, in dry airy Places, and ſometimes (though not ſo well) near *Marſhes* and *Waters*; but they affect no other *Compoſt*, ſave what their own *Leaves* afford them, and are more patient of *Cold* than *Heat*: As for their ſowing in the *Nurſery*, treat them as you are taught in the *Walnut*.

2. If you deſign to ſet them in *Winter* or *Autumn*, I counſel you to inter them within their *Huſks*, which being every Way armed, are a good Protection againſt the *Mouse*, and a providential *Integument*. *Pliny*, Lib. xv. Cap. xxiii. from this natural Guard, concludes them to be excellent *Food*; and doubtleſs *Cæſar* thought ſo, when he transported them from *Sardis* firſt into *Italy*, whence they were propagated into *France*, and thence among us; another Encouragement to make ſuch *Experiments* out of foreign Countries. Some ſow them confusedly in the *Furrow* like the *Acorn*, and govern them as the *Oak*; but then would the Ground be broken up betwixt *November* and *February*; and when they ſpring, be cleaned and thinned two Foot aſunder, after two Years Growth: Likewise may *Copſes* of *Cheſnuts* be wonderfully increaſed and thickened, by *laying* the tender and young Branches; but ſuch as ſpring from the *Nuts* and *Marrons*, are beſt of all, and will thrive

BOOK I. thrive exceedingly, if (being let stand without removing) the Ground be stirred, and loosened about their Roots, for two or three of the first Years, and the superfluous Wood pruned away; and indeed for good Trees, they should be shrip'd up after the first Year's Removal; they also shoot into gallant *Poles* from a felled *Stem*: Thus will you have a *Copse* ready for a *Felling*, within eight Years, which (besides many other Uses) will yield you incomparable *Poles* for any Work of the *Garden*, *Vineyard* or *Hop-yard*, till the next *Cutting*: And if the Tree like the Ground, will in ten or twelve Years grow to a Kind of *Timber*, and bear plentiful Fruit.

3. I have seen many *Chestnut-trees* transplanted as big as my Arm, their *Heads* cut off at five and six Foot Height; but they came on at Leisure: In such *Plantations*, and all others for *Avenues*, you may set them from *thirty* to *ten* Foot Distance, though they will grow much nearer, and shoot into *Poles*, if (being tender) you cultivate them like the *Ash*, the Nature of whose *Shade* it resembles, since nothing affects much to grow under it: Some *Husbands* tell me, that the young *Chestnut-trees* should not be pruned or touched with any *Knife* or *Edge-Tool* for the first three or four Years, but rather cropp'd or broken off, which I leave to farther Experience; however, many forbear to *Top* them when they transplant.

4. The *Chestnut* being grafted in the *Walnut*, *Oak* or *Beech* (I have been told) will come exceeding fair, and produce incomparable Fruit; for the *Walnut* and *Chestnut* in each other, it is probable; but I have not as yet made a full Attempt; they also speak of inoculating *Cherries* in the *Chestnut-stock* for a later Fruit. In the mean Time, I wish we did more universally propagate the *Horse-chestnut*, which being easily increased from *Layers*, grows into a goodly *Standard*, and bears a most glorious *Flower*, even in our cold Country: This Tree (so called, for the Cure of *Horses Broken-winded*, and other *Cattle of Coughs*) is now all the *Mode* for the *Avenues* to their Country Palaces in *France*, as appears by the late *Superintendent's* Plantation at *Vaux*. It was first brought from *Constantinople* to *Vienna*, thence into *Italy*, and so *France*; but to us from the *Levant* more immediately, and flourishes so well, and grows so goodly a Tree in competent Time, that by this alone, we might have ample Encouragement to *Denizen* other *Strangers* amongst us. One Inconvenience to which this beautiful Tree is obnoxious, is, that it does not well resist impetuous and stormy Winds, without Damage.

USES.

5. The *Chestnut* is (next the *Oak*) one of the most sought after by the *Carpenter* and *Joyner*: It hath formerly built a good Part of our ancient Houses in the City of *London*, as does yet appear. I had once a very large *Barn* near the City, framed intirely of this *Timber*: And certainly they grew not far off, probably in some *Woods* near the *Town*: For in that Description of *London*, written by *Fitz-Stephens*, in the Reign of *Hen. II.* he speaks of a very noble and large *Forest* which grew on the *Boreal* Part of it; *Proxime* (says he) *patet foresta ingens, saltus nemorosi ferarum, latebræ cervorum, damarum, aprorum, & taurorum Silvestrium*, &c. A very goodly Thing it seems, and as well stored with all Sorts of good *Timber*, as with *Venison* and all Kind of *Chase*; and yet some will not allow it a *Free-born* of this Island; but of that I make little Doubt. The *Chestnut* affords the best *Stakes* and *Poles* for *Palisades*, *Pedaments* for *Vine-*

props

props and *Hops*, as I said before: Also for *Mill-Timber* and *Water-Works*, or when it may lie buried; but if *Water* touch the *Roots* of the growing *Trees*, it spoils both *Fruit* and *Timber*. 'Tis likewise observed, that this *Tree* is so prevalent against *Cold*, that where they stand, they defend other Plantations from the Injuries of the severest *Frosts*: I am sure being planted in *Hedge-rows*, & *circa agrorum itinera*, or for *Avenues* to our *Country Houses*, they are a Magnificent and Royal Ornament. This *Timber* also does well (if kept dry) for *Columns*, *Tables*, *Chests*, *Chairs*, *Stools*, *Bedsteads*; for *Tubs* and *Wine-Casks*, which it preserves with the least Tincture of the *Wood* of any whatsoever: If the *Timber* be dipped in *scalding Oyl*, and well *Pitched*, it becomes extremely durable; but otherwise I cannot celebrate the *Tree* for its Sincerity, it being found that (contrary to the *Oak*) it will make a fair Shew outwardly, when 'tis all decayed and rotten within; but this is in some Sort recompensed, if it be true, that the *Beams* made of *Chestnut-tree* have this Property, that being somewhat brittle, they give Warning and premonish the Danger by a certain Crackling which it makes; so as 'tis said to have frightened those out of the *Baths* at *Antandro*, whose Roof was laid with this Material; but which *Pliny* says, was of *Hazle*, very unlike it. Formerly they made *Consultatory Staves* of this Tree; and the *Variegated Rods* which *Jacob* peeled to lay in the *Troughs*, and impress a Fancy in his *Father-in-law's* conceiving *Ewes*, were of this Material. The *Coals* are excellent for the Smith, being soon kindled, and as soon extinguished; but the *Ashes* of *Chestnut-wood* are not convenient to make a *Lee* with, because it is observed to stain the *Linnen*. As for the *Fruit*, 'tis better to beat it down from the Tree, some little Time before they fall off themselves: Thus they will the better keep, or else you must Smoak-dry them. But we give that Fruit to our *Swine* in *England*, which is amongst the Delicacies of *Princes* in other Countries; and being of the larger *Nut*, is a lusty and masculine Food for *Rusticks* at all Times; and of better Nourishment for *Husbandmen* than *Coal* and *Rusty Bacon*; yea, or *Beans* to Boot, instead of which, they boil them in *Italy* with their *Bacon*; and in *Virgil's* Time, they eat them with *Milk* and *Cheese*. The best *Tables* in *France* and *Italy* make them a *Service*, eating them with *Salt*, in *Wine*, or Juice of *Lemon* and *Sugar*, being first roasted in Embers on the *Chaplet*; and doubtless we might propagate their Use amongst our common People (as of old the *Βαλανοφάγοι*) being a Food so cheap, and so lasting. In *Italy* they also boil them in *Wine*, and then smoak them a little: These they call *Anseri* or *Geese*, I know not why: Those of *Piemont* and *Fennel*, *Cinnamon* and *Nutmeg* to their *Wine*; if in *Water*, mollify them with the Vapour only; but first they peel them. Others macerate them in *Rose-water*. The *Bread* of the *Flour* is exceeding Nutritive; 'tis a robust Food, and makes Women well complexioned, as I have read in a good Author: They also make *Fritters* of *Chestnut-flour*, which they wet with *Rose-water* and sprinkle with grated *Parmegiano*, and so fry them in fresh *Butter*, a Delicate: How we here use them in Stew'd-meats and *Beatille-Pies*, our *French-Cooks* teach us; and this is in Truth the very best Use of their Fruit, and very commendable; for it is found that the eating of them raw, or in Bread (as they do much about *Limosin*) is apt to swell the Belly, though without any other Inconvenience that I can learn, and yet some condemn them as dangerous

BOOK I. ous for such as are subject to the *Gravel* in the *Kidneys*, and however cooked and prepared, *flatulent*, offensive to the Head and Stomach, and those who are subject to the *Cholick*. The best Way to preserve them, is to keep them in Earthen Vessels in a *cold* Place; some lay them in a *Smoak-loft*, others in dry *Barley-straw*, others in *Sand*, &c. The Leaves of the *Chestnut-tree* make very wholesome *Mattresses* to lie on, and they are good Litter for *Cattle*: But those *Leafy-beds*, for the crackling Noise they make when one turns upon them, the *French* call *Liets de Parliament*: Lastly, the *Flour* of *Chestnuts* made into an *Electuary*, and eaten with *Honey* fasting, is an approved *Remedy* against spitting *Blood*, and the *Cough*; and a Decoction of the *Rind* of the *Tree*, tinctures *Hair* of a *golden* Colour, esteemed a Beauty in some Countries: Other *Species*, V. *Raij Dendrolog. T. iii. &c.*

CH A P. IX.

Of the Walnut.

WALNUT. I.
* See *Servius*
introduced
discourfing
of this and
other Nuts,
Macrob.
Saturn. l. iii.
c. 18.

JUglans, quasi Jovis glans, the * *Wall* or *Welch-nut* (though no where growing of it self, some say, in *Europe*) is of several Sorts; Monsieur *Rencaume* (of the *French Academy*) reckons *nine*; the *soft Shell* and the *hard*, the *whiter* and the *blacker Grain*: This *black* bears the worst *Nut*, but the *Timber* much to be preferred, and we might propagate more of them if we were careful to procure them out of *Virginia*, where they abound and bear a squarer Nut, of all other the most beautiful and best worth *planting*: Indeed, had we Store of *these*, we should soon despise the rest; yet those of *Grenoble* come in the next Place, and are much prized by our *Cabinet-makers*: In all Events, be sure to plant from young and thriving Trees, bearing full and plump *Kernels*. It is said that the *Walnut Kernel* wrapped in its own *Leaf*, being carefully taken out of its *Shell*, brings a *Nut* without *Shell*, but this is a Trifle; the best Way to elevate them, is to set them as you do the *Chestnut*, being planted of the *Nut*, or set at the Distance you would have him stand; for which they may be prepared by beating them off the *Tree* (as was prescribed of the *Chestnut*) some Days before they quit the Branches of themselves, and kept in their *Husks*, or without them, till Spring, or by bedding them (being dry) in *Sand*, or good *Earth*, till *March* or earlier, from the Time they fell, or were beaten off the *Tree*: Or if before, they be set with *Husk* and all upon them; for the extream *Bitterness* thereof is most exitial and deadly to *Worms*; or it were good to strew some *Furzes* (broken or chopped small) under the Ground amongst them, to preserve them from *Mice* and *Rats*, when their Shells begin to wax tender; especially if, as some, you supple them a little in warm *Cow's Milk*; but being treated as before, you will find them already sprouted, and have need only to be planted where they are to abide; because (as we said long since) they are most impatient of *transplanting*: But if there be an absolute Necessity of *removing*, let your *Tree* never be above *four Years* old, and then by no Means touch the *Head* with your *Knife*, nor cut away so much as the very *Top-root*, being so old, if you can well dispose of it, since being of a pithy and hollow Substance, the least Diminution, or Bruise, will greatly endanger the killing: But see here what

we

we have said of the *Chestnut*. I have been told, that the very *Tops*, and palish *Buds* of this Tree, when it first sprouts, though as late as *April*, will take hold of the Ground, and grow to an incredible Improvement; but first they steep them in *Milk* and *Saffron*; but this Attempt did not succeed with us, yet it will be propagated by a Branch flipp'd off with some of the *old Wood*, and set in *February*: An industrious and very experienced *Husbandman* told me, that if they be *transplanted* as big as ones Middle, it may be done safer than when younger; I do only report it: What they hint of putting a *Tile-shard* under the *Nuts* when first set, to divaricate and spread the *Roots* (which are otherwise apt to penetrate very deep) I like well enough; 'tis certain they will receive their own *Cyons* being *grafted*, and that it does improve their Fruit. The best *Compost* is the strewing of *Ashes* at the Foot of the Trees, the Salt whereof being washed into the Earth, is the best Dressing; whilst the Juice of the fallen *Leaves*, though it kill the *Worm*, is noxious to the *Root*. This Tree does not refuse to thrive even among others, and in great Woods, provided you shrip up the collateral Arms.

2. The *Walnut* delights in a dry, sound and rich Land; especially if it incline to a feeding *Chalk* or *Marle*; and where it may be protected from the Cold (though it affect *Cold* rather than extream *Heat*) as in great Pits, Valleys and Highway Sides; also in Stony-grounds, if *Loamy*, and on Hills, especially *Chalky*; likewise in *Corn-fields*: Thus *Burgundy* abounds with them, where they stand in the midst of goodly *Wheat-lands*, at sixty and an hundred Foot Distance; and it is so far from hurting the *Crop*, that they look on them as a great Preserver, by keeping the Grounds warm; nor do the Roots hinder the *Plow*. Whenever they fell a *Tree* (which is only the old and decayed) they always plant a young one near him; and in several Places betwixt *Hanaw* and *Franckfort* in *Germany*, no young *Farmer* whatsoever is permitted to marry a *Wife*, till he bring Proof that he hath planted, and is a Father of such a stated Number of *Walnut-trees*, as the Law is inviolably observed to this Day, for the extraordinary Benefit which this *Tree* affords the *Inhabitants*: And in Truth, were this Timber in greater Plenty amongst us, we should have far better *Utensils* of all Sorts for our Houses, as *Chairs*, *Stools*, *Bedsteads*, *Tables*, *Wainscot*, *Cabinets*, &c. instead of the more vulgar *Beech*, subject to the *Worm*, weak and unsightly; but which, to counterfeit and deceive the unwary, they wash over with a *Decoction* made of the *green Husks* of *Walnuts*, &c. I say, had we Store of this *Material*, especially of the *Virginian*, we should find an incredible Improvement in the more stable *Furniture* of our Houses, as in the first frugal and better Days of *Rome*: When,

a Tables made here at Home, those Times beheld,
Of our own Wood, for that same Purpose fell'd,
Old Walnut blown down, when the Wind set East.

Sir R. STAPYLTON.

For if it had been cut in that Season, it would not have proved so sound, as we shew in our *Chapter of Felling*. It is certain, that the *Mense*

a Illa domi natus, nostraque ex arbore mensas
Tempora viderunt: hos lignum stabat in usus,
Annosam si fortè nucem dejecerat Eurus.

JUVENAL l. iv. Sat. xi.

BOOK I. *nucinae* were once in Price even before the *Citrin*, as *Strabo* notes; and nothing can be more beautiful than some *Planks* and Works which I have beheld of it, especially that which comes from *Grenoble*, of all other the most beautiful and esteemed.

3. They render most graceful *Avenues* to our Country Dwellings, and do excellently near *Hedge-rows*; but had need be planted at forty or fifty Foot Interval, for they affect to spread both their Roots and Branches. The *Bergstras* (which extends from *Heidelberg* to *Darmstadt*) is all planted with *Walnuts*; for so, by another antient Law, the *Borderers* were obliged to nurse up and take Care of them; and that chiefly for their Ornament and Shade; so as a Man may ride for many Miles about that Country under a continued *Arbour*, or *Close-walk*; the *Traveller* both refreshed with the *Fruit* and the *Shade*, which some have causelessly defamed for its ill Effects on the *Head*, for which the *Fruit* is a *specifique* and a notable *Signature*; although I deny not, but the Scent of the fallen Leaves, when they begin to be damped with lying, may emit somewhat a *beady Steam*, which to some has proved noxious; but not whilst they were fresh and lively upon the Trees. How would such publick *Plantations* improve the Glory and Wealth of a Nation! But where shall we find the Spirits among our Countrymen? Yes, I will adventure to instance in those *Plantations* of Sir *Richard Stidolph*, upon the *Downs* near *Leather-head* in *Surry*; Sir *Robert Clayton* at *Morden* near *Godstone* (once belonging to Sir *John Evelyn*) and so about *Cassaulton*, where many Thousands of these *Trees* do celebrate the *Industry* of the *Owners*, and will certainly reward it with infinite *Improvement*, as I am assured they do in part already, and that very considerably; besides the *Ornament* which they afford to those pleasant *Tracts*, for some Miles in Circumference. There was lately (and for ought I know as yet) an *Avenue* of four Leagues in Length, and fifty Paces Breadth, planted with young *Oaklings*, as straight as a Line, from the City of *Utrecht* to *Amersfort*, affording a most goodly Prospect; which minds me of what *Sorbiere* tells in a *sceptical* Discourse to *Monsieur de Martel*, speaking of the Readiness of the People in *Holland* to furnish and maintain whatsoever may conduce to the *Publick Ornament*, as well as Convenience; that their *Plantations* of these and the like *Trees*, even in their very *Roads* and common *Highways*, are better preserved and entertained (as I my self have likewise been often an Eye-witness) than those about the *Houses* and *Gardens of Pleasure* belonging to the *Nobles* and *Gentry* of most other *Countries*: And in Effect it is a most ravishing Object, to behold their Amenities in this Particular: With us, says he (speaking of *France*) they make a Jest at such Political *Ordinances*, by running these publick and useful Ornaments, if haply some more prudent *Magistrate* do at any Time introduce them. Thus in the Reign of *Henry the Fourth* (during the *Superintendency* of *Monsieur de Sulli*) there was a Resolution of adorning all the *High-ways* of *France* with *Elms*, &c. but the rude and mischievous *Peasants* did so hack, steal and destroy what they had begun, that they were forced to desist from the thorough Prosecution of the Design; so as there is nothing more exposed, wild, and less pleasant than the common *Roads* of *France* for Want of *Shade*, and the decent *Limits* which these sweet and divertissant *Plantations* would have afforded. Not to omit that political Use, as my Lord *Bacon* hints it, where he speaks of the *Statues* and *Monuments* of brave Men, and such as had well deserved of the *Publick*, erected

erected by the *Romans* even in their *High-ways*; since, doubtless, such noble and agreeable Objects would exceedingly divert, entertain, and take off the *Minds* and *Discourses* of *melancholy* People, and pen- sive *Travellers*, who having nothing but the dull and enclosed Ways to cast their Eyes on, are but ill *Conversation* to themselves and others, and, instead of celebrating, censure their Superiors. It is by a curious *Person*, and industrious Friend of mine, observed, that the *Sap* of this Tree rises and descends with the Sun's diurnal Course (which it visibly slackens in the *Night*) and more plentifully at the *Root* on the *South* Side, though those *Roots* cut on the *North* were larger, and less distant from the Body of the *Tree*; and not only distill'd from the *Ends*, which were next the *Stem*, but from those that were cut off and separated, which was never observed to happen in the *Birch*, or other *Sap-yielding* *Trees*.

* Mr. *Oldenburg* speaks of one of the present Kings in *Europe*, who drinks much of the *Juice* of this Tree, and finds great Benefit thereby. * Philosoph. Transf. Vol. III. Num. xl. p. 802.

4. What universal Use the *French* make of the *Timber* of this sole Tree, for domestick Affairs, may be seen in every Room both of Poor and Rich: It is of singular Account with the *Joyner*, for the best grain'd, and colour'd *Wainscot*; with the *Gun-smith* for *Stocks*; for *Coach-wheels* excellent, and the Bodies of *Coaches* (they make *Hoops* and *Bows* with it in *New-England*, for want of *Tew*;) The *Drum-maker* uses it for *Rimbs*, the *Cabinet-maker* for *Inlayings*, especially the firm and close *Timber* about the *Roots*, which is admirable for *flecked* and *cambleted* Works, some Wood especially, as that which we have from *Bologne*, *New-England* and *Virginia* (wherethey are of three or four Sorts, differing in their *Leaves*, *Fruit* and *Stature*) very black of Colour, and so admirably streaked, as to represent natural Flowers, Land-skips and other Fancies. To render this the better coloured, *Joyners* put the Boards into an *Oven* after the *Batch* is forth, or lay them in a warm *Stable*, and when they work it, polish it over with its own *Oyl* very hot, which makes it look black and sleek, and the older it is, the more esteemable; but then it should not be put in Work till thoroughly seasoned, because it will shrink beyond Expectation. It is only not good to confide in it much for Beams or Joists, because of its Brittleness, of which yet, it has been observed to give timely Notice, as also the *Chestnut*, by the Crackling before it breaks. Besides the Uses of the *Wood*, the *Fruit* with *Husk* and all, when tender and very young, is for *Preserves* (condited in separate Decoctions by our curious *Ladies*) also for *Food* and *Oyl*, of extraordinary Use with the *Painter*, in *Whites*, and other delicate Colours, also for *Gold-size* and *Varnish*; and with this they polish *Walking-staves*, and other Works which are wrought in with burning: For *Food* they fry with it in some Places, and eat it instead of *Butter* in *Berry*, where they have little or none good; and therefore they plant infinite Numbers of these Trees all over that Country: The Use of it to burn in *Lamps*, is common there. The younger *Timber* is held to make the better-colour'd Work (and so the *Oak*) but the older more firm and close, is finer *chambleted* for Ornament; and the very *Husks* and *Leaves* being macerated in warm Water, and that *Liquor* poured on the *Carpet* of *Walks*, and *Bowling-greens*, does infallibly kill the *Worms*, without endangering the *Grass*: Not to mention the *Dye* which is made of this *Lixive*, to colour *Wooll*, *Woods*, and *Hair*, as of Old they used it. The Water of the *Husks* is soveraign against all pestilential Infections, and that

BOOK I. that of the *Leaves* to mundifie and heal inveterate *Ulcers*. That which is produced of the *thick Shell*, becomes best *Timber*; that of the *thinner*, better *Fruit*. *Columella* has sundry excellent Rules how to ascertain and accelerate the *Growth* of this *Tree*, and to improve its *Qualities*; and I am assured, that having been grafted on the *Asb* (though others say no *Incision* improves it) it thrives exceedingly, becomes a handsome *Tree*, and, what is most estimable, bears its *Fruit* within four Years; all which I recommend to the farther Industrious. The Green *Husk* dry'd, or the first peeping red *Buds* and *Leaves* reduced to *Powder*, serves instead of *Pepper*, to condite *Meats* and *Sauces*. 'Tis thought better to cudgel off the *Fruit*, when *dropping ripe*, than to gather it by hand; and that the *Husk* may open, lay them by in a dry *Room*, some times turning them with a *Broom*, but without washing, for fear of *Mouldiness*. In *Italy* they arm the *Tops* of long *Poles* with *Nails* and *Iron* for the Purpose, and believe the *beating* improves the *Tree*; which I no more believe, than I do that *Discipline* would reform a perverse *Shrew*. Those *Nuts* which come not easily out of their *Husks*, should be laid to mellow in *Heaps*, and the rest exposed in the *Sun*, till the *Shells* dry, else they will be apt to perish the *Kernel*: Some again preserve them in their own *Leaves*, or in a *Chest* made of *Walnut-tree Wood*; others in *Sand*, especially if you will preserve them for a *Seminary*: Do this in *October*, and keep them a little moist, that they may *spear*, to be set early in *February*: Thus after two Years they may be removed at a Yard asunder, cutting the *top Root*, and *side Branches*, but sparing the *Head*; and being two Yards high, *bud*, or remove them immediately. Old *Nuts* are not wholesome till macerated in warm and almost boiling *Water*; but if you lay them in a *leaden Pot*, and bury them in the *Earth*, so as no *Vermin* can attack them, they will keep marvelously plump the whole Year about, and may easily be *blanched*. In *Spain* they use to strew the *Gratings* of old and hard *Nuts* (first peeled) into their *Tarts* and other *Meats*. For the *Oyl*, one *Bushel* of *Nuts* will yield *fifteen Pounds* of peeled and clear *Kernels*, and that half as much *Oyl*, which the sooner it is drawn, is the more in Quantity, though the dryer the *Nut*, the better in Quality; the *Lees*, or *Marc* of the *Pressing* is excellent to fatten *Hogs* with. After the *Nuts* are beaten down, the *Leaves* should be sweep'd into *Heaps*, and carried away, because their extreme Bitterness impairs the *Ground*, and, as I am assured, prejudices the *Trees*: The green *Husks* boiled, make a good Colour to dye a dark *Yellow*, without any Mixture; and the Distillation of its *Leaves* with *Honey* and *Urine*, makes *Hair* spring on bald *Heads*: Besides its Use in the famous *Salernitan Antidote*; if the *Kernel*, a little masticated, be applied to the Biting of a suspected *mad Dog*, and when it has lain three Hours, be cast to *Poultry*, they will die if they eat of it. In *Italy*, when a Countryman finds any Pain in his Side, he drinks a Pint of the fresh *Oyl* of this *Nut*, and finds immediate Ease. And more famous is the wonderful Cure which the *fungus* Substance, separating the *Lobes* of the *Kernel*, pulverized and drank in Wine, in a moderate Quantity, did recover the *English Army* in *Ireland* of a *Dysentery*, when no other Remedy could prevail: The same also in *Pleurisies*, &c. The *Juice* of the outward Rind of the *Nut* makes an excellent *Gargle* for a Sore-Throat: The *Kernel* being rubbed upon any Crack or *Chink* of a leaking or crazy *Vessel*, stops it better than either *Clay*, *Pitch*, or *Wax*. In *France* they eat them *blanched* and fresh, with *Wine*

and *Salt*, having first cut them out of the Shells before they are CHAP. X. harden'd, with a short broad *Brass Knife*, because *Iron* rusts; and these they call *Cernois*, from their Manner of scooping them out. *Lastly*, of the *Fungus* emerging from the Trunk of an old Tree (and indeed some others) is made *Touch-wood*, artificially prepared in a *Lixivium*, or *Lye*, dried, and beaten flat, and then boiled with *Salt-petre*, to render it apter to kindle. The Tree wounded in the *Spring*, yields a *Liquor*, which makes an artificial *Wine*. See *Birch*, Chap. xvii. Of other *Species*, see Mr. Ray's *Dendrolog.* Tom. iii. p. 5, 6.

CHAP. X.

Of the Service, and Black Cherry-Tree.

1. *S Orbus*, the *Service-Tree* (of which there are four Sorts) is raised SERVICE. of the *Chequers*, or *Berries*, which being ripe (that is) rotten, about *September* (and the *Pulp* rubbed off clean from the *Stones* in dry *Sand*, and so kept till after *Christmas*) may be sown like *Beech-mast*, educated in the *Nursery* like the *Chestnut*. It is reported that the *Sower* never sees the *Fruit* of his Labour, either for that it bears only being very old, or that *Men* are commonly so, before they think of planting *Trees*: But this is an egregious Mistake; for these come very soon to be *Trees*, and being planted young, thrive exceedingly; I have likewise planted them as big as my Arm successfully. The best Way is therefore to propagate them of *Suckers*, of which they put forth enough, as also of *Sets*, and may be budded with great Improvement. They delight in reasonable good stiff Ground, rather inclining to cold, than over hot; for in Places which are too dry, they never bear kindly. The *Torminalis* (so called for its Effects against Gripings in the Bowels) is the Kind most frequent with us; for those of the narrower, and less indented *Leaf*, are not so common in *England* as in *France*, bearing a Sort of *Berry* of the *Pear*-shape, and is there called the *Cormier*. This *Tree* may be grafted either in it self, or on the *White-thorn* and *Quince*. To this we might add, the *Mespilus*, or *Medlar*, being an hard Wood, and of which I have seen very beautiful *Walking-staves*. But there is yet a rare Kind of *Service-Tree*, frequent in *Germany*, which we find not in our Woods; and they speak of another Sort, which bears *Poison-berries*.

2. The *Timber* of the *Sorb* is useful for the *Joyner*, and of which USES. I have seen a Room curiously wainscotted: Also for the *Engraver* of *Wood-cuts*, *Bows*, *Pulleys*, *Screws*, *Mill-spindles* and other; *Goads* to drive *Oxen* with, &c. *Pistol* and *Gun-stocks*, and for most that the *Wild Pear-tree* serves; and being of a very delicate *Grain* for the *Turner*, and divers *Curiosities*, and looks beautifully, and is almost everlasting; being rubbed over with *Oyl* of *Linseed*, well boiled, it may be made to counterfeit *Ebony*, or almost any *Indian-wood*, coloured according to *Art*: Also it is taken to build with, yielding *Beams* of considerable Substance. The *Shade* is beautiful for *Walks*, and the *Fruit* not unpleasant, especially the second Kind, of which, with new *Wine* and *Honey*, they make a *Conditum* of admirable Effect to corroborate the *Stomach*; and the *Fruit* alone is good in *Dysenteries* and *Lasks*. The *Water* distilled from the *Stalks* of the *Flowers* and *Leaves* in M. B. and

BOOK I. and twice *rectified* upon fresh Matter, is incomparable for *consumptive* and *tabid* Bodies, taking an Ounce daily at several Times: Likewise it cures the *Green-sickness* in *Virgins*, and is prevalent in all *Fluxes*; distilled warm into the *Ears*, it abates the Pain; the *Wood* or *Bark* contused, and applied to any green *Wound*, heals it; and the *Powder* thereof, drank in *Oil-Olive*, consolidates inward *Ruptures*: Lastly, the *Salt* of the *Wood*, taken in Decoction of *Althæa* to three Grains, is an incomparable Remedy to break and expel Gravel. The *Service* gives the *Husbandman* an early Prefage of the approaching *Spring*, by extending his adorned *Buds* for a peculiar Entertainment, and dares peep out in the severest *Winters*.

3. That I rank this amongst the *Forest Berry-bearing Trees* (frequent in the *Hedges*, and growing wild in *Herefordshire*, and many Places; for I speak not here of our *Orchard-Cherries*, said to have been brought into *Kent* out of *Flanders* by *Hen. VIII.*) is chiefly from the Suffrage of that industrious Planter Mr. *Cooke*, from whose Ingenuity and Experience (as well as out of Gratitude for his frequent mentioning of me in his elaborate and useful Work) I acknowledge to have benefited my self, and this *Edition*; though I have also given no obscure Taste of this pretty Tree in *Chap. xx.*

It is raised of the *Stones* of *Black Cherries* very ripe (as they are in *July*) endeavouring to procure such as are full and large; whereof some, he tells us, are a little inferior to the *Black Orleance*, without *grafting*, and from the very *Genius* of the Ground. These gathered, the *fleshy* Part is to be taken off, by rolling them under a *Plank* in dry *Sand*; and when the Humidity is off (as it will be in three or four Days) reserve them in *Sand* again a little moist and housed, till the Beginning of *February*, when you may sow them in a *light gravelly Mould*, keeping them clean for two Years, and thence planting them into your *Nurseries*, to raise other Kinds upon, or for *Woods*, *Copses* and *Hedge-rows*, and for *Walks* and *Avenues*, which, if of a dryish *Soil*, mixt with *Loam*, though the Bottom be *Gravel*, will thrive into stately Trees, beautified with *Blossoms* of a surprizing Whiteness, greatly relieving the sedulous *Bees*, and attracting *Birds*.

If you sow them in *Beds* immediately after they are *excarnated*, they will appear the following *Spring*, and then at two Years Shoot, be fit to plant out where you please; otherwise, being kept too long e'er you sow them, they will sleep two *Winters*: And this is a *Rule*, which he prescribes for all Sorts of *Stone-fruit*.

You may almost at any Time remove young *Cherry-trees*, abating the *Heads* to a single Shoot.

He recommends it for the *Copse*, as producing a strong *Shoot*, and as apt to put forth from the Roots as the *Elm*, especially if you fell lusty Trees: In light Ground it will increase to a goodly tall Tree, of which he mentions *one*, that held above eighty-five *Foot* in *Height*. I have my self planted of them, and imparted to my Friends, which have thrived exceedingly; but till now did not insert it among the *Foresters*: The *Vertues* of the *Fruit* of this *Cherry-tree* against the *Epilepsy*, *Palsy* and *Convulsions*, &c. are in the *Spirits* and *distill'd Waters*. Concerning its other *Uses*, see the *Chapter* and *Section* above-mentioned, to which add *Pomona*, *Chap. viii.* annexed with this Treatise. This Tree affords excellent *Stocks* for the *budding* and *grafting* of other *Cherries* on.

And

And here I might mention the *Bitter Cherry* of *Canada*, (though exceeding-ly unlike to ours) which would yet be propagated for the incomparable *Liquor* it is said to yield, preferable to the best *Limonade*, by an *Incision* of two Inches deep in the *Stem*, and sloping to the Length of a *Foot*, without Prejudice to the *Tree*. What is said of it, and of the *Maple*, in the late Discovery of the *North-America*, may be seen in the late Description of those Countries. For other *Exotic Species*, V. *Raij Dendrolog. Tom. iii. p. 45, 46.*

CHAP. XI.

Of the Maple.

1. THE *Maple* [*Acer minus*] (of which *Authors*, see *Salmasius* upon *Solinus*, Chap. xxxiii. reckon very many Kinds) was of Old held in equal Estimation almost with the *Citron*, especially the *Bruscum*, the *French Maple*, and the *Pavonaceus*, *Peacocks-tail Maple*, which is that Sort so elegantly undulated, and crisped into Variety of *Curls*, as emulates the famous *Citria*. It were a most laudable Attempt, if some would enquire out, and try the planting of such Sorts as are *Indigenes* amongst us; such as is especially the *German Aier*, and that of *Virginia*, not yet cultivated here, but an excellent *Tree*: And if this were extended to other *Timber*, and *Exotic Trees* likewise, it would prove of extraordinary Benefit and Ornament to the *Publick*, and were worthy even of the *Royal Care*. They are all produced of *Seeds* contained in the *Folliacles* and *Keys*, or *Birds-Tongues* (as they are called) like the *Ash* (after a Year's Interment) and like to it, affect a sound, and a dry Mould; growing both in *Woods* and *Hedges-rows*, especially in the latter; which if rather hilly than low, affords the fairest *Timber*. It is also propagated by *Layers* and *Suckers*. By fhredding up the Boughs to a Head, I have caused it to shoot to a wonderful Height in a little Time; but if you will lop it for the *Fire*, let it be done in *January*; and indeed it is observed to be of noxious Influence to the subnascent Plants of other Kinds, by Reason of a clammy Dew, which it sheds upon them, and therefore they would not be indulged in *Pollards*, or spreading Trees, but to thicken *Under-woods* and *Copses*. The *Timber* is far superior to *Beech* for all Uses of the *Turner*, who seeks it for *Dishes*, *Cups*, *Trays*, *Trenchers*, &c. as the *Joyner* for *Tables*, *In-layings*, and for the Delicateness of the *Grain*, when the *Knurs* and *Nodosities* are rarely diaper'd, which does much advance its Price: Our *Turners* will work it so thin, that it is almost transparent; also for the Lightness (under the Name *Aier*) employed often by those who make musical Instruments; also that especially, which grows in *Friuli*, *Carniola* and *Saltzburglandt*: There is a larger Sort, which we call the *Sycamore*.

2. But the Description of this lesser *Maple*, and the antient Value of it, is worth the citing. *Acer operum elegantia, & subtilitate Cedro secundum; plura ejus genera: Album, quod precipui candoris vocatur Gallicum: In Transpadana Italia, transque Alpes nascens. Alterum genus, crispo macularum discursu, qui cum excellentior fuit, à similitudine caudæ pavonum nomen accepit.* 'The *Maple* (says *Pliny*) for the Elegancy and Fineness of the *Wood*, is next to the very *Cedar* it self. There are several Kinds of it, especially the

BOOK I. *White*, which is wonderfully beautiful; this is called the *French Maple*, and grows in that Part of *Italy* that is on the other Side of *Po* beyond the *Alps*: The other has a *curl'd Grain*, so curiously *maculated*, that from a near Resemblance, it was usually called the *Peacock's-Tail*, &c.' He goes on to commend that of *Istria*, and that growing on the Mountains for the best: But in the next Chapter; *Pulcherimum vero est Bruscum, multoque excellentius etiamnum Mollusculum, tuber utrumque arboris ejus. Bruscum intortius crispum, Molluscum simplicius sparsum; & si magnitudinem mensarum caperet, haud dubie praeferretur Cedro, nunc intra pugillares, lectorumque silicios aut laminas, &c. è Brusco fiunt mensae nigrescentes, &c. Plin. Lib. xvi. Cap. xv, xvi.* 'The *Bruscum*, or *Knur*, is wonderfully fair, but the *Molluscum* is counted most precious; both of them *Knobs* and *Swellings* out of the *Tree*. The *Bruscum* is more intricately crisped; the *Molluscum* not so much; and had we *Trees* large enough to saw into *Planks* for *Tables*, 'twould be preferred before *Cedar* (or *Citron*, for so some Copies read) it but now they use it only for small *Table-books*, and with its thin *Boards* to *Wainscot Bed-Testers* with, &c. The *Bruscum* is of a blackish Kind, with which they make *Tables*.' Thus far *Pliny*. And such spotted *Tables* were the famous *Tigrin* and *Pantherine* Curiosities of; not so called from being supported with Figures carved like those Beasts, as some conceive, and was in Use even in our *Grandfathers* Days, but from its natural Spots and Maculations, *hem, quantis facultatibus aestimavere ligneas maculas!* as *Tertullian* cries out, *de Pallio*, Cap. v. Such a *Table* was that of *Cicero's*, which cost him ten thousand *Sesterces*; such another had *Asinius Gallus*. That of King *Juba* was sold for fifteen thousand, and another, which I read of, valued at a hundred and forty thousand, *H. S.* which at about *Three Pence Sterling*, arrives to a pretty Sum; and yet that of the *Mauritanian Ptoleme*, was far richer, containing four *Foot* and an half *Diameter*, three *Inches* thick, which is reported to have been sold for its Weight in *Gold*: Of that Value they were, and so madly *luxurious* the Age, that when they at any Time reproached their *Wives* for their wanton Expensiveness in *Pearl* and other rich Trifles, they were wont to retort, and turn the *Tables* upon their *Husbands*. The *Knot* of the *Timber* was the most esteemed, and is said to be much resembled by the *Female Cypress*: We have now, I am almost persuaded, as beautiful *Planks* of some *Walnut-trees*, near the *Root*; and *Yew*, *Ivy*, *Rose-wood*, *Ash*, *Thorn* and *Olive*, I have seen incomparable Pieces; but the great Art was in the *Seasoning* and *Politure*; for which last, the rubbing with a Man's *Hand*, who came warm out of the *Bath*, was accounted better than any Cloth, as *Pliny* reports. Some there be who contend, this *Citern* was a Part near the *Root* of the *Cedar*, which, as they describe it, is very *oriental* and *odoriferous*; but most of the Learned favour the *Citron*, and that it grew not far from our *Tangier*, about the Foot of *Mount Atlas*, whence haply some industrious Person might procure of it from the *Moors*; and I did not forget to put his then *Excellency*, my Lord *H. Howard* (since his Grace the Duke of *Norfolk*) in mind of it; who I hoped might have Opportunities of satisfying our *Curiosity*, that by comparing it with those elegant *Woods*, which both our own *Countries*, and the *Indies* furnish, we might pronounce something in the *Controversy*: But his not going so far into the *Country*, and the Disorder which happened

at his being there, quite frustrated this Expectation: Here I think good to add, what honest *Palissy* philosophises, after his plain Manner, about the Reason of those pretty *Undulations* and *Chamfers*, which we so frequently find in divers *Woods*, which he takes to be the *Descent*, as well as *Ascent of Moisture*: For what else (says he) becomes of that *Water* which we often encounter in the *Cavities*, when many Branches *divaricate*, and spread themselves at the Tops of great *Trees* (especially *Pollards*) unless (according to its natural Appetite) it sink into the very Body of the *Stem* through the *Pores*? For *Example*, in the *Walnut*, you shall find, when 'tis old, that the *Wood* is admirably *figured*, and, as it were, *marbled*, and therefore much more esteemed by the *Joyners*, *Cabinet-makers*, and *Ouvrages de Marqueterie*, *Inlayers*, &c. than the *Young*, which is paler of *Colour*, and without any notable *Grain*, as they call it. For the *Rain* distilling along the *Branches*, when many of them break out into Clusters from the *Stem*, sinks in, and is the Cause of these *Marks*; since we find it exceedingly full of *Pores*: Do but plane off a thin Chip, or Sliver, from one of these *old Trees*, and interposing it betwixt your *Eye* and the *Light*, you shall observe it to be full of innumerable *Holes* (*much more perspicuous and ample, by the Application of a good * Microscope.*) But above all, ^{* Not invented in Palissy's Days.} notable for these extravagant *Damaskings* and *Characters*, is the *Maple*; and 'tis notorious, that this *Tree* is very full of *Branches* from the *Root* to its very *Summit*, by reason that it produces no considerable *Fruit*: These *Arms* being frequently cut, the *Head* is more furcharged with them, which spreading like so many *Rays* from a *Centre*, form that *Hollowness* at the Top of the *Stem* whence they shoot, capable of containing a good Quantity of *Water* every Time it *rains*: This sinking into the *Pores*, as was before hinted, is compelled to divert its Course as it passes through the Body of the *Tree*, where-ever it encounters the *Knot* of any of those *Branches* which were cut off from the *Stem*; because their *Roots* not only deeply penetrate towards the *Heart*, but are likewise of themselves very *hard* and *impervious*; and the frequent *Obliquity* of this *Course* of the subsiding *Moisture*, by reason of these *Obstructions*, is, as may be conceived, the Cause of those curious *Works* which we find remarkable in *this*, and other *Woods*, whose *Branches* grow thick from the *Stem*: But for these curious *Contextures*, consult rather the Learned *Dr. Grew*. We have shewed how by *Culture*, and stripping up, it arrives to a goodly *Tree*; and surely there were some of them of large Bulk, and noble *Shades*, that *Virgil* should choose it for the *Court* of his *Evander* (one of his worthiest *Princes*, in his best of *Poems*) sitting in his *Maple-Throne*; and when he brings *Aeneas* into the *Royal Cottage*, he makes him this memorable *Complement*; *Greater*, says great *Cowley*, than ever was yet spoken at the *Escorial*, the *Louvre*, or *White-Hall*.

^a *This humble Roof, this Rustick Court, said he,
Receiv'd Alcides crown'd with Victory:
Scorn not (great Guest) the Steps where he has trod,
But contemn Wealth, and imitate a God.*

^a ——— Hæc (inquit) limina Victor
Alcides ———

BOOK I. The *Savages* in *Canada*, when the *Sap* rises in the *Maple*, by an *Incision* in the *Tree*, *extraët* the *Liquor*; and having *evaporated* a reasonable Quantity thereof (as suppose seven or eight Pounds) there will remain one Pound, as sweet and perfect *Sugar* as that which is gotten out of the *Cane*; Part of which *Sugar* has been for many Years constantly sent to *Roven* in *Normandy*, to be refined: There is also made of this *Sugar* an excellent *Syrup* of *Maiden-hair* and other *Capillary* Plants, prevalent against the *Scorbut*; though Mr. *Ray* thinks otherwise, by reason of the *Saccharine* Substance remaining in the Decoction: See *Synops. Stirp. & Tom. iii. Dendrolog. de Acere*, P. 93, 94.

C H A P. XII.

Of the *Sycomor*.

SYCOMOR. I. THE *Sycomor*, or *wild Fig-tree* (falsly so called) is our *Album*, *Acer majus*, or broad-leav'd *Mas*, one of the *Maples*, and is much more in Reputation for its *Shade* than it deserves; for the *Honey-dew* Leaves, which fall early (like those of the *Ash*) turn to *Mucilage* and noxious *Insects*, and putrifie with the first Moisture of the Season; so as they *contaminate* and mar our *Walks*; and are therefore by my Consent to be banished from all curious *Gardens* and *Avenues*. 'Tis raised of the *Keys* in the *Husk* (as soon as ripe) they come up the first *Spring*; also by *Roots* and *Layers*, in Ground moist, not over-wet or stiff, and to be governed as other *Nursery Plants*.

USES.

2. There is in *Germany* a better Sort of *Sycomor* than ours (nor are ours *Indiginæ*) wherewith they make *Saddle-trees*, and divers other Things of use; our own is excellent for *Trenchers*, *Cart*, and *Plow-Timber*, being light, tough, and not much inferior to *Ash* it self; and if the *Trees* be very tall and handsome, are the more tolerable for *distant Walks*, especially where other better *Trees* prosper not so well, or where a sudden *Shade* is expected: Some commend them to thicken *Copses*, especially in *Parks*, as least apt to the Spoil of *Deer*, and that it is good *Fire-wood*. This *Tree* being wounded, bleeds a great Part of the Year; and the *Liquor* emulating that of the *Birch*, which for hapning to few of the rest (that is, to bleed *Winter* and *Summer*) I therefore mention: The *Sap* is sweet and wholesome, and in a short Time yields sufficient Quantity to *brew* with; so as with one Bushel of *Malt*, is made as good *Ale* as four Bushels with ordinary Water, upon Dr. *Tongue's* Experience, *Transact.* Vol. iv. Fol. 917.

C H A P. XIII.

Of the *Lime-Tree*.

LIME-TREE.

I. *Tilia*, the *Lime-tree*, or [*Linden*] is of two Kinds; the *Male* (which some allow to be but a finer Sort of *Elm*) or *Maple* rather, is harder, fuller of *Knots*, and of a redder Colour; but producing neither *Flower* nor *Seed* (so constantly and so mature with us) as does the *Female*, whose *Blossom* is also very odoriferous, perfuming the

the *Air*, the *Leaf* larger; the *Wood* is likewise thicker, of small Pith, and not obnoxious to the *Worm*; so as it seems *Theophrastus de Plin.* Lib. iii. Cap. x. said true, That though they were of both Sexes, διαφέρουσι ὅ τῇ μορφῇ τῇ ὄλῃ, &c. yet they totally differed as to their *Form*. We send commonly for this Tree into *Flanders* and *Holland*, (which indeed grow not so naturally wild with us) to our excessive Cost, whiles our own *Woods* do in some Places spontaneously produce them; and though of somewhat a smaller Leaf, yet altogether as good, apt to be civilized and made more florid: From thence I have received many of their *Berries*; so as it is a shameful Negligence, that we are no better provided of *Nurseries* of a Tree so choice and universally acceptable: For so they may be raised either of the *Seeds* in *October*, or (with better Success) by the *Suckers* and *Plants*, which are treated after the same *Method*, and in as great abundance as the *Elm*, like to which it should be cultivated. You may know whether the *Seeds* be prolifick, by searching the *Husk*; if biting, or cutting it sunder it be full and white, and not husky, as sometimes we find the *Foreigners*: Be sure to collect your *Seed* in dry Weather, airing it in an open Room, and reserving it in *Sand* (as has been taught) till *Mid-February*, when you may sow it in pretty strong, fresh and loamy Mould, kept shaded and moist, as the Season requires, and clear of Weeds; and at the Period of two Years, plant them out, dressed and pruned, as Discretion shall advise. But not only by the *Suckers* and *Layers* at the *Roots*, but even by *Branches* lopp'd from the *Head*, may this Tree be propagated; and peeling off a little of the *Bark*, at a competent Distance from the *Stem* or *Arms*, and covering it with *Loam* mingled with rich *Earth*, they will shoot their *Fibres*, and may be seasonably separated: But to facilitate this and the like Attempts, it is advisable to apply a *Ligature* above the Place, when the *Sap* is ascending, or beneath it, when it (as they say vulgarly) descends. From *June* to *November* you may lay them; the *Scrubs* and less erect, do excellently to thicken *Copses*, and will yield lusty *Shoots*, and useful *Fire-wood*.

2. The *Lime-tree* affects a rich feeding loamy Soil; in such Ground their Growth will be most incredible for Speed and Spreading. They may be planted as big as one's Leg; their *Heads* topp'd at about six or eight Foot *Bole*; thus it will become (of all other) the most proper and beautiful for *Walks*, as producing an upright *Body*, smooth and even *Bark*, ample *Leaf*, sweet *Blossom*, the Delight of *Bees*, and a goodly *Shade* at Distance of eighteen or twenty-five Foot. They are also very patient of *Pruning*; but if it taper over-much, some of the collateral Boughs would be spared or cut off, to check the *Sap*, which is best to be done about *Midsummer*; and to make it grow upright, take off the prepondering Branches with Discretion, and so you may correct any other Tree, and redress its Obliquity.

The *Root* in transplanting would not be much lopp'd; and this (says Mr. Cook) is a good Lesson for all young planted Trees.

3. The *Prince-Elector* did lately remove very great *Lime-trees* out of one of his *Forests*, to a steep Hill, exceedingly exposed to the Heat of the *Sun*, at *Heidelberg*, and that in the midst of *Summer*: They grow behind that strong *Tower* on the *South-west*, and most torrid Part of the *Eminence*, being of a dry reddish barren Earth; yet do they prosper rarely well: But the *Heads* were cut off, and the *Pits* into which they were transplanted, were (by the Industry and Direction of

BOOK I. Mounfieur de Son, a Frenchman, and an admirable Mechanician, who himself related it to me) filled with a Composition of *Earth* and *Cow-dung*, which was exceedingly beaten, and so *diluted* with *Water*, as it became almost a liquid *Pap*: It was in *this* that he plunged the *Roots*, covering the Surface with the *Turf*: A singular *Example* of removing so great *Trees* at such a *Season*, and therefore by me taken Notice of here expressly. Other Perfections of the *Tree* (besides its unparallel'd Beauty for *Walks*) are, that it will grow in almost *all* Grounds: That it lasts *long*; that it soon *heals* its *Scars*; that it affects *Uprightness*; that it stoutly resists a *Storm*; that it seldom becomes *hollow*.

USES.

4. The *Timber* of a well-grown *Lime* is convenient for any Use that the *Willow* is; but much to be preferred, as being both stronger, and yet lighter; whence *Virgil* calls them *Tilias leves*; and therefore fit for *Tokes*, and to be turned into *Boxes* for the *Apothecaries*; and *Columella* commends *Arculas Tiliaceas*. And because of its *Colour* and easy working, and that it is not subject to split, *Architects* make with it *Models* for their designed *Buildings*; and the *Carvers* in *Wood*, not only for small *Figures*, but large *Statues* and entire *Histories*, in *Bass* and *high Relieve*; witness (besides several more) the *Lapidation* of *St. Stephen*, with the *Structures* and *Elevations* about it: The *Trophies*, *Festoons*, *Frutages*, *Encarpa*, and other *Sculptures* in the *Frontoons*, *Freezes*, *Capitals*, *Pedestals*, and other *Ornaments* and *Decorations* (of admirable *Invention* and *Performance*) to be seen about the *Choir* of *St. Paul's* and other *Churches*; *Royal Palaces*, and *Noble Houses* in *City* and *Country*: All of them the *Works* and *Invention* of our *Lysippus*, *Mr. Gibbons*, comparable, and for ought appears, equal to any Thing of the *Antients*; having had the *Honour* (for so I account it) to be the *first* who recommended this great *Artist* to his Majesty, *Charles II.* I mention it on this Occasion, with much Satisfaction. With the *Twigs*, they made *Baskets* and *Cradles*, and of the smoother Side of the *Bark*, *Tablets* for *Writing*; for the ancient *Philyra* is but our *Tilia*; of which *Munting* affirms, he saw a *Book* made of the inward *Bark*, written about a thousand Years since. Such another was brought to the *Count* of *St. Amant*, Governor of *Arras*, 1662. for which there was given eight thousand *Ducats* by the *Emperor*, and that it contained a Work of *Cicero*, *De Ordinanda Republica*, & *de Inventendis Orationum Exordiis*; a Piece inestimable, never published; is now in the *Library* at *Vienna*, after it had formerly been the greatest *Rarity* in that of the late Cardinal *Mazarine*: Other *Papyraceous Trees* are mentioned by *West-Indian Travellers*, especially in *Hispaniola*, *Java*, &c. which not only exceed our largest *Paper* for *Breadth* and *Length*, and may be written on on both Sides, but is comparable to our best *Vellum*. *Bellonius* says, That the *Grecians* made *Bottles* of the *Tilia*, which they finely rozzined within-side, so likewise for *Pumps* of *Ships*, also *Lattices* for *Windows*: *Schoemakers* use *Dressers* of the *Plank* to cut *Leather* on, as not so hard as to turn the *Edges* of their *Knives*; and even the coarsest *Membrane*, or *Slivers* of the *Tree* growing betwixt the *Bark* and the main *Body*, they now twist into *Bass-ropes*; besides, the *Trunchions* make a far better *Coal* for *Gun-Powder* than that of *Alder* it self: *Scribbles* for *Painters first Draughts* are also made of its *Coals*; and the extraordinary *Candor* and *Lightness*, has dignified it above all the *Woods* of our *Forest*, in the Hands of the Right Honourable the *White-slave*

stave Officers of his Majesty's Imperial Court. Those Royal Plantations of these Trees in the Parks of Hampton-Court and St. James's, will sufficiently instruct any Man how these (and indeed all other Trees which stand single) are to be governed and defended from the Injuries of *Beasts*, and sometimes more *unreasonable* Creatures, till they are able to protect themselves. In *Holland* (where the very *High-ways* are adorned with them) they frequently clap three or four *Deal-boards* (in manner of a close Trunk) about them; but it is not so well; because it keeps out the *Air*, which should have free Access and Intercourse to the *Bole*, and by no means be excluded from flowing freely about them, or indeed any other Trees, provided they are secured from Cattle, and the Violence of impetuous Winds, &c. as his Majesty's are, without those close *Coffins*, in which the *Dutchmen* seem rather to bury them alive: In the mean Time, is there a more ravishing or delightful Object, than to behold some entire *Streets*, and whole *Towns* planted with these Trees, in even Lines before their Doors, so as they seem like *Cities* in a *Wood*? This is extremely fresh, of admirable Effect against the *Epilepsy*, for which the delicately scented *Blossoms* are held prevalent, and skreen the Houses both from *Winds*, *Sun* and *Dust*; than which there can be nothing more desirable where Streets are much frequented. For thus

^a The stately Lime, smooth, gentle, streight and fair,
(With which no other Dryad may compare)
With verdant Locks, and fragrant Blossoms deckt,
Does a large, even, odorate Shade project.

Diræ and *Curses* therefore on those *inhumane* and ambitious *Tyrants*, who, not contented with their own *Dominions*, invade their peaceful Neighbour, and send their *Legions*, without Distinction, to destroy and level to the Ground such venerable and goodly *Plantations*, and noble *Avenues*, irreparable Marks of their *Barbarity*!

The Distance for *Walks* (as we said) may, in rich Ground, be *twenty-five Foot*; in more ordinary Soil, *eighteen* or *twenty*. For a most *prodigious* Tree of this Kind, see *Chap. xxx. Sect. x.*

The *Berries*, reduced to Powder, cure the *Dysentery*, and stop *Blood* at the Nose: The distilled *Water* is good against the *Epilepsy*, *Apoplexy*, *Vertigo*, Trembling of the *Heart*, *Gravel*. *Schroder* commends a *Mucilage* of the *Bark* for Wounds, *repellens Urinam*, & *Menses ciens*, &c. And I am told, the Juice of the *Leaves* fixes Colours.

C H A P. XIV.

Of the Poplar, Aspen and Abele.

I. Populus. I begin this second *Class* (according to our former *Di-* POPLAR.
tribution) with the *Poplar*, of which there are several Kinds, *White*, *Black*, &c. (which in *Candy* 'tis reported bears Seed) besides

^a Stat *Philyra*; haud omnes formosior altera surgit
Inter *Hamadryades*; mollissima, candida, lævis,
Et viridante comâ & benevolenti flore superba,
Spargit odoratam latè, atque æqualiter umbram.

COULEII Lib. vi. *plin.*

BOOK I. the *Aspen*. The *White* (famous heretofore for yielding its *Umbram Hospitalem*) is the most ordinary with us, to be raised in abundance by every *Set* or *Slip*. Fence the Ground as far as any old *Poplar*-roots extend, they will furnish you with *Suckers* innumerable, to be slipped from their *Mothers*, and *transplanted* the very first Year: But if you cut down an old Tree, you shall need no other *Nursery*. When they are young, their *Leaves* are somewhat broader and rounder (as most other *Trees* are) than when they grow aged. In moist and *boggy* Places they will flourish wonderfully, so the Ground be not *spewing*, but especially near the *Margins* and Banks of *Rivers*.

Populus in fluviis —

and in low, sweet and fertile Grounds; yea, and in the drier likewise. Also *Trunchions* of seven or eight Foot long, thrust two Foot into the *Earth* (a Hole being made with a sharp hard *Stake*, filled with *Water*, and then with fine *Earth* pressed in, and close about them) when once *rooted*, may be cut at six Inches above Ground; and thus placed at a Yard distant, they will immediately furnish a Kind of *Copse*. But in Case you plant them of *rooted Trees*, or smaller *Sets*, fix them not so deep; for though we bury the *Trunchions* thus profound, yet is the *Root* which they strike commonly but shallow. They will make prodigious *Shoots* in fifteen or sixteen Years; but then the *Heads* must by no means be diminished, but the lower Branches may, yet not too far up; the *Foot* would also be cleansed every second Year. This for the *White*. The *black Poplar* is frequently *pollard*, when as big as one's Arm, eight or nine Foot from the Ground, as they trim them in *Italy*, for their *Vines* to serpent and twist on, and those they *poll*, or *head* every second Year, sparing the middle, streight, and thrivingest *Shoot*, and at the third Year cut him also. There be yet that condemn the *Pruning* of this *Poplar*, as hindering their Growth.

2. The *Shade* of this *Tree* is esteemed very wholesome in *Summer*, but they do not become Walks or *Avenues*, by reason of their *Suckers*, and that they foul the Ground at Fall of the Leaf; but they would be planted in barren *Woods*, and to flank Places at Distance for their Increase, and the glittering Brightness of their Foliage: The *Leaves* are good for *Cattle*, which must be stripp'd from the cut Boughs before they are fagotted. This to be done in the Decrease of *October*, and reserved in Bundles for Winter Fodder. The *Wood* of *white Poplar* is sought of the *Sculptor*, and they *saw* both Sorts into *Boards*, which, where they lie dry, continue a long Time. Of this Material they also made *Shields* of Defence in *Sword* and *Buckler*-days. *Dioscorides* writes, that the *Bark* chopp'd small, and sowed in Rills, well and richly manured and watered, will produce a plentiful Crop of *Mushrooms*; or warm *Water*, in which *Yest* is dissolved, cast upon a new-cut *Stump*: It is to be noted, that those *Fungi*, which spring from the putrid Stumps of this *Tree*, are not *venenous* (as of all, or most other *Trees* they are) being gathered after the first autumnal Rains. There is a *Poplar* of a paler Green, and is the properest for watry Ground: 'Twill grow of *Trunchions* from two or eight Foot long, and bringing a good *Lop* in a short Time, is by some preferred to *Willows*.

For the Setting of these, Mr. Cook advises the boring of the Ground with a Sort of *Auger*, to prevent the stripping of the *Bark* from the *Stake* in planting: A Foot and half deep, or more if great (for some may

may be eight or nine Foot) for *Pollards*, cut sloping, and free of Cracks at either End: Two or three Inches *Diameter*, is a competent Bigness, and the Earth should be rammed close to them C H. XV.

Another Expedient is, by making *Drains* in very moist Ground, two Spade deep, and three Foot wide, casting up the Earth between the *Drains*, sowing it the first Year with *Oats*, to mellow the Ground; the next Winter setting it for *Copse*, with *these*, any, or all the watry Sorts of Trees: thus, in four or five Years, you will have a handsome *Fell*, and so successively. It is in the former *Author*, where the Charge is exactly calculated, to whom I refer the *Reader*. I am informed, that in *Cheshire* there grow many stately and streight *black Poplars*, which they call *Peplurus*, that yield Boards and Planks of an Inch and half Thickness; so fit for *Flooring* of Rooms, by some preferred to *Oak*, for the Whiteness and lasting, where they lie dry.

3. They have a *Poplar* in *Virginia* of a very peculiar shaped *Leaf*, as if the Point of it were cut off, which grows very well with the *Curious* amongst us to a considerable Stature. I conceive it was first brought over by *John Tradescant*, under the Name of the *Tulip-tree* (from the Likeness of its *Flower*) but is not, that I find, taken much Notice of in any of our *Herbals*: I wish we had more of them; but they are difficult to elevate at first.

4. The *Aspen* only (which is that Kind of *Lybica*, or *white Poplar*) bearing a smaller and more tremulous *Leaf* (by the *French* call'd *la Tremble*, or *Quaker*) thrusts down a more searching Foot, and in this likewise differs, that he takes it ill to have his *Head* cut off: *Pliny* would have short *Trunchions* couched two Foot in the Ground (but first two Days dried) at one Foot and half Distance, and then moulded over.

5. There is something a finer Sort of *white Poplar*, which the *Dutch* call *Abele*, and we have of late *Abele* much transported out of *Holland*: These are also best propagated of *Slips* from the *Roots*, the least of which will take, and may in *March*, at three or four Years Growth, be transplanted.

6. In *Flanders* (not in *France*, as a late *Author* pretends) they have large *Nurseries* of them, which first they plant at one Foot Distance, the Mould light and moist, by no means *clayie*, in which, though they may shoot up tall, yet for want of Root, they never spread; for, as I said, they must be interred pretty deep, not above three Inches above Ground, and kept clean, by pruning them to the middle Shoot for the first two Years, and so till the third or fourth. When you transplant, place them at eight, ten or twelve Foot Interval: They will likewise grow of *Layers*, and even of *Cuttings* in very moist Places. In three Years they will come to an incredible Altitude; in twelve be as big as your Middle; and in eighteen or twenty, arrive to full Perfection. A *Specimen* of this Advance we have had of an *Abele* Tree at *Sion*, which being lopped in February 1651, did, by the End of October 52, produce Branches as big a Man's Wrists, and seventeen Foot in Length; for which Celerity we may recommend them to such late Builders as seat their Houses in naked and unsheltered Places, and that would put a Guise of Antiquity upon any new Inclosure; since by these, whilst a Man is in a Voyage of no long Continuance, his House and Lands may be so covered, as to be hardly known at his Return. But as they thus increase in Bulk, their Value (as the *Italian Poplar* has taught us) advances likewise; which after the first seven Years, is annually worth

BOOK I. *Twelve Pence* more: So as the *Dutch* look upon a *Plantation* of these *Trees*, as an ample Portion for a *Daughter*, and none of the least Effects of their good *Husbandry*; which truly may very well be allowed, if that *Calculation* hold, which the late worthy * *Knight* has asserted, (who began his *Plantation* not long since about *Richmond*) that thirty *Pound* being laid out in these *Plants*, would render at the least *ten thousand Pounds* in *eighteen Years*; every *Tree* affording *thirty Plants*, and every of them *thirty* more, after each *seven Years* improving *twelve Pence* in Growth, till they arrive to their *Acme*.

* Sir Richard
Weston.

7. The *black Poplar* grows rarely with us; it is a stronger and taller Tree than the *White*, the *Leaves* more dark, and not so ample. Divers stately ones of these, I remember about the Banks of *Po* in *Italy*; which flourishing near the old *Eridanus* (so celebrated by the *Poets*) in which the temerarious *Phaeton* is said to have been precipitated, doubtless gave Argument to that *Fiction* of his sad Sister's *Metamorphosis*, and the *Amber* of their precious *Tears*. It was whiles I was passing down that River towards *Ferrara*, that I diverted my self with this Story of the ingenious *Poet*. I am told there is a *Mountain Poplar* much propagated in *Germany* about *Vienna*, and in *Bobemia*, of which some Trees have yielded *Planks* of a Yard in Breadth; Why do we procure none of them?

USES.

8. The best Use of the *Poplar* and *Abele* (which are all of them hospitable Trees, for any Thing thrives under their *Shades*) is for *Walks* and *Avenues* about Grounds which are situated low, and near the Water, till coming to be very old, they are apt to grow knurly, and out of Proportion. The *Timber* is incomparable for all Sorts of white wooden Vessels, as *Trays*, *Bowls*, and other *Turner's Ware*; and of especial Use for the *Bellows-maker*, because it is almost of the Nature of *Cork*, and for *Ship-pumps*, though not very solid, yet very close, and yet light; so as it may be used for the *Soles*, as well as *Wooden-beels* of *Shoes*, &c. *Vitruvius* l. de materia cadenda, reckons it among the Building-timbers, quæ maximè in ædificiis sunt idoneæ. Likewise to make *Carts*, because it is exceeding light; for *Vine*, and *Hop-props*, and divers *vimineous Works*. The Loppings in *January* are for the *Fire*; and therefore such as have proper Grounds, may with Ease, and in short Time, store themselves for a considerable *Family*, where *Fuel* is dear: But the Truth is, it burns untowardly, and rather moulders away, than maintains any solid Heat. Of the *Twigs* (with the *Leaves* on) are made *Brooms*. The *Brya*, or *Catkins*, attract the *Bees*, as do also the *Leaves* (especially of the *Black*) more tenacious of the *Meldews* than most *Forest-trees*, the *Oak* excepted.

Of the *Aspen*, our *Wood-men* make *Hoops*, *Fire-wood* and *Coals*, &c. and of the *Bark* of young Trees, in some Countries, it serves for *Candle* or *Torch-wood*.

The Juice of *Poplar Leaves*, dropped into the Ears, asswages the Pain; and the *Buds* contused, and mix'd with *Honey*, is a good *Collyrium* for the *Eyes*; as the *Unguent* to refrigerate and cause *Sleep*.

One Thing more is not to be passed over, of the *White-Poplar*; that the *Seeds* of *Mistleto* being put into Holes bored in the Bark of this Tree, have produced the *Plant*: Experiment sufficient to determine that so long controverted Question, concerning *spontaneous* and *equivocal Generations*. Vid. D. Raij. P. L. Append. p. 1918.

CHAP. XV.

Of the Quick-Beam.

1. **T**HE Quick-beam [*Ornus*, or as the *Pinax* more peculiarly, *Fraxinus bubula*; others, the *Wild Sorb*] or (as some term it) the *Witcher*, is a *Species* of *Wild-Ash*. The *Berries* which it produces in *October*, may then be sown; or rather the *Sets* planted: I have Store of them in a warm *Grove* of mine, and 'tis of singular Beauty: It rises to a reasonable Stature, shoots upright and slender, and consists of a fine smooth *Bark*. It delights to be both in *Mountains* and *Woods*, and to fix it self in good light Grounds; *Virgil* affirms, 'twill unite with the *Pear*.

2. Besides the Use of it for the *Husbandman's Tools*, *Goads*, &c. USES. the *Wheel-wright* commends it for being all *Heart*; if the *Tree* be large, and so well grown as some there are, it will saw into *Planks*, *Boards* and *Timber*, (*vide* Chap. xxx. Sect. x.) and our *Fletchers* commend it for *Bows* next to *Tew*; which we ought not to pass over, for the Glory of our once right *English* Ancestors: In a *Statute* of *Hen. VIII.* you have it mentioned: It is excellent *Fuel*; but I have not yet observed any other Use, save that the *Blossoms* are of an agreeable Scent, and the *Berries* such a tempting Bait for the *Thrushes*, that as long as they last, you shall be sure of their Company. Some highly commend the *Juice* of the *Berries*, which (fermenting of it self) if well preserved, makes an excellent Drink against the *Spleen* and *Scurvy*: *Ale* and *Beer* brewed with these *Berries*, being ripe, is an incomparable Drink, familiar in *Wales*, where this *Tree* is reputed so sacred, that as there is not a *Church-yard* without one of them planted in them (as among us the *Tew*) so on a certain Day in the Year, every Body religiously wears a *Cross* made of the *Wood*, and the *Tree* is by some Authors called *Fraxinus Cambro-Britannica*; reputed to be a Preservative against *Fascinations* and *Evil-Spirits*; whence, perhaps, we call it *Witcher*; the *Boughs* being stuck about the House, or the *Wood* used for *Walking-Staves*.

CHAP. XVI.

Of the Hasel.

1. **N**UX *Silvestris*, or *Corylus*, the *Hasel*, is best raised from the HASEL. *Nuts* (also by *Suckers* and *Layers*) which you shall sow * De Nucum generibus, vide Macrob. Sect. L. xi. c. xiv. like *Mast*, in a pretty deep *Furrow*, toward the End of *February*; or treat them as you are instructed in the *Walnut*; light Ground may immediately be sown and harrow'd-in very accurately; but in Case the *Mould* be *Clay*, Plow it earlier, and let it be sufficiently mellowed with the *Frosts*; and then the third Year cut your *Trees* near to the Ground with a sharp *Bill*, the *Moon* decreasing.

2. But if you would make a *Grove* for Pleasure, plant them in *Fosses*, at a *Yard* Distance, and cut them within half a Foot of the Earth, dressing them for three or four *Spring*s and *Autumn*s, by only loosening the

BOOK I. the *Mould* a little about their *Roots*. Others there are, who set the *Nuts* by Hand at one Foot Distance, to be *transplanted* the third Year, at a Yard asunder: But this Work is not to be taken in hand so soon as the *Nuts* fall, till Winter be well advanced; because they are exceedingly obnoxious to the *Frosts*; nor will they sprout till the Spring; besides, *Vermin* are great Devourers of them: Preserve them therefore moist, not mouldy, by laying them in their own dry Leaves, or in Sand, till *January*.

^a *Hasels* from *Sets* and *Suckers* take.

3. From whence they thrive very well, the *Shoots* being of the Scantlings of small *Wands* and *Switches*, or somewhat bigger, and such as have drawn divers *bairy* Twigs, which are by no means to be disbranched, no more than their *Roots*, unless by a very sparing and discreet Hand. Thus, your *Coryletum*, or *Copse* of *Hasels*, being planted about *Autumn*, may (as some practise it) be cut within three or four Inches of the Ground the Spring following, which the new *Cyon* will suddenly repair in Clusters, and Tufts of fair *Poles* of twenty, or sometimes thirty Foot long: But I rather should spare them till two or three Years after, when they shall have taken strong hold, and may be cut close to the very Earth, the improsperous and feeble ones especially. Thus are likewise *Filberts* to be treated, both of them improved much by *transplanting*, but chiefly by *grafting*, and it would be tried with *Filberts*, and even with *Almonds* themselves, for more elegant Experiments.

In the mean Time, I do not confound the *Filbert*, *Pontic* or *Filbord*, distinguished by its *Beard*, among our *Foresters* (or bald *Hasel-nuts*) which doubtless we had from Abroad; and bearing the Names of *Avelan*, *Avelin*, as I find in some ancient *Records* and *Deeds* in my Custody, where my Ancestors Names were written *Avelan*, alias *Evelin*, generally.

4. For the *Place*, they above all affect cold, barren, dry and sandy Grounds; also *Mountains*, and even rocky Soils produce them; and where *Quarries* of *Freestone* lie underneath, as that at *Haselberry* in *Wilts*, *Haselning-field* in *Cambridge-shire*, *Haselmeer* in *Surrey*, and other Places; but more plentifully, if the Ground be somewhat moist, dankish and mossie, as in the fresher *Bottoms*, and Sides of *Hills*, *Hoults*, and in *Hedge-rows*. Such as are maintained for *Copses*, may after twelve Years be fell'd the first Time; the next, at seven or eight, &c. for by this Period, their *Roots* will be compleatly vigorous. You may plant them from *October* to *January*, provided you keep them carefully weeded, till they have taken fast hold; and there is not among all our Store, a more profitable Wood for *Copses*, and therefore good *Husbands* should store them with it.

USES.

5. The Use of the *Hasel* is for *Poles*, *Spars*, *Hoops*, *Forks*, *Angling-Rods*, *Faggots*, *Cudgels*, *Coals*, and *Springs* to catch *Birds*; and it makes one of the best *Coals*, once used for *Gun-powder*, being very fine and light, till they found *Alder* to be more fit: There is no Wood which purifies *Wine* sooner, than the *Chips* of *Hasel*: Also for *Withs* and *Bands*, upon which I remember, *Pliny* thinks it a pretty *Speculation*, that a Wood should be stronger to bind withal, being

bruised and divided, than when *whole and entire*: The *Coals* are used by *Painters*, to draw with like those of *Sallow*: Lastly, for riding *Switches*, and *Divinatory Rods*, for the detecting and finding out of *Minerals* (at least, if that *Tradition* be no *Imposture*) is very wonderful, by whatsoever *occult Virtue*, the *Forked-stick* (so cut, and skilfully held) becomes *impregnated* with those *invisible Steams* and *Exhalations*; as by its *spontaneous Bending* from an *horizontal Position*, to discover not only *Mines* and *subterraneous Treasure*, and *Springs of Water*, but *Criminals* guilty of *Murther*, &c. made out so *solemnly*; and the *Effects* thereof, by the *Attestation* of *Magistrates*, and divers other learned and credible Persons (who have *critically examined Matters of Fact*) is certainly next to *Miracle*, and requires a strong Faith. Let the *Curious* therefore consult that *Philosophical Treatise* of * *Dr. Vallemont*; which will at least entertain them with a world of surprizing Things. But now after all the most signal Honour it was ever employed in, and which might deservedly exalt this humble and common *Plant* above all the *Trees* of the *Wood*, is that of *Hurdles* (especially the flexible *White*, the *Red* and brittle) not for that it is generally used for the folding of our innocent *Sheep*, an Emblem of the *Church*, but for making the *Walls* of one of the first *Christian Oratories* in the World; and particularly in this *Island*, that venerable and sacred *Fabrick* at *Glastenbury*, founded by *St. Joseph of Arimathea*; which is storied to have been first composed but of a few small *Hasel-Rods* interwoven about certain *Stakes* driven into the Ground; and *Walls* of this Kind, instead of *Laths* and *Punchions*, superinduced with a coarse *Mortar* made of *Loam* and *Straw*, do to this Day inclose divers humble *Cottages*, *Sheds* and *Out-houses* in the Country; and 'tis strong and lasting for such Purposes, *whole or cleft*, and I have seen ample *Enclosures* of *Courts* and *Gardens* so secured.

6. There is a compendious Expedient for the thickning of *Copses* which are too *transparent*, by laying of a *Sampler*, or *Pole*, of an *Hasel*, *Ash*, *Poplar*, &c. of twenty or thirty Foot in Length (the Head a little lopp'd) into the Ground, giving it a *Chop* near the Foot, to make it succumb; this fastned to the Earth with a *Hook* or two, and covered with some fresh *Mould* at a competent Depth (as *Gardeners* lay their *Carnations*) will produce a world of *Suckers*, thicken and furnish a *Copse* speedily. I add no more of *Filberts*, a kinder and better Sort of *Hasel-nut*, of larger and longer Shape and *Beard*; the *Kernels* also covered with a fine Membrane, of which the *Red* is more delicate: They both are propagated as the *Hasel*, and while more domestick, planted either asunder, or in *Palisade*, are seldom found in the *Copses*: They are brought among other *Fruit* to the best *Tables* for *Desert*, and are said to *fatten*, but too much eaten, obnoxious to the *Asthmatic*. In the mean Time, of this I have had Experience, that *Hasel-nuts*, but the *Filbert* specially, being full ripe, and peeled in *Warm-water* (as they *blanch Almonds*) make a *Pudding* very little (if at all) inferior to that our *Ladies* make of *Almonds*. But I am now come to the *Water-side*; let us next consider the *Aquatic*.

* Vallemont, *Physique Occult ou Traite de la Baguette Divinatoire*, &c. But concerning the *Exploration*, and superstitious Original, See *Sir Thomas Brown, Vulg. Err. Cap. xxiv. Sect. xvii.* and the *Commentators* upon *iv. Hosea 12.*

Of the Birch.

BIRCH.

I. **T**HE Birch [*Betula*, in *British*, *Bedw*, doubtless a proper *Indigene* of *England* (whence some derive the Name of *Barkshire*) though *Pliny* calls it a *Gaulish Tree*] is altogether produced of *Roots* or *Suckers* (though it sheds a Kind of *Samera* about the *Spring*) which being planted at four or five Foot Interval, in small *Twigs*, will suddenly rise to *Trees*, provided they affect the Ground, which cannot well be too barren or *spongy*; for it will thrive both in the Dry and the Wet, Sand, and Stony, *Marshes* and *Bogs*; the *Water-galls*, and *uliginous* Parts of *Forests*, that hardly bear any *Grass*, do many times spontaneously produce it in abundance, whether the Place be high or low, and nothing comes amiss to it. Plant the small *Twigs*, or *Suckers* having *Roots*, and after the first Year cut them within an *Inch* of the Surface; this will cause them to sprout in strong and lusty *Tufts*, fit for *Copse* and *Spring-woods*; or, by reducing them to one *Stem*, render them in a very few Years fit for the *Turner*. For,

USES.

2. Though *Birch* be of all other the worst of *Timber*, yet has it its various *Uses*, as for the *Husbandman's Ox-yoaks*; also for *Hoops*, small *Screws*, *Paniers*, *Brooms*, *Wands*, *Bavin-bands*, and *Wyths* for *Fagots*; and claims a Memory for *Arrows*, *Bolts*, *Shafts* (our old *English Artillery*) also for *Dishes*, *Bowls*, *Ladles*, and other domestic *Utenfils*, in the good old Days of more Simplicity, yet of better and truer *Hospitality*. In *New-England* our Northern *Americans* make *Canoos*, *Boxes*, *Buckets*, *Kettles*, *Dishes*, which they sow, and joyn very curiously with Thread made of *Cedar-roots*, and divers other domestical *Utenfils*, as *Baskets*, *Bags*, with this *Tree*, whereof they have a blacker Kind; and out of a certain *Excrescence* from the *Bole*, a *Fungus*, which being boil'd, beaten and dried in an *Oven*, makes excellent *Spunk*, or *Touch-wood*, and *Balls* to play withal; and being reduced to Powder, *Astringent*, is an infallible Remedy in the *Hemorrhoids*. They make also not only this *small Ware*, but even *small Craft*, *Pinnaces* of *Birch*, ribbing them with white *Cedar*, and covering them with large Flakes of *Birch-bark*, sow them with Thread of *Spruce-roots*, and pitch them, as it seems we did even here in *Britain* as well as the *Veneti*, making use of the *Willow*; whereof *Lucan*,

^a *When Sicoris to his own Banks restor'd,
Had quit the Field, of Twigs and Willow-board
They build small Craft, cover'd with Bullocks-hide,
In which they reach'd the Rivers farther Side:
So sail the Veneti, if Padus flow;
The Britains sail on their rough Ocean so.*

^a *Primum cana salix madefacto vimine, parvam
Textitur in puppim, caesoque induta juvenco,
Vectoris patiens, tumidum super emicat amnem.
Sic Venetus stagnante Pado, fuloque Britannus
Navigat Oceano*

Also for *Fuel*: In many of the *Mosses* in the *West-Riding* of *Yorkshire*, are often dug up *Birch-trees*, that burn and flame like *Fir* and *Candle-wood*; and I think *Pliny* says, the *Gauls* extracted a sort of *Bitumen* out of *Birch*. Great and Small *Coal* are made by the *Charring* of this *Wood* (see *Book* iii. *Chap.* iv. of *Fuel*) as of the *Tops* and *Loppings*, Mr. *Howard's* new *Tanne*. The inner white *Cuticle* and *silken Bark* (which strips off of it self almost yearly) was anciently used for *Writing-Tables*, even before the *Invention* of *Paper*; of which there is a *Birch-tree* in *Canada*, whose *Bark* will serve to write on, and may be made into *Books*, and of the *Twigs* very pretty *Baskets*; with the outward thicker and coarser Part of the common *Birch*, are divers *Houses* in *Russia*, *Poland*, and those poor *Northern* *Tracts* covered, instead of *Slates* and *Tile*: Nay, one who has lately published an *Account* of *Sweden*, says, that the poor *People* grind the very *Bark* of *Birch-trees*, to mingle with their *Bread-Corn*. 'Tis affirmed by *Cardan*, that some *Birch-roots* are so very extravagantly veined, as to represent the *Shapes* and *Images* of *Beasts*, *Birds*, *Trees*, and many other pretty *Resemblances*. Lastly, of the whitest Part of the old *Wood*, found commonly in doating *Birches*, is made the *Grounds* of our effeminate farined *Gallants* *Sweet Powder*; and of the quite consumed and rotten (such as we find reduced to a Kind of reddish *Earth* in *superannuated* hollow *Trees*) is gotten the best *Mould* for the raising of divers *Seedlings* of the rarest *Plants* and *Flowers*; to say nothing here of the *Magisterial Fasces*, for which anciently the *Cudgels* were used by the *Lictor* for lighter *Faults*, as now the gentler *Rods* by our *Tyrannical Pedagogues*.

3. I should here add the *Uses* of the *Water* too, had I full *Permissi-* USES.
 sion to tamper with all the *Medicinal* *Virtues* of *Trees*: But if the sovereign *Effects* of the *Juice* of this despicable *Tree* supply its other *Defects* (which make some judge it unworthy to be brought into the *Catalogue* of *Woods* to be propagated) I may perhaps, for once, be permitted to play the *Empiric*, and to gratifie our laborious *Wood-man* with a *Draught* of his own *Liquor*; and the rather, because these Kind of *Secrets* are not yet sufficiently cultivated; and ingenious *Planters* would by all means be encouraged to make more *Trials* of this Nature, as the *Indians* and other *Nations* have done on their *Palms*, and *Trees* of several *Kinds*, to their great *Emolument*. The *Mystery* is no more than this: About the Beginning of *March* (when the *Buds* begin to be proud and turgid, and before they explain into *Leaves*) with a *Chizel* and a *Mallet*, cut a *Slit* almost as deep as the very *Pith*, under some *Bough* or *Branch* of a well-spreading *Birch*; cut it oblique, and not long-ways (as a good *Chirurgeon* would make his *Orifice* in a *Vein*) inserting a small *Stone* or *Chip*, to keep the *Lips* of the *Wound* a little open. Sir *Hugh Plat* (giving a general *Rule* for the gathering of *Sap*, and *Tapping* of *Trees*) would have it done within one *Foot* of the *Ground*, the first *Rind* taken off, and then the white *Bark* slit over-thwart, no farther than to the *Body* of the *Tree*: Moreover, that this *Wound* be made only in that Part of the *Bark* which respects the *South-West*, or between those *Quarters*; because, says he, little or no *Sap* riseth from the *Northern*, nor indeed when the *East Wind* blows. In this *Slit*, by the Help of your *Knife* to open it, he directs that a *Leaf* of the *Tree* be inserted, first fitted to the *Dimensions* of the *Slit*, from which the *Sap* will distil in manner of *Filtration*. Take away the *Leaf*, and the

BOOK I. the *Bark* will close again, a little Earth being clapp'd to the Slit. Thus the *Knight*, for any *Tree*. But we have already shewed how the *Birch* is to be treated: Fasten therefore a *Bottle*, or some such convenient *Vessel* appendant; this does the Effect as well as *Perforation* or *Tapping*: Out of this Aperture will extil a *limpid* and clear *Water*, retaining an *obscure Smack* both of the *Taste* and *Odor* of the *Tree*; and which (as I am *credibly informed*) will in the Space of *twelve* or *fourteen* Days, *preponderate*, and *out-weigh* the whole *Tree* it self, *Body* and *Roots*; which if it be constant, and so happen likewise in other *Trees*, is not only stupendous, but an *Experiment* worthy the Consideration of our profoundest *Philosophers*: *An ex sola aqua fiunt Arborea?* Whether *Water* only be the *Principle* of *Vegetables*, and consequently of *Trees*: I say, *I am credibly informed*; and therefore the late unhappy * *angry Man* might have spared his *Animadversion*: For he that said but twenty *Gallons* run, does he know how many more might have been gotten out of larger Apertures, at the Insertion of every *Branch* and *Foot* in the principal *Roots* during the whole Season? But I conceive I have good *Authority* for my Assertion, out of the *Author* cited in the *Margin*, whose Words are these: *Si mense Martio perforaveris Betulam, &c. exstillabit aqua limpida, clara, & pura, obscurum Arboris saporem & odorem referens, quæ spacio xij aut xiv dierum. Præponderabit Arbore cum Ramis & Radicibus, &c.* His Exceptions about the Beginning of *March* are very insignificant; since I undertake not *Punctuality* of Time; and his own pretended Experience shew'd him, that in *hard Weather* it did not run till the *Expiration* of the Month, or Beginning of *April*; and another Time, on the Tenth of *February*; and usually, he says, about the Twenty-fourth Day, &c. at such *Uncertainty*: What *immane Difference* then is there between the Twenty-fourth of *February* and Commencement of *March*? Besides, these *anomolous Bleedings* (even of the same *Tree*) happen early or later, according to the Temper of the *Air* and *Weather*. In the mean Time, evident it is, that we know of no *Tree* which does more copiously attract, be it that so much celebrated *Spirit* of the *World* (as they call it) in Form of *Water* (as some) or a certain *specifick Liquor* richly impregnated with this *balsamical* Property: That there is such a *Magnes* in this simple *Tree*, as does manifestly draw to it self some *occult* and wonderful *Virtue*, is notorious; nor is it conceivable indeed, the Difference between the Efficacy of that *Liquor* which distils from the *Bole*, or Parts of the *Tree* nearer to the *Root* (where Sir *Hugh* would celebrate the *Incision*) and that which weeps out from the more sublime *Branches*, more impregnated with this *astral* Virtue, as not so near the *Root*, which seems to attract rather a cruder and more common *Water*, through fewer *Strainers*, and neither so pure and *aerial* as in those refined *Percolations*, the Nature of the Places where these *Trees* delight to grow (for the most part lofty, dry and barren) considered. But I refer these Disquisitions to the Learned especially, as mentioned by that incomparable *Philosopher*, and my most noble Friend, the Honourable Mr. *Boyle*, in his *Second Part* of the Usefulness of *Natural Philosophy*, *Sect. i. Essay iii.* where he speaks of the *Manna del Corpo*, or *Trunk-Manna*, as well as of that *Liquor* from the *Bough*; also of the *Sura*, which the *Cocoa-trees* afford; and that *Polonian Secret* of the *Liquor* of the *Walnut-tree* Root; with an Encouragement of more frequent *Experiments*, to educe *saccharine* Substances

* Dr. Stubb
See the Tractate,
intituled.
*Aditus novus
ad Occultas
Sympathia &
Antipathia
causas inve-
niendas, per
principia Phi-
losophia natu-
ralis, & Fer-
mentorum ar-
tificioſâ Ana-
tomia hausta,
patefactas, à
Silvestro Rat-
tray, M. D.
Glasquensî,
1658. p. 55.*

stances upon these Occasions: But the *Book* being published so long C^H.XVII. since this *Discourse* was first *Printed*, I take only here the Liberty to refer the *Reader* to one of the best Entertainments in the World.

But now before we expatiate farther concerning *Saps*; it is by some controverted, whether this Exhaustion would not be an extreme Detriment to the *Growth*, *Substance*, and other Parts of Trees: As to the *Growth* and *Bulk*, if what I have observed of a *Birch*, which has for very many Years been *perforated* at the usual Season (besides the *Scars* made in the *Bark*) it still thrives, and is grown to a prodigious Substance, the *Species* considered. What it would effect in other Trees (the *Vine* excepted unseasonably launced) I know not: But this calls to Mind a Trial of *Esq; Brotherton* (mentioning some *Excortications* and *Incisions*, by what he observed in *Pruning*) that most, if not all, of the *Sap* ascends by the *Lignous* Part of Trees, not the *Cortical*; nor between the *Cortical* and *Lignous*: And that the Increase of a Tree's Growth in Thickness, is by the *Descent* of the *Sap*, and not by the *Ascent*; so as if there were no *Descent*, the Tree would increase very little, if at all; for that there is a perpetual *Circulation* of the *Sap*, during the whole *Summer*; and whilst it is in this Course, and not a *Descent*, at *Michaelmas* only, as some hold, but evaporated by the Branches, during *Summer* and *Autumn*, and at *Spring* supplied with Rains. He also thinks it probable, that the *Bodies* of *Plants*, as well as those of *Animals*, are nourished and increased by a double *Pubulum* or Food; as *Water* and *Air* both *impregnated*, mixing and *coalescing* by a mutual *Conversion*.

That all *Plants* and *Animals* seem to have a two-fold Kind of *Roots*, one spreading into the *Earth*, the other shooting up into the *Air*; which, as they receive and carry up their proper Nutriments to the Body of the Plant and Root, so they carry off the uselefs *Dregs* and *Recrements*, &c. But this curious *Note* seeming fitter to have been placed in our *Chapter* of *Pruning* (upon which this learned *Gentleman* has given us his Experience) I beg Pardon for this *Diverticle*, and return to my Subject.

4. But whilst the *Second Edition* was under my Hand, there came to me divers *Papers* upon this Subject, experimentally made by a worthy *Friend* of mine, a learned and most industrious Person, which I had here once resolved to have published, according to the generous Liberty granted me for so doing; but understanding he was still in pursuit of that *useful* and curious *Secret*, I changed my Resolution into an earnest Address, that he would *communicate* it to the *World* himself, together with those other excellent Enquiries and Observations, which he is adorning for the Benefit of *Planters*, and such as delight themselves in those innocent *Rusticities*. I will only, by way of *Corollary*, hint some Particulars for Satisfaction of the *Curious*; and especially that we may in some sort gratifie those earnest *Suggestions* and *Queries* of the late most obliging * Publisher of the *Philosophical Transactions*, * Mr. Olden- to whose *indefatigable Pains* the learned World has been infinitely burg. engaged. In Compliance therefore to his *Queries*, Monday October 19. 1668. Number xl. p. 797, 801, &c. these *Generals* are submitted: That in such *Trials*, as my *Friend* essay'd, he has not yet encounter'd with any *Sap* but what is very clear and sweet, especially that of the *Sycamore*, which has a *Dulcoration* as if mixed with *Sugar*, and that it runs one of the earliest: That the *Maple* distilled when quite

BOOK I. *rescinded* from the Body, and even whilst he yet held it in his Hand: That the *Sycamore* ran at the *Root*, which some Days before yielded no *Sap* from his *Branches*; the *Experiment* made at the End of *March*: But the accurate Knowledge of the Nature of *Sap*, and its *Periodic* Motions and Properties in several *Trees*, should be observed by some at entire Leisure to attend it daily, and almost continually, and will require more than any one Person's Industry can afford; for it must be enquired concerning every *Tree*, its *Age*, *Soil*, *Situation*, &c. the Variety of its ascending *Sap* depending on it; and then of its *Sap* ascending in the *Branches* and *Roots*; descending in cut *Branches*; ascending from *Root*, and not from *Branches*; the *Seasons* and Difference of Time in which those *Accidents* happen, &c. He likewise thinks the best Expedient to procure Store of *Liquor*, is to cut the *Trees* almost quite through all the *Circles*, on both Sides the *Pith*, leaving only the outmost *Circle*, and the *Barks* on the *North* or *North-east* Side unpierced; and this *Hole*, the larger it is bored, the more plentifully 'twill distil; which if it be *under*, and *through* a large *Arm*, near the Ground, it is effected with greatest Advantage, and will need neither *Stone*, nor *Chip* to keep it open, nor *Spigot* to direct it to the *Recipient*. Thus it will, in a short Time, afford *Liquor* sufficient to *Brew* with; and in some of these sweet *Saps*, one *Bushel* of *Malt* will afford as good *Ale* as four in ordinary *Waters*, even in *March* it self; in others, as good as two *Bushels*; for *this*, preferring the *Sycamore* before any other: But to preserve it in best Condition for *Brewing*, till you are stored with a sufficient Quantity, it is advised, that what first runs, be *insolated* and placed in the *Sun*, till the Remainder be prepared, to prevent its growing *Soure*: But it may also be *fermented* alone, by such as have the *Secret*: To the *Curious* these *Essays* are recommended: That it be immediately stopp'd up in the *Bottles* in which it is gathered, the *Corks* well *waxed* and exposed to the *Sun*, till (as was said) sufficient Quantity be run; then let so much *Rye-bread* (toasted very dry, but not burnt) be put into it, as will serve to set it a *working*; and when it begins to *ferment*, take it out, and *bottle* it immediately. If you add a few *Cloves*, &c. to steep in it, 'twill certainly keep the Year about: 'Tis a Wonder how speedily it extracts the *Taste* and *Tincture* of the *Spice*. Mr. *Boyle* proposes a *sulphureous* Fume to the *Bottles*: *Spirit of Wine* may haply not only preserve, but advance the Virtues of *Saps*; and *Infusions* of *Rasins* are obvious, and without Decoction best, which does but spend the more delicate Parts. Note, That the *Sap* of the *Birch* will make excellent *Mead*.

5. To these Observations, that of the *Weight* and *Virtue* of the several *Juices*, would be both useful and curious: As whether that which proceeds from the *Bark*, or between that and the *Wood* be of the same Nature with that which is supposed to spring from the *Pores* of the woody *Circles*? And whether it rise in like Quantity, upon comparing the *Incisions*? All which may be tried, first attempting through the *Bark*, and saving that apart, and then *perforating* into the *Wood*, to the Thickness of the *Bark*, or more; with a like Separation of what distils. The Period also of its *Current* would be *calculated*; as how much proceeds from the *Bark* in one *Hour*, how much from the *Wood* or Body of the *Tree*, and thus every *Hour*, with still a deeper *Incision*, with a good large *Auger*, till the *Tree* be quite perforated: Then by making a *second Hole* within the *first*, fitted with a lesser Pipe, the interior

interior *Heart-sap* may be drawn apart, and examined by *Weight*, *Quantity*, *Colour*, *Distillation*, &c. and if no Difference perceptible be detected, the Presumption will be greater, that the Difference of *Heart* and *Sap* in *Timber*, is not from the *Sap's* Plenty or Penury, but the *Season*; and then possibly, the very *Season* of *squaring*, as well as *felling* of *Timber*, may be considerable to the Preservation of it.

6. The Notice likewise of the *Sap's* rising more plentifully and constantly in the *Sun* than *Shade*, more in the *Day* than *Night*, more in the *Roots* than *Branch*, more *Southward*, and when *that* and the *West Wind* blows, than *Northward*, &c. may yield many useful *Observations*: As for *Planting*, to set thicker or thinner (*si cætera sint paria*) namely, the Nature of the Tree, Soil, &c. and not to shade overmuch the *Roots* of those *Trees* whose *Stems* we desire should mount, &c. That in *transplanting* Trees we turn the best and largest *Roots* towards the *South*, and consequently the most ample and spreading Part of the *Head* correspondent to the *Roots*: For if there be a strong *Root* on that *Quarter*, and but a feeble Attraction in the *Branches*, this may not always counterpoise the weak *Roots* on the *North-side*, damaged by the too puissant Attraction of our large *Branches*: This may also suggest a Cause why *Trees* flourish more on the *South-side*, and have their *Integument* and *Coats* thicker on those *Aspects* annually, with divers other useful *Speculations*, if in the mean Time they seem not rather to be *puntillos* over nice for a plain *Forester*. Let the *Curious* further consult *Philosophical Transactions*, Number xliii, xlv, xlviii, lvii, lviii, lxviii, lxx, lxxi. for farther *Instances* and *Trials*, upon this Subject of *Sap*. And that excellent *Treatise* of *Hen. Meibomius*, *De Cervisiis Potibusque & Ebriaminibus extra Vinum*, annex'd to *Turnebus de Vino*, &c. Where he shews how, and by whom (after the first Use of *Water* and *Milk*) were introduced the *Drinks* made from *Vegetables*, *Vines*, *Corn*, and other *Fruits* and *Juices* tapp'd out of *Trees*, &c.

7. To shew our *Reader* yet, that these are no novel *Experiments*, we are to know, that a large Tract of the World, almost altogether subsists on these *Treen* Liquors; especially that of the *Date*, which being grown to about seven or eight Foot in Height, they wound, as we have taught, for the *Sap*, which they call *Toddy*, a very famous *Drink* in the *East-Indies*. This *Tree* increasing every Year about a Foot, near the opposite Part of the first *Incisure*, they pierce again, changing the *Receiver*; and so still, by opposite Wounds and Notches, they yearly draw forth the *Liquor*, till it arrive to near thirty Foot upward, and of these they have ample *Groves* and *Plantations*, which they set at seven or eight Foot Distance: But then they use to *percolate* what they extract, through a *Stratum* made of the *Rind* of the *Tree*, well *contused* and beaten, before which Preparation, it is not safe to drink it; and 'tis observed that some *Trees* afford a much more generous *Wine* than others of the same Kind. In the *Cocoa* and *Palmeto* Trees, they chop a Bough, as we do the *Betula*; but in the *Date*, make the *Incision* with a *Chisel* in the Body very neatly, in which they stick a *Leaf* of the *Tree*, as a *Lingula* to direct it into the appendant *Vessel*, which the subjoined *Figure* represents, and illustrates with its Improvement to our former Discourse.

Note, If there be no fitting Arms, the Hole thus obliquely perforated, and a Faucet or Pipe made of a Swan's or Goose's Quill inserted, will lead the Sap into the Recipient; and this is a very neat Way, and as effectual: I would also have it tried, whether the very top Twigs, grasped in the Hand together, a little cropt with a Knife, and put into the Mouth of a Bottle, would not instil, if not as much, yet a more refined Liquor, as some pretend.



(a. b.) The Body of the Tree (g.) bor'd at that Part of the Arm (f.) joyn'd to the Stem, with an Auger of an Inch or more Diameter, according to the Bigness of the Tree. (c.) A Part of the Bark, or, if you will, a Faucet of Quill bent down into the Mouth of the Bottle (e.) to conduct the Liquor into it. (d.) The String about the Arm (f.) by which the Bottle hangs.

8. The Liquor of the Birch is esteemed to have all the Virtues of the Spirit of Salt, without the Danger of its Acrimony; most powerful for the dissolving of the Stone in the Bladder, bloody Water and Strangury: *Helmont* shews how to make a Beer of the Water; but the Wine is a most rich Cordial, curing (as I am told) Consumptions, and such interior Diseases as accompany the Stone in the Bladder or Reins: The Juice decocted with Honey and Wine, *Dr. Needham* affirms he has often cured the Scorbute with. This Wine, exquisitely made, is so strong, that the common Sort of Stone-Bottles cannot preserve the Spirits,

Spirits, so subtle they are and volatile; and yet it is gentle, and very harmless in Operation within the *Body*, and exceedingly sharpens the *Appetite*, being drunk *ante pastum*: I will present you a *Receipt*, as it was sent me by a fair *Lady*, and have often, and still use it.

9. To every *Gallon* of *Birch-water* put a *Quart* of *Honey*, well stirred together; then boil it almost an *Hour* with a few *Cloves*, and a little *Lemon-peel*, keeping it well scummed: When it is sufficiently boiled, and become cold, add to it three or four *Spoonfuls* of good *Ale* to make it work (which it will do like new *Ale*) and when the *Yeast* begins to settle, bottle it up as you do other *winy* *Liquors*. It will in a competent *Time* become a most brisk and spirituous *Drink*, which (besides the former *Virtues*) is a very powerful *Opener*, and doing *Wonders* for cure of the *Phthysick*: This *Wine* may (if you please) be made as successfully with *Sugar*, instead of *Honey* *lbj.* to each *Gallon* of *Water*; or you may dulcify it with *Raisins*, and compose a *Raisin-wine* of it. I know not whether the *Quantity* of the sweet *Ingredients* might not be somewhat reduced, and the *Operation* improved: But I give it as received. The *Author* of the *Vinetum Brit.* boils it but to a *quarter* or *half* an *Hour*, then setting it a cooling, adds a very little *Yeast* to ferment and purge it; and so barrels it with a small *Proportion* of *Cinamon* and *Mace* bruised, about half an *Ounce* of both to ten *Gallons*, close stopp'd, and to be bottled a *Month* after. Care must be taken to set the *Bottles* in a very cool *Place*, to preserve them from flying; and the *Wine* is rather for present drinking, than of long *Duration*, unless the *Refrigeratory* be extraordinarily cold. The very *Smell* of the first springing *Leaves* of this *Tree*, wonderfully recreates and exhilarates the *Spirits*.

10. But besides these, *Beech*, *Alder*, *Ash*, *Sycamor*, *Elder*, &c. would be attempted for *Liquors*: Thus *Crabs*, and even our very *Brambles* may possibly yield us *Medical* and useful *Wines*. The *Poplar* was heretofore esteemed more *Physical* than the *Betula*. The *Sap* of the *Oak*, Juice or *Decoction* of the inner *Bark*, cures the *Fashions*, or *Farcy*, a virulent and dangerous *Infirmity* in *Horses*, and which (like *Cancers*) were reputed incurable by any other *Topic*, than some actual, or potential *Cautery*: But, what is more noble, a dear *Friend* of mine assured me, that a *Country Neighbour* of his (at least *four score* *Years* of *Age*) who had lain sick of a bloody *Strangury* (which by cruel *Torments* reduced him to the very *Article* of *Death*) was, under *God*, recovered to perfect, and almost *miraculous* *Health* and *Strength* (so as to be able to fall stoutly to his *Labour*) by one sole *Draught* of *Beer*, wherein was the *Decoction* of the internal *Bark* of the *Oak-tree*; and I have seen a *Composition* of an admirable *Sudorific* and *Diuretic* for all *Affections* of the *Liver*, out of the like of the *Elm*, which might yet be drunk daily, as our *Coffee* is; and with no less *Delight*: But *Quacking* is not my *Trade*; I speak only here as a plain *Husbandman*, and a simple *Forester*, out of the *Limits* whereof I hope I have not unpardonably transgressed: *Pan* was a *Physician*, and he (you know) was *President* of the *Woods*. But I proceed to the *Alder*.

CHAP. XVIII.

Of the Alder.

ALDER.

1. **A** *Lnus*, the *Alder* (both *Conifera* and *Julifera*) is of all other the most faithful Lover of watery and boggy Places, and those most despised weeping Parts, or *Water-galls* of *Forests*; — *crassique paludibus Alni*; for in better and drier Ground they attract the Moisture from it, and injure it. They are propagated of *Trunchions*, and will come of *Seeds* (for so they raise them in *Flanders*, and make wonderful Profit of the *Plantations*) like the *Poplar*; or of *Roots* (which I prefer) the *Trunchions* being set as big as the Small of one's Leg, and in Length about two Foot; whereof one would be plunged in the *Mud*. This profound fixing of *Aquatick-trees* being to preserve them *steddy*, and from the *Concussions* of the *Winds*, and Violence of *Waters*, in their *liquid* and slippery Foundations. They may be placed at four or five Foot Distance, and when they have struck *Root*, you may cut them, which will cause them to spring in *Clumps*, and to shoot out into many useful *Poles*. But if you plant smaller *Sets*, cut them not till they are arrived to some competent Bigness, and that in a proper *Season*; which is, for all the *Aquaticks* and soft Woods, not till Winter be well advanced, in Regard of their *Pithy* Substance. Therefore, such as you shall have Occasion to make use of before that Period, ought to be well grown, and *felled* with the *earliest*, and in the first *Quarter* of the increasing *Moon*, that so the successive *Shoot* receive no Prejudice: Some, before they fell, disbark their *Alders*, and other *Trees*; of which see *Chap. iii. Book iii.* But there is yet another Way of planting *Alders* after the *Jersey* Manner, and as I received it from a most ingenious *Gentleman* of that Country, which is, by taking *Trunchions* of two or three Foot long, at the Beginning of Winter, and to bind them in *Faggots*, and place the Ends of them in *Water* 'till towards the Spring, by which Season they will have contracted a swelling *Spire*, or *Knur*, about that Part, which being set, does (like the *Gennet-moil* Apple-tree) never fail of growing and striking *Root*. There is a *black* Sort more affected to *Woods*, and drier Grounds; and bears a *black Berry*, not so frequently found; yet growing somewhere about *Hampsted*, as the learned *Dr. Tancred Robinson* observes.

2. There are a Sort of *Husbands* who take excessive Pains in *stubbing* up their *Alders*, where-ever they meet them in the *boggy* Places of their Grounds, with the same Indignation as one would extirpate the most pernicious of *Weeds*; and when they have finished, know not how to convert their best *Lands* to more Profit than this (seeming despicable) *Plant* might lead them to, were it rightly understood. Besides, the *Shadow* of this *Tree* does feed and nourish the very *Grass* which grows under it; and being set, and well plashed, is an excellent Defence to the Banks of *Rivers*; so as I wonder it is not more practised about the *Thames*, to fortifie and prevent the mouldring of the *Walls*, and the violent *Weather* they are exposed to.

3. You

3. You may cut *Aquatic-Trees* every third or fourth Year, and some more frequently, as I shall shew you hereafter. They should also be abated within half a Foot of the principal *Head*, to prevent the perishing of the main *Stock*; and besides, to *accelerate* their Sprouting. In setting the *Trunchions*, it were not amiss to prepare them a little after they are fitted to the Size, by laying them a while in *Water*; this is also practicable in *Willows*, &c.

4. Of old they made *Boats* of the greater Parts of this Tree, and excepting *Noah's Ark*, the first *Vessels* we read of were made of this *Material*.

^a *When hollow Alders first the Waters try'd,*

^b *And down the rapid Po light Alders glide.*

And as then, so now, are over-grown *Alders* frequently sought after, for such *Buildings* as lie continually under *Water*, where it will harden like a very *Stone*; whereas being kept in any unconstant Temper, it *rots* immediately, because its natural *Humidity* is of so near Affinity with its adventitious, as *Scaliger* assigns the Cause. *Vitruvius* tells us, that the *Morasses* about *Ravenna*, in *Italy*, were piled with this *Timber*, to *superstruct* upon, and highly commends it. I find also they used it under that famous *Bridge* at *Venice*, the *Rialto*, which passes over the *Grand-Canal*, bearing a vast Weight. *Jos. Baubimus* pretends, that in Tract of Time it turns to *Stone*; which perhaps it may seem to be (as well as other *Aquatick*) where it meets with some *lapidescent* Quality in the *Earth* and *Water*.

5. The Poles of *Alder* are as useful as those of *Willows*; but the *Coals* far exceed them, especially for *Gun-powder*: The *Wood* is likewise useful for *Piles*, *Pumps*, *Hop-poles*, *Water-pipes*, *Troughs*, *Sluices*, small *Trays* and *Trenchers*, *Wooden-beels*; the *Bark* is precious to *Dyers* and some *Tanners*, and *Leather-dressers* make use of it; and with it, and the *Fruits* (instead of *Galls*) they compose an *Ink*. The fresh *Leaves* alone applied to the naked *Soal* of the *Foot*, infinitely refresh the furbated *Traveller*. The *Bark* macerated in *Water*, with a little *Rust* of *Iron*, makes a *black Dye*, which may also be used for *Ink*: The interior *Rind* of the *black Alder* purges all *hydropic* and *serous* Humours; but it must be dry'd in the *Shade*, and not used green, and the *Decoction* suffered to settle two or three Days, before it be drunk.

Being beaten with *Vinegar*, it heals the *Itch* certainly: As to other *Uses* the swelling *Bunches*, which are now and then found in the old *Trees*, afford the *Inlayer* Pieces curiously *chambletted*, and very hard, &c. but the *Faggots* better for the *Fire*, than for the *draining* of *Grounds* by placing them (as the *Guise* is) in the *Trenches*; which old *Rubbish* of *Flints*, *Stones*, and the like gross *Materials*, does infinitely exceed, because it is for ever, preserves the *Drains* hollow, and being a little

^a Tunc alnos primùm fluvii sensere cavatas.

Georg. i.

^b Nec non & torrentem undam levis innatat alnus
Missa Pado

Georg. ii.

BOOK I. moulded over, will produce good *Grass*, without any Detriment to the Ground; but this is a *Secret* not yet well understood, and would merit an express *Paragraph*, were it here seasonable.

————— & jam nos inter opacas
Musa vocat Salices —————

C H A P. XIX.

Of the Withy, Sallow, Ozier and Willow.

WITHY. I. *S*alix: Since *Cato* has attributed the *third Place* to the *Salictum*, preferring it even next to the very *Ortyard*; and (what one would wonder at) before even the *Olive*, *Meadow* or *Corn-field* it self (for *Salictum tertio loco, nemque post vineam*, &c.) and that we find it so easily rais'd of so great, and universal Use, I have thought good to be the more particular in my Discourse upon it; especially, since so much of that which I shall publish concerning them, is derived from the long *Experience* of a most Learned and Ingenious *Person*, from whom I acknowledge to have received many of these Hints. Not to perplex the *Reader* with the various Names, *Greek*, *Gallic*, *Sabin*, *Amerine*, *Vitex*, &c. better distinguished by their *Growth* and *Bark*; and by *Latin Authors* all comprehended under that of *Salices*: Our *English Books* reckon them promiscuously thus; The common white *Willow*, the black, and the hard Black, the *Rose of Cambridge*, the black *Withy*, the round-long *Sallow*; the longest *Sallow*, the crack-*Willow*, the round-ear'd shining *Willow*, the lesser broad-leav'd *Willow*, silver *sallow* upright broad *Willow*, repent broad-leav'd, the *Red stone*, the lesser *Willow*, the strait-Dwarf, the yellow-Dwarf, the long-leav'd yellow *Sallow*, the *Creeper*, the black-low *Willow*, the *Willow-bay*, and the *Ozier*. I begin with the *Withy*.

2. The *Withy* is a reasonable large *Tree* (for some have been found ten Foot about) is fit to be planted on high Banks, and *Ditch-fides* within reach of *Water*, and the weeping fides of *Hills*; because they extend their *Roots* deeper than either *Sallows* or *Willows*. For this Reason you shall plant them at ten or twenty Foot Distance; and though they grow the slowest of all the twiggy *Trees*, yet do they recompence it with the larger *Crop*; the *Wood* being tough, and the *Twigs* fit to bind strongly; the very *Peelings* of the Branches being useful to bind *Arbor*-poling, and in *Topiary*-works, *Vine-yards*, *Espalier-Fruit*, and the like: And we are told of some that grow twisted into *Ropes* of an hundred and twenty Paces, serving instead of *Cables*. There are two principal Sorts of these *Withies*, the hoary, and the red-*Withy* (which is the *Greek*) toughest, and fittest to bind, whilst the *Twigs* are flexible and tender.

3. *Sallows* grow much faster, if they are planted within reach of *Water*, or in a very *moorish* Ground, or flat Plain; and where the Soil is (by reason of extraordinary Moisture) unfit for *Arable* or *Meadow*; for in these Cases, it is an extraordinary *Improvement*; in a Word, where *Birch* and *Alder* will thrive. Before you plant them, it is found best to turn the Ground with a *Spade*, especially if you design them for a Flat. We have three Sorts of *Sallows* amongst us (which is

is *one* more than the *Antients* challenged, who name only the *Black* Cn. XIX. and *White*, which was their *Nitellina*) the *vulgar* round-leav'd, which proves best in drier Banks, and the *hopping Sallows*, which require a moister Soil, growing with incredible Celerity: And a *third* Kind, of a different Colour from the other *two*, having the Twigs *reddish*, the Leaf not so long, and of a more dusky *Green*; more brittle whilst it is growing in *Twigs*, and more tough when arriv'd to a competent Size: All of them useful for the *Thatcher*.

4. Of *these*, the *hopping Sallows* are in greatest Esteem, being of a clearer *terse* Grain, and requiring a more *succulent* Soil; best planted a Foot deep, and a Foot and half above Ground (though some will allow but a Foot) for then every Branch will prove excellent for future *Settlings*. After *three* Years growth (being cropp'd the second and third) the first Year's Increase will be betwixt *eight* and *twelve* Foot long generally; the *third* Year's Growth, strong enough to make *Rakes* and *Pike-staves*; and the *fourth*, for Mr. *Blithe's* Trenching-Plow, and other like *Utenils* of the *Husbandman*.

5. If ye plant them at full Height (as some do at four Years Growth, setting them five or six Foot Length, to avoid the Biting of *Cattle*) they will be less useful for straight *Staves*, and for *Settlings*, and make less Speed in their Growth; yet this also is a considerable *Improvement*.

6. These would require to be planted at least five Foot distance (some set them as much more) and in the *Quincunx* order: If they affect the Soil, the *Leaf* will come large, half as broad as a Man's Hand, and of a more vivid *Green*, always larger the first Year than afterwards: Some plant them sloping, and cross-wise like a *Hedge*; but this impedes their wonderful Growth; and (though *Pliny* seems to commend it, teaching us how to *excorticate* some Places of each *Set*, for the sooner Production of *Shoots*) it is but a deceitful *Fence*, neither fit to keep out *Swine* nor *Sheep*; and being set too near, inclining to one another, they soon destroy each other.

7. The worst *Sallows* may be planted so near yet, as to be instead of *Stakes* in a *Hedge*, and then their *Tops* will supply their Dwarfishness; and, to prevent *Hedge-breakers*, many do thus plant them; because they cannot easily be pull'd up, after once they have struck *Root*.

8. If some be permitted to wear their *Tops* five or six Years, their *Palms* will be very ample, and yield the first and most plentiful Relief to *Bees*, even before our *Abricots* blossom. The *hopping Sallows* open, and yield their *Palms* before other *Sallows*; and when they are *blown* (which is about the *Exit* of *May*, or sometimes *June*) the *Palms* (or *ελασιάρποι*, *Frugiperdæ*, as *Homer* terms them for their extream Levity) are four Inches long, and full of a fine lanuginous *Cotton*. Of this Sort, there is a *Salix* near *Darking* in *Surrey*, in which the *Julus* bears a thick cottonous Substance: A poor Body might in an Hour's Space, gather a Pound or two of it, which resembling the finest *Silk*, might doubtless be converted to some profitable Use by an ingenious *Housewife*, if gathered in calm *Evenings*, before the *Wind*, *Rain* and *Dew* impair them: I am of Opinion, if it were dry'd with Care, it might be fit for *Cushions*, and *Pillows* of *Chastity*, for such of Old was the Reputation of the *Shade* of those *Trees*.

9. Of these *hopping Sallows*, after three Years Rooting, each Plant will yield about a Score of *Staves*, of full eight Foot in Length, and so following, for Use, as we noted above: Compute then how many

BOOK I. fair *Pike-staves*, *Perches*, and other useful *Materials*, that will amount to in an *Acre*, if planted at five Foot Interval : But a fat and moist Soil requires indeed more Space than a lean or drier, namely, six or eight Foot Distance.

10. You may plant *Settlings* of the very first Year's Growth ; but the second Year they are better, and the third Year, better than the second ; and the fourth, as good as the third, especially if they approach the *Water*. A Bank at a Foot Distance from the *Water*, is kinder for them than a *Bog*, or to be altogether *immers'd* in the *Water*.

11. 'Tis good to new mould them about the *Roots* every second, or third Year ; but *Men* seldom take the Pains. It seems that *Sallows* are more hardy than even *Willows* and *Oziers*, of which *Columella* takes as much Care as of *Vines* themselves. But it is cheaper to supply the *Vacuity* of such accidental Decays, by a new *Plantation*, than to be at the Charge of *digging* about them three times a Year, as that *Author* advises ; seeing some of them will decay, whatever Care be used.

12. *Sallows* may also be propagated like *Vines*, by *coumbing* and bowing them in *Arches*, and covering some of their Parts with Mould, &c. Also by *Cuttings* and *Layers*, and some Years by the *Seeds* likewise.

13. For *Settlings*, those are to be preferred which grow nearest to the *Stock*, and so (consequently) those *worst*, which most approach the *Top*. They should be planted in the first fair and pleasant Weather in *February*, before they begin to *bud* ; we about *London* begin at the latter end of *December*. They may be cut in *Spring* for *Fuel*, but best in *Autumn* for *Use* ; but in this Work (as of *Poplar*) leave a *Twig* or two ; which being twisted *Arch-wise*, will produce plentiful *Sprouts*, and suddenly furnish a *Head*.

14. If in our *Coppes* one in four were a *Sallow* Set, amongst the rest of Varieties, the Profit would recompence the Care ; therefore where in *Woods* you grub up *Trees*, thrust in *Trunchions* of *Sallows*, or some *Aquatic* Kind. In a Word, an *Acre* or two furnished with this Tree, would prove of great Benefit to the *Planter*.

15. The swift growing *Sallow* is not so tough and hardy for some USES. *Uses* as the *flower*, which makes *Stocks* for Gardeners *Spades* ; but the other are proper for *Rakes*, *Pikes*, *Mops*, &c. *Sallow-Coal* is the soonest consum'd, but of all others, the most easy and accommodate for *Painters Scribbets*, to design their *Work*, and first *Sketches* on *Paper* with, &c. as being fine, and apt to slit into *Pencils*.

16. To conclude ; There is a Way of *grafting* a *Sallow-Trunchion* ; take it of two Foot and half long, as big as your *Wrist* ; graff at both Ends a *Fig* and *Mulberry-Cyon* of a Foot long, and so, without *claying*, set the *Stock* so far into the Ground, as the *Plant* may be three or four Inches above the Earth : This (some affirm) will thrive exceedingly the first Year, and in three be fit to *transplant*. The Season for this Curiosity is *February*. Of the *Sallow* (as of the *Lime-tree*) is made the *Shoe-maker's* Carving or *Cutting-board*, as best to preserve the *Edge* of their *Knives*, for its equal Softness every Way.

OZIER. 17. *Oziers*, or the *Aquatick* and lesser *Salix*, are of innumerable Kinds, commonly distinguished from *Sallows*, as *Sallows* are from *Withies* ; being so much smaller than the *Sallows*, and shorter liv'd, and requiring more constant *Moisture*, yet would be planted in rather a *dryish* Ground, than over moist and spewing, which we frequently cut Trenches USES.

to avert. It likewise yields more limber and flexible *Twigs* for *Baskets*, *Flaskets*, *Hampers*, *Cages*, *Lattices*, *Cradles*, the *Bodies* of *Coaches* and *Waggon*s, for which it is excellent Use, light, durable, and neat, as it may be wrought and covered: For *Chairs*, *Hurdles*, *Stays*, *Bands*, the stronger for being contused and wreathed, &c. likewise for *Fish-Weirs*, and to support the *Banks* of impetuous *Rivers*: In fine, for all *Wicker* and *Twiggy* Works;

Viminibus Salices —

18. But these Sort of *Oziers* would be cut in the new *Shoot*; for if they stand longer, they become more inflexible: Cut them close to the *Head* (a Foot or so above Earth) about the Beginning of *October*; unless you will attend till the *Cold* be past, which is better; and yet we about *London* cut them in the most piercing *Seasons*, and plant them also till *Candlemas*, which those who do not observe, we judge ill Husband, as I learn from a very experienced *Basket-maker*; and in the Decrease, for the Benefit of the *Workman*, though not altogether for that of the *Stock*, and succeeding *Shoot*. When they are cut, make them up into *Bundles*, and give them Shelter; but such as are for *White-work* (as they call it) being thus *fagotted*, and made up in *Bolts*, as the Term is, severing each Sort by themselves, should be set in *Water*, the Ends dipp'd; and indeed all peel'd Wares of the *viminious* Kind, are not otherwise preserved from the Worm; but for *black* and *unpeel'd*, shelter'd under Covert only, or in some *Vault* or *Cellar*, to keep them fresh, sprinkling them now and then in excessive hot Weather: The *Peelings* of the former are for the Use of the *Gardener* and *Cooper*, or rather the *Splicings*.

19. We have in *England* these three vulgar Sorts; one of little worth, being brittle, and very much resembling the fore-mentioned *Sallow*, with reddish *Twigs*, and more greenish and rounder *Leaves*: Another Kind there is, call'd *Perch*, of limber and green *Twigs*, having a very slender Leaf: The *third* Sort is totally like the *second*, only the *Twigs* are not altogether so green, but *yellowish*, and near the *Popinjay*: This is the very best for Use, tough and hardy. But the most usual Names by which *Basket-makers* call them about *London*, and which are all of different *Species* (therefore to be planted separately) are, the *Hard Gelster*, the *Horse Gelster*, *Whining* or *shrivelled Gelster*, the *Black Gelster*, in which *Suffolk* abounds. Then follow the *Golstones*, the *hard* and the *soft Golstone* (brittle and worst of all the *Golstones*) the sharp and slender top'd *yellow Golstone*; the *fine Golstone*: Then is there the *yellow Ozier*, the *green Ozier*, the *Snake*, or *speckled Ozier*, *Swallow-tail*, and the *Spaniard*: To these we may add (amongst the Number of *Oziers*, for they are both governed and used alike) the *Flanders Willow*, which will arrive to be a large *Tree*, as big as one's Middle, the oftner cut the better: With these our *Coopers* tie their *Hoops* to keep them bent. Lastly, the *white Sallow*; which being of a Year or two Growth, is used for *Green-work*; and if of the toughest Sort, to make *Quarter Can-Hoops*, of which our *Seamen* provide great Quantities, &c.

20. These choicer Sorts of *Oziers*, which are ever the *smallest*, also the *Golden yellow*, and *White*, which is preferred for Propagation, and to breed of, should be planted of *Slips* of two or three Years Growth, a Foot deep, and half a Yard length, in *moorish* Grounds, or *Banks*, or else in *Furrows*; so that (as some direct) the *Roots* may frequently reach

Book I. reach the *Water*; for *Fluminibus Salices* — though we commonly find it rots them, and therefore never chuse to fet them so deep as to scint it, and at three or four Foot Distance.

21. The Season for planting is *January*, and all *February*, though some not till *Mid-February*, at two Foot Square; but *Cattle* being excessively liquorish of their *Leaves* and tender *Buds*, some talk of *grafting* them out of reach upon *Sallows*, and by *this* to advance their sprouting; but as the *Work* would consume Time, so have I never seen it succeed.

22. Some do also plant *Oziers* in their *Eights*, like *Quick-sets*, thick, and (near the *Water*) keep them not more than half a Foot above Ground; but then they must be diligently cleansed from *Moss*, *Slab*, and *Ouze*, and frequently *pruned* (especially the smaller *Spires*) to form single Shoots, at least that few or none grow double; these they *Head* every second Year about *September*, the *autumnal* Cuttings being best for Use: But generally

23. You may cut *Withies*, *Sallows* and *Willows* at any mild and gentle Season, between *Leaf* and *Leaf*, even in Winter; but the most congruous Time both to *plant* and to *cut* them, is *Crescente Luna Vere, circa Calendas Martias*; that is, about the new *Moon*, and first open Weather of the early Spring.

24. It is in *France*, upon the *Loire*, where these *Eights* (as we term them) and Plantations of *Oziers* and *Withies* are perfectly understood; and both *there*, and in divers other Countries beyond Seas, they raise them of *Seeds* contain'd in their *Juli*, or *Catkins*, which they sow in *Furrows*, or shallow *Trenches*, and it springs up like *Corn* in the *Blade*, and comes to be so tender and delicate, that they frequently mow them with a *Scyth*: This we have attempted in *England* too, even in the Place where I live; but the obstinate and unmerciful *Weeds* did so confound them, that it was impossible to keep them clean with any ordinary Industry, and so they were given over: It seems, either *Weeds* grow not so fast in other Countries, or that the *People* (which I rather think) are more patient and laborious.

Note, That these *Juli* are not all of them *Seed-bearers*, some are *sterile*, and whatever you raise of them will never come to *bear*; and therefore by some they are called the *Male* Sort, as Mr. Ray (that learned *Botanist*) has observed. The *Ozier* is of that Emolument, that in some Places I have heard *twenty Pounds* has been given for one *Acre*; Ten is in this Part an usual Price; and doubtless it is far preferable to the best *Corn-land*, not only for that it needs but *once Planting*, but because it yields a constant *Crop* and Revenue to the World's End; and is therefore in Esteem of knowing Persons, valued in *Purchase* accordingly; consider'd likewise how easily it is renewed, when a Plant now and then fails, by but pricking in a *Twig* of the next at Hand, when you visit to cut them. We have in the *Parish* near *Greenwich*, where I lately dwelt, improved Land from less than one Pound, to near ten Pounds the *Acre*: And when we shall reflect upon the infinite Quantities of them we yearly bring out of *France* and *Flanders*, to supply the extraordinary Expence of *Basket-work*, &c. for the *Fruiterers*, *Lime-burners*, *Gardeners*, *Coopers*, *Packers-up* of all Sorts of *Ware*, and for general *Carriage*, which seldom last above a Journey or two, I greatly admire *Gentlemen* do no more think of employing their *moist Grounds* (especially where *Tides* near fresh *Rivers* are reciprocal) in planting

planting and propagating *Oziers*. To omit nothing of the *Culture* of C^H.XIX. this useful *Ozier*, *Pliny* would have the Place to be prepared by *trenching* it a Foot and half deep, and in *that*, to fix the *Sets*, or *Cuttings*, of the same Length at six Foot interval. These (if the *Sets* be large) will come immediately to be *Trees*; which after the first three Years, are to be abated within two Foot of the Ground. Then in *April* he advises to dig about them: Some raise them abundantly, by laying Poles of them in a boggy Earth only: Of these they formerly made *Vine-props*, *Juga*, as *Pliny* calls them, for archwise bending and yoaking, as it were, the Branches to one another; and one *Acre* hath been known to yield *Props* sufficient to serve a *Vineyard* of twenty-five *Acres*.

25. *John Tradescant* brought a small *Ozier* from *St. Omers* in *Flanders*, which makes incomparable *Net-works*, not much inferior to the *Indian* Twig, or *Bent-works*, which we have seen; but if we had them in greater abundance, we should haply want the *Artificers* who could employ them, and the *Dexterity* to *vernish* so neatly.

26. Our common *Salix*, or *Willow*, is of two Kinds, the *White* and the *Black*: The *White* is also of two Sorts, the one of a *yellowish*, the other of a *browner* Bark: The *black Willow* is planted of *Stakes*, of three Years Growth, taken from the Head of an old *Tree*, before it begins to sprout: Set them of six Foot high, and ten distant; as directed for the *Poplar*. Those woody Sorts of *Willow*, delight in *Meads* and *Ditch-sides*, rather *dry* than over *wet* (for they love not to wet their Feet, and last the longer) yet the *black* Sort, and the *reddish*, do sometimes well in more *boggy* Grounds, and would be planted of *Stakes* as big as one's *Leg*, cut as the other, at the Length of five or six Foot or more into the Earth; the *Hole* made with an *oaken Stake* and *Beetle*, or with an *Iron Crow* (some use a long *Auger*) so as not to be forced in with too great Violence: But first the *Trunchions* should be a little sloped at both Extreams, and the biggest planted downwards: To this, if they are soaked in *Water* two or three Days (after they have been sized for Length, and the Twigs cut off e'er you plant them) it will be the better. Let this be done in *February*, the *Mould* as well closed to them as possible, and treated as was taught in the *Poplar*. If you plant for a Kind of *Wood*, or *Copse* (for such I have seen) set them at six Foot Distance, or nearer, in the *Quincunx*, and be careful to take away all *Suckers* from them at three Years End: You may abate the *Head* half a Foot from the *Trunk*, viz. three or four of the lustiest *Shoots*, and the rest cut close, and bare them yearly, that the *three*, *four* or more you left may enjoy all the *Sap*, and so those which were spared, will be gallant *Pearches* within two Years. Arms of four Years Growth will yield substantial *Sets*, to be planted at eight or ten Foot Distance; and for the first three Years well defended from the *Cattle*, who infinitely delight in their *Leaves*, green or withered. Thus a *Willow* may continue *twenty* or *five* and *twenty* Years, with good *Profit* to the industrious *Planter*, being headed every four or five Years; some have been known to shoot no less than *twelve* Foot in one Year, after which, the old rotten *Dotards* may be felled, and easily supplied. But if you have Ground fit for whole *Copses* of this *Wood*, cast it into double *Dikes*, making every *Foss* near three Foot wide, two and half in Depth; then leaving four Foot at least of Ground for the Earth (because in such *Plan-*
A a *tations*

BOOK I. *tations* the Moisture should be below the *Roots*, that they may rather see than feel the Water) and two *Tables* of *Sets* on each Side, plant the *Ridges* of these *Banks* with but one single *Table*, longer and bigger than the *collateral*, viz. three, four, five or six Foot high, and distant from each other about two Yards. These *Banks* being carefully kept *weeded* for the first two Years, till the *Plants* have vanquished the *Grass*, and not cut till the *third*; you may then lop them *transverse*, and not obliquely, at one Foot from the Ground, or somewhat more, and they will *bead* to Admiration; but such which are cut at three Foot height, are most durable, as least soft and *aquatick*: They may also be *grafted* betwixt the *Bark*, or *budded*; and then they become so beautiful, as to be fit for some Kind of delightful *Walks*; and this I wish were practised among such as are seated in low and marshy Places, not so friendly to other *Trees*. Every *Acre*, at eleven or twelve Years Growth, may yield you near a hundred Load of Wood: Cut them in the Spring for dressing, but in the *Fall* for *Timber* and *Fuel*. I have been informed, that a *Gentleman* in *Essex* has lopp'd no less than two thousand yearly, all of his own planting. It is far the sweetest of all our *English Fuel* (*Ash* not excepted) provided it be found and dry, and emitting little *Smoak*, is the fittest for *Ladies Chambers*; and all those *Woods* and *Twigs* would be cut either to *plant*, *work* with, or *burn* in the driest Time of the Day.

To confirm what we have advanced in Relation to the Profit which may be made by this Husbandry, see what comes to me from a worthy Person whom we shall have occasion to mention, with great Respect, in the next *Chapter*, when we speak of *Quick-sets*.

The considerable Improvement which may be made in *common Fields* as well as *inclosed Grounds*, he demonstrates by a little Spot of *Meadow*, of about a *Rod* and *half*; part of which being planted, about fifty Years since, with *Willows* (in a *Clump* not exceeding four *Pole* in Length, on one Side about twelve) several of them at the first and second lopping, being left with a strait Top, run up like *Elms*, to thirty or forty Foot in Height; which some Years since yielded *Boards* of fourteen or fifteen Inches broad, as good for *Flooring* and other Purposes within Doors, as *Deals*, last as long, work finer, white and beautiful: 'Tis indeed a good while since they were planted, but it seems the Crop answered his Patience, when he cut up as many of them (the Year 1700) as were well worth ten Pounds; and since that another *Tree*, for which a *Joyner* offered him as much for those were left, which was more by half than the whole Ground it self was worth; so as having made twenty Pounds of the Spot, he still possesses it without much Damage to the *Grass*. The Method of *planting* was first by making *Holes* with an *Iron Crow*, and widening them with a *Stake* of Wood, fit to receive a lusty *Plant*, and sometimes boring the Ground with an *Auger*; but neither of these succeeding (by reason the Earth could not be rammed so close to the Sides and Bottom of the *Sets*, as was requisite to keep them steady, and seclude the *Air*, which would corrupt and kill the *Roots*) he caused *Holes*, or little *Pits*, of a Foot square and depth to be dug, and then making a Hole with the *Crow* in the Bottom of the *Pits*, to receive the *Set*, and breaking the *Turf* which came out of it, rammed it in with the Mould close to the *Sets* (as they would do to fix a Gate-post) with great Care not to gall the *Bark* of it. He had divers Times before this miscarried, when he used formerly to set them

them in plain Ground, without breaking the Surface, and laying it close to the *Sets*; and therefore, if the Soil be moist, he digs a Trench by the Side of the Row, and applies the Mould which comes out of it about the *Sets*; so that the Edge of the *Bank*, raised by it, may be somewhat higher than the Earth next the *Set*, for the better Descent of the Rain, and Advantage of watering the *Sets* in dry Weather; preventing likewise their rooting in the *Bank*, which they would do if the Ground next the *Plant* or *Set* were made high, and sloped; and being left unfenced, Cattle would tread down the *Bank*, and lay the *Roots* bare: The Ground should therefore not be raised above two or three Inches towards the Body of the *Set*. Now if the Ground be dry, and want Moisture, he chuses to bank them round (as I have described in my *Pomona*, Chap. vii.) the *Fosses* environing the *Mound* and *Hillock*, being *Reserves* for the *Rain*, cools and refreshes the *Sets*.

He farther instances, That *Willows* of about twenty Years Growth, have been worth thirty Shillings, and another fold for three Pounds, which was well worth five Pounds; and affirms, that the *Willows* planted in *Beds*, between double *Ditches*, in boggy Ground, may be fit to be cut every five Years, and pay as well as the best *Meadow-Pasture*, which is of extraordinary Improvement.

27. There is a Sort of *Willow* of a slender and long Leaf, resembling the smaller *Ozier*; but rising to a Tree as big as the *Sallow*, full of *Knots*, and of a very brittle *Spray*, only here rehearsed to acknowledge the *Variety*.

28. There is likewise the *Garden-Willow*, which produces a sweet and beautiful *Flower*, fit to be admitted into our *Hortulan* Ornaments, and may be set for *Partitions* of *Squares*; but they have no Affinity with other. There is also in *Shropshire* another very *odoriferous* Kind, extremely fit to be planted by pleasant *Rivulets*, both for Ornament and Profit: It is propagated by *Cuttings* or *Layers*, and will grow in any dry Bottom, so it be sheltered from the *South*, affording a wonderful and early Relief to the industrious *Bee*. *Vitruvius* commends the *Vitex* of the *Latines* (impertinently called *Agnus Castus*, the one being but the *Interpretation* of the other) as fit for building; I suppose they had a Sort of better Stature than the *Shrub* growing among the *Curious* with us, and which is celebrated for its *chaste* Effects, and for which the *Antients* employed it in the *Rites* of *Ceres*: I rather think it more convenient for the *Sculptor* (which he likewise mentions) provided we may, with safety, restore the *Text*, as *Perrault* has attempted, by substituting *Levitatem* for the Author's *Regiditatem*, stubborn Materials being not so fit for that curious Art.

29. What most of the former enumerated Kinds differ from the *Sal-*USES.
lows, is indeed not much considerable, they being generally useful for the same Purposes; as *Boxes*, such as *Apothecaries* and *Goldsmiths* use; for *Cart-saddle-trees*, yea *Gun-stocks* and *Half-pikes*, *Harrowes*, *Shoe-makers Lasts*, *Heels*, *Clogs* for *Pattens*, *Forks*, *Rakes*, especially the *Tooths*, which should be wedged with *Oak*; but let them not be cut for this when the *Sap* is stirring, because they will shrink; *Pearches*, *Rafters* for *Hovels*, portable and light *Ladders*, *Hop-poles*, *Ricing* of *Kidney-beans*, and for *Supporters* to *Vines*, when our *English Vineyards* come more in Request: Also for *Hurdles*, *Sives*, *Lattices*; for the *Turner*, *Kyele-pins*, great *Town-Tops*; for *Platters*, little *Casks* and *Vessels*, especially to preserve *Verjuices* in, the
best

BOOK I. best of any: *Pales* are also made of cleft *Willow*, *Dorsers*, *Fruit-baskets*, *Cans*, *Hives* for *Bees*, *Trenchers*, *Trays*, and for polishing and whetting *Table-Knives*, the *Butler* will find it above any Wood or *Whet-stone*; also for *Coals*, *Bavin*, and excellent *Firing*, not forgetting the fresh *Boughs*, which, of all the Trees in Nature, yield the most chaste and coolest *Shade* in the hottest Season of the Day; and this Umbrage so wholesome, that *Physicians* prescribe it to *feaverish* Persons, permitting them to be placed even about their *Beds*, as a safe and comfortable *Refrigerium*. The Wood being preserved dry, will dure a very long Time; but that which is found wholly *putrified*, and reduced to a loamy Earth in the hollow Trunks of *superannuated* Trees, is, of all other, the fittest to be mingled with fine *Mould*, for the raising our choicest *Flowers*, such as *Anemonies*, *Ranunculus's*, *Auriculas*, and the like.

^a *What would we more? Low Broom, and Sallows wild,
Or feed the Flock, or Shepherds Shade, or Field
Hedges about, or do us Honey yield.*

30. Now by all these Plantations of the *Aquatick* Trees, it is evident, the *Lords* of *moorish Commons*, and unprofitable *Wastes*, may learn some *Improvement*, and the neighbour *Bees* be gratified, and many Tools of *Husbandry* become much cheaper. I conclude with the learned *Stephanus's* Note upon these Kind of Trees, after he has enumerated the universal Benefit of the *Salictum*: *Nullius enim tutior redditus, minorisve impendii, aut tempestatis securior.*

CHAP. XX.

Of Fences, Quick-sets, &c.

FENCES. I. OUR main Plantation is now finished, and our *Forest* adorned with a just *Variety*: But what is yet all this Labour, but loss of *Time*, and irreparable *Expence*, unless our young and (as yet) tender *Plants* be sufficiently guarded with *Munitions* from all external *Injuries*? For, as old *Tusser*,

*If Cattle or Coney may enter to Crop,
Young Oak is in danger of losing his Top.*

But with something a more polished *Stile*, though to the same Purpose, the best of Poets,

^b *Plash Fences thy Plantation round about,
And whilst yet young, be sure keep Cattle out;
Severest Winters, scorching Sun infest,
And Sheep, Goats, Bullocks, all young Plants molest;*

^a Quid majora sequor? Salices, humilesque genistæ,
Aut illæ pecori frondem, aut pastoribus umbram
Sufficiunt, sepemque satis & pabula melli. Georg. ii.

^b Texendæ sepes etiam, & pecus omne tenendum est:
Præcipue, dum frons tenera, imprudensque laborum,
Cui, super indignas hyemes, solemque potentem,
Sylvæstres Uri assidue, capreæque sequaces

*Yet neither Cold, nor the hoar rigid Frost,
Nor Heat reflecting from the Rocky Coast,
Like Cattle Trees, and tender Shoots confound,
When with invenom'd Teeth the Twigs they wound.*

2. For, the *Reason* that so many complain of the improsperous Condition of their *Wood-Lands* and *Plantations* of this Kind, proceeds from this *Neglect*; though (*Sheep* excepted) there is no Employment whatsoever incident to the *Farmer*, which requires less *Expence* to gratifie their Expectations: One diligent and skilful *Man* will govern five hundred Acres: But if through any Accident a *Beast* shall break into his *Master's* Field; or the wicked *Hunter* make a Gap for his *Dogs* and *Horses*, what a Clamour is there made for the Disturbance of a Year's *Crop* at most in a little *Corn*! Whilst abandoning his young *Woods* all this Time, and perhaps many Years, to the venomous Bitings and Treading of *Cattle*, and other like Injuries (for want of due Care) the Detriment is many Times *irreparable*; young *Trees* once cropp'd, hardly ever recovering: It is the *Bane* of all our most hopeful *Timber*.

3. But shall I provoke you by an *Instance*? A *Kinsman* of mine has a *Wood* of more than sixty *Years* standing; it was before he purchased it, exposed and abandoned to the *Cattle* for divers Years: Some of the outward *Skirts* were nothing, save *Shrubs* and miserable *Starvings*; yet still the Place was disposed to grow *woody*; but by this *Neglect*, continually suppressed. The industrious *Gentleman* has fenced in some Acres of this, and cut all close to the Ground; it is come in eight or nine Years, to be better worth than the *Wood* of sixty; and will (in Time) prove most incomparable *Timber*, whilst the other Part (so many Years advanced) shall never recover; and all *this* from no other Cause, than preserving it fenced. Judge then by *this*, how our *Woods* come to be so decried: Are five hundred *Sheep* worthy the Care of a *Shepherd*? and are not five thousand Oaks worth the *fencing*, and the Inspection of a *Hayward*?

^a And shall Men doubt to plant, and careful be?

Let us therefore shut up what we have thus laboriously planted, with some good *Quick-set Hedge*; Which,

^b ———all Countries bear, in every Ground
As *Denizen*, or *Interloper* found:

Illudunt: Pascuntur Oves, avidæque juvenæ.
Frigora nec tantum cana concreta pruina,
Aut gravis incumbens scopulis arenibus æstas,
Quantum illi nocuere greges, durique venenum
Dentis, & admorso signata in stirpe cicatrix.

Georg. ii.

^a Et dubitant homines ferere, atque impendere curam?

Georg. ii.

^b ———omne solum natale est, intrat ubique
Ardelio; illa quidem cultis excluditur agris
Plerumque, atque hortis; sed circumsepit utrosque
Atque omnes aditus servat fidiissima cultos,
Utilior latrante Cane, armatoque Priapo.
Aspera frigoribus saxisque Helvetia tales
Educat, & peregre terras emittit in omnes
Enormes durosque viros, sed fortia bello
Pectora; non illi cultu, non moribus Aulas,
Atque Urbes decorare valent, sed utrasque fidei
Defendunt opera; nec iis, gens cauta, Tyranni,
Præponunt speciosa magis, multumque sonora
Præsidia; his certi vitam tutantur opesque, &c.

COULETII, pl. l. vi.

B b

From

A DISCOURSE

From Gardens and till'd Fields expell'd, yet there,
 On the Extreame stands up, and claims a Share.
 Nor Mastiff-Dog, nor Pike-Man can be found
 A better Fence to the enclosed Ground.
 Such Breed the rough and hardy Cantons rear,
 And into all adjacent Lands prefer,
 Though rugged Churls, and for the Battle fit;
 Who Courts and States with Compliment or Wit,
 To civilize, nor to instruct pretend;
 But with stout faithful Service to defend.
 This Tyrants know full well, nor more confide
 On Guards that serve less for Defence than Pride:
 Their Persons safe, they do not judge amiss,
 And Realms committed to their Guard of Swifs.

QUICK-
SETS.

For so the ingenious Poet has metamorphos'd him, and I could not withstand him.

4. The *Haw-thorn* (*Oxyacantha vulgaris*) and indeed the very best of common Hedges, is either rais'd of *Seeds* or *Plants*; but then it must not be with *Despair*, because sometimes you do not see them peep the *first Year*; for the *Haw*, and many other *Seeds*, being invested with a very hard *Integument*, will now and then suffer *Imprisonment* two whole Years under the Earth; and our Impatience at this, does often frustrate the *Resurrection* of divers *Seeds* of this Nature; so that we frequently dig up, and disturb the *Beds* where they have been sown, in *Despair*, before they have gone their full Time; which is also the Reason of a very popular Mistake in other *Seeds*; especially, that of the *Holly*, concerning which there goes a *Tradition*, that they will not sprout till they be pass'd through the *Maw* of a *Thrush*; whence the saying, *Turdus exitium suum cacat* (alluding to the *Viscus* made thereof, not the *Misselto* of Oak) but this is an *Error*, as I am able to testify on *Experience*; they come up very well of the *Berries*, treated as I have shew'd in *Chap. xxvi.* and with *Patience*; for (as I affirmed) they will sleep sometimes two entire Years in their *Graves*; as will also the *Seeds* of *Yew*, *Sloes*, *Phillyrea angustifolia*, and sundry others, whose *Shells* are very hard about the small *Kernels*; but which is wonderfully facilitated, by being (as we directed) prepared in *Beds*, and *Magazines* of *Earth*, or *Sand* for a competent Time, and then committed to the Ground before the *Full* in *March*, by which *Season* they will be chitting, and speedily take *Root*: Others bury them deep in the Ground all *Winter*, and sow them in *February*: And thus I have been told of a *Gentleman* who has considerably improved his *Revenue*, by sowing *Haws* only, and raising *Nurseries* of *Quick-sets*, which he sells by the *Hundred* far and near: This is a commendable *Industry*; any neglected Corners of Ground will fit this *Plantation*. Or were such Places plow'd in Furrow about the Ground you would fence, and sow'd with the *Mark* of the *Cyder-Prefs*, *Crab-Kernels*, &c. kept secure from *Cattle* till able to defend it self; it would yield excellent *Stocks* to graff and transplant: And thus any larger Plot, by plowing and cross-plowing the Ground, and sowing it with all Sorts of *Forest-Seeds*; breaking and harrowing the Clods, and cleansing it from Weeds with the *Haugh* (till the *Plants* over-top them)

them) a very profitable *Grove* may be raised, and yield *Magazine* of CH. XX. singular Advantage, to furnish the industrious *Planter*.

5. But *Columella* has another Expedient for the raising of our *Spinetum*, by rubbing the now mature *Hips* and *Haws*, *Aspen-Keys*, &c. into the Crevices of *Bast-ropes*, or Wisps of *Straw*, and then burying them in a *Trench*: Whether Way you attempt it, they must (so soon as they peep, and as long as they require it) be sedulously cleansed of the *Weeds*; which, if in Beds for *Transplantation*, had need be at the least three or four Years; by which Time even your *Seedlings* will be of *Stature* fit to remove; for I do by no Means approve of the vulgar *premature* planting of *Sets*, as is generally used throughout *England*; which is to take such only as are the very *smallest*, and so to crowd them into three or four *Files*, which are both egregious *Mistakes*.

6. Whereas it is found by constant Experience, that Plants as big as ones *Thumb*, set in the Posture, and at the Distance which we spake of in the *Horn-beam*; that is, almost *perpendicular* (not altogether, because the *Rain* should not get in betwixt the *Rind* and *Wood*) and single, or at most, not exceeding a double *Row*, do prosper infinitely, and much out-strip the densest and closest Ranges of our trifling *Sets*, which make but weak *Shoots*, and whose *Roots* do but hinder each other, and for being couch'd in that *Posture*, on the Sides of *Banks*, and *Fences* (especially where the Earth is not very tenacious) are *bared* of the *Mould* which should entertain them, by that Time the *Rains* and *Storms* of one *Winter* have passed over them. In *Holland* and *Flanders* (where they have the goodliest *Hedges* of this Kind about the *Counterescarp*s of their invincible *Fortifications*, to the great Security of their *Musketeers* upon occasion) they plant them according to my Description, and raise *Fences* so speedily, and so impenetrable, that our *best* are not to enter into the Comparison. Yet, that I may not be wanting to direct such as either affect the other Way, or whose *Grounds* may require some *Bank* of *Earth*, as ordinarily the Verges of *Copses*, and other Inclosures do; you shall by *Line*, cast up your *Foss* of about three Foot broad, and about the same depth, provided your Mould hold it; beginning first to turn the *Turf*, upon which be careful to lay some of the best *Earth* to bed your *Quick* in, and there lay or set the *Plants*; two in a Foot space is sufficient; being diligent to procure such as are *fresh* gathered, *streight*, *smooth*, and well *rooted*; adding now and then, at equal Spaces of twenty or thirty Foot, a young *Oakling* or *Elm-Sucker*, *Ash*, or the like, which will come in Time (especially in plain Countries) to be ornamental *Standards*, and good *Timber*: If you will needs multiply your Rows, a *Foot* or somewhat less: Above that, upon more congested Mould, plant another Rank of *Sets*, so as to point just in the middle of the *Vacuties* of the *first*, which I conceive enough: This is but for the single *Foss*; but if you would fortifie it to the Purpose, do as much on the other Side, of the same *Depth*, *Height*, and *Planting*; and then, last of all, cap the Top in *Pyramis* with the worst, or bottom of the *Ditch*: Some, if the *Mould* be good, plant a Row or two on the Edge, or very *Crest* of the *Mound*, which ought to be a little flatned. Here also may they set their *dry Hedges*, for *Hedges* must be *hedged* till they are able to defend and shade their under Plantation, and I cannot reprove it: But great Care is to be had in this *Work*, that the main Bank be well *footed*, and not made with too sudden a Declivity, which is subject to fall in
after

BOOK I. after *Frosts* and *wet* Weather; and this is good Husbandry for *moist* Grounds; but where the Land lies *high*, and is hot and *gravelly*, I prefer the lower fencing; which, though *even* with the *Area* it self, may be protected with *Stakes* and a dry Hedge, on the *Foss* Side, the Distance competent, and to very good Purposes of educating more frequent *Timber* amongst the Rows.

7. Your *Hedge* being yet *young*, should be constantly *weeded* two or three Years, especially before *Midsummer* (of *Brambles* especially the great *Dock* and *Thistle*, &c.) though some admit not of this Work till after *Michaelmas*, for *Reasons* that I approve not: It has been the Practice of *Herefordshire*, in the Plantation of *Quick-set-hedges*, to plant a *Crab-stock* at every twenty Foot Distance; and this they observe so *religiously*, as if they had been under some rigorous Statute requiring it: But by this Means they were provided in a short Time with all Advantages for the *grafting* of *Fruit* amongst them, which does highly recompence their Industry. Some cut their *Sets* at *three* Years Growth even to the very Ground, and find that in a *Year* or *two*, it will have shot as much as in *seven*, had it been let alone.

8. When your *Hedge* is now of near six Years Stature, *plash* it about *February* or *October*; but this is the Work of a very dextrous and skilful *Husbandman*; and for which our honest Country-man Mr. *Markham* gives excellent Directions; only I approve not so well of his *deep* Cutting, if it be possible to bend it, having suffered in something of that Kind: It is almost incredible to what Perfection some have laid these *Hedges*, by the *rural* Way of *plashing*, better than by *clipping*; yet may both be used for *Ornament*, as where they are planted about our *Garden-fences*, and *Fields* near the *Mansion*. In *Scotland*, by tying the young *Shoots* with *Bands* of *Hay*, they make the *Stems* grow so very close together, as that it encloseth *Rabbits* in *Warrens* instead of *Pales*: And for this robust Use we shall prefer the *Black-thorn*; the extravagant *Suckers* which are apt to rise at Distance from the *Hedge-line*, being sedulously extirpated, that the rest may grow the stronger and thicker.

9. And now since I did mention it, and that most I find do greatly affect the vulgar Way of *Quicking* (that this our *Discourse* be in nothing deficient) we will in Brief give it you again after *George Markham's* Description, because it is the best, and most accurate, although much resembling our former *Direction*, of which it seems but a *Repetition*, 'till he comes to the *Plashing*. In a Ground which is more *dry* than *wet* (for *watry* Places it abhors) plant your *Quick* thus: Let the first Row of *Sets* be placed in a *Trench* of about half a Foot deep, even with the Top of your *Ditch*, in somewhat a sloping, or inclining Posture; then having raised your *Bank* near a Foot upon them, plant another *Row*, so as their Tops may just peep out over the middle of the *Spaces* of your *first* Row: These covered again to the Height or Thickness of the other, place a third *Rank* opposite to the *first*, and then finish your *Bank* to its intended Height. The Distances of the *Plants* would not be above one *Foot*; and the *Season* to do the Work in, may be from the Entry of *February*, till the End of *March*; or else in *September* to the Beginning of *December*. When this is finished, you must guard both the Top of your *Bank*, and outmost Verge of your *Ditch*, with a sufficient *dry Hedge*, intervowen from *Stake* to *Stake* into the Earth (which commonly they do on the *Bank*) to secure your *Quick*

Quick from the Spoil of *Cattle*. And then being careful to repair such C_{H.} XX.
as decay, or do not spring, by supplying the dead, and trimming the
rest; you shall, after three Years Growth, sprinkle some *Timber-trees*
amongst them; such as *Oak*, *Beech*, *Ash*, *Maple*, *Fruit*, or the like;
which being drawn young out of your *Nurseries*, may be very easily
inserted.

I am not in the mean Time ignorant of what is said against the scat-
tering these *Masts* and *Keys* among our Fences; which grown, over-top
the *subnascent* Hedge, may prejudice it with their *Shade* and *Drip*:
But this might be prevented by planting *Hollies* (Proof against these Im-
pediments) in the Line or Trench where you would raise *Standards*,
as far as they usually spread in many Years, and which, if placed at
good Distances, how close soever to the *Stem*, would (besides their
stout Defence) prove a wondrous Decoration to large and ample In-
closures. But to resume our former Work; that which we affirmed to re-
quire the greatest Dexterity, is the artificial *plashing* of our *Hedge*,
when it is now arrived to a *six* or *seven* Years Head; though some stay
till the tenth, or longer. In *February* therefore, or *October*, with a
very sharp *Hand-bill*, cut away all superfluous *Sprays* and *Stragglers*,
which may hinder your Progress, and are useless. Then, searching out
the principal *Stems*, with a keen and light *Hatchet*, cut them *slant-*
wise close to the *Ground*, hardly three Quarters through, or rather, so
far only, as till you can make them comply handsomely, which is your
best Direction (lest you rift the *Stem*) and so lay it from your *sloping*
as you go, folding in the lesser *Branches* which spring from them; and
ever within a five or six Foot Distance, where you find an upright *Set*
(cutting off only the Top to the Height of your intended *Hedge*) let it
stand as a *Stake*, to fortify your Work, and to receive the *Twinnings* of
those *Branches* about it. Lastly, at the *Top* (which would be about
five Foot above *Ground*) take the longest, most slender, and flexible
Twigs which you reserved, and (being cut as the former, where need
requires) bind in the Extremities of all the rest; and thus your Work is
finished. This being done very close and thick, makes an impregnable
Hedge, in few Years; for it may be repeated as you see occasion; and
what you so cut away, will help to make your *dry Hedges* for your young
Plantations, or be profitable for the *Oven*, and make good *Bavin*;
namely, the extravagant side *Branches* springing the more *upright*, 'till
the newly wounded are healed. There are some yet who would have
no *Stakes* cut from the *Trees*, save here and there one; so as to leave
half the Head naked, and the other standing; since the over-hanging
Bows will kill what is under them, and ruin the *Tree*; so pernicious is
this half-topping: But let this be a total *Amputation* for a new and lusty
Spring. There is nothing more prejudicial to *subnascent* young *Trees*,
than when newly trimmed and pruned, to have their (as yet raw)
Wounds poisoned with continual dripping; as is well observed by
Mr. *Nourse*: But this is meant of repairing decayed *Hedges*. For
Stakes in this Work, *Oak* is to be preferred, though some will use
Elder, but it is not good, or the *Black-thorn*, *Crab-Tree*; in moorish
Ground *Withy*, *Ash*, *Maple*, *Hazel*, not lasting, (which some make
Hedges of, but it being apt to the browsing of *Cattle*, when the young
Shoots appeared, it does better in *Copses*) the rest not lasting, should
yet be driven well in at every Yard of Interval both before and after
they are bound, till they have taken the hard *Earth*, and are very fast;
and

BOOK I. and even your *plashed Hedges* need some small *Thorns* to be laid over, to protect the Spring from *Cattle* and *Sheep*, 'till they are somewhat fortified; and the doubler the *Winding* is lodged, the better; which should be beaten, and forced down together with the *Stakes*, as equally as may be. Note, that in sloping your *Windings*, if it be too low done (as very usually) it frequently mortifies the *Tops*; therefore it ought to be so bent, as it may not impede the mounting of the *Sap*: If the *Plash* be of a great and extraordinary *Age*, wind it at the neather Boughs all together, and cutting the *Sets*, as directed, permit it rather to hang downwards a little, than rise too forwards; and then twist the Branches into the Work, leaving a *Set* free, and unconstrained at every *Yard* Space, besides such as will serve for *Stakes*, abated to about *five Foot* Length (which is a competent Stature for an *Hedge*) and so let it stand. One shall often find in this Work, especially in *old* neglected *Hedges*, some great *Trees* or *Stubs*, that commonly make *Gaps* for *Cattle*: Such should be cut so near the Earth, as till you can lay them thwart, that the *Top* of one may rest on the *Root* or *Stub* of the other, as far as they extend, stopping the *Cavities* with its Boughs and Branches; and thus *Hedges*, which seem to consist but only of *scrubby Trees* and *Stumps*, may be reduced to a tolerable *Fence*: But in Case it be *superannuated*, and very old, 'tis advisable to stub all up, being quite renewed, and well guarded. We have been the longer on these *Descriptions*, because it is of main Importance, and that so few *Husbandmen* are so perfectly skilled in it: But he that would be more fully satisfied, I would have to consult Mr. *Cook*, Chap. xxxii. or rather *Instar Omnium* (and after all which has been said of this useful Art of *Fencing*) what I cannot without Injury to the Publick, and Ingratitude to the Persons, who do me the Honour of imparting to me their Experiences, but as freely communicate.

It is then from the Reverend Mr. *Walker* of *Great-Billing* near *Northampton*, that (with several other Particulars relating to our *Rural* Subject) I likewise receive from that worthy Gentleman *Tho. Franklin* of *Eton*, Esq; the following *Method* of *Planting* and *Fencing* with *Quick-sets*; which we give you in his own Words.

10. About ten or twelve Years since, I made some Essays to set some little *Clumps* of *Hedges* and *Trees*, of about two *Pole* in Breadth, and three in Length: The Out-fences ditch'd on the Outside, but the *Quick-sets* in the Inside of the Bank, that the *dead Hedges* might stand on the Outside thereof; so that a small Hedge of eighteen or twenty Inches high, made of small *Wood*, the *Stakes* not much bigger than a Man's Thumb, which (the Banks being high) sufficiently defended them for four Years time, and were hedged with less than one Load of Shreadings of *Willow-sets*, which (as my Workmen told me) would have required six Load of *Copse-wood*: But the next Year after their being planted, finding wast Ground on the Top of the Bank of the outer Fence, between the *dead Hedge* and the *quick*, I put a *Foot-set* in the same Space between the *quick* and the *dead Hedge*, which prospered better than those planted in the Side of the Bank, after the vulgar Way, and hold it still. This put me upon thinking, that a Set cheaper and better of *Quick-fence*, might possibly be found out; and accordingly I made some Trials, with good Success (at least better than the old Way) though not to my full Satisfaction, till I had perused Mr. *Evelyn's Silva*, &c. The Method I used,

used, was this: First I set out the Ground for *Ditches* and *Quick*,
 in Breadth *ten Foot*; then subdivided *that*, by marking out two *Foot*
 and a half on each Side (more or less, at pleasure) for the *Ditches*,
 leaving five in the middle between them: Then digging up two *Foot*
 in the midst of that five *Foot*, plant the *Sets* in; though it require
 more Labour and Charge, I found it soon repaid the Cost. This done,
 I began to dig the *Fosses*, and to set up one Row of *Turfs* on the Out-
 side of the said five *Foot*; namely, one Row on each Side thereof, the
 green Side outmost, a little reclining, so as the *Grass* might grow:
 After this, returning to the Place begun at, I ordered one of the Men
 to dig a Spit of the under Turf-Mould, and lay it between the *Turfs*,
 placed Edge-wise, as before described, upon the two *Foot* which was
 purposely dug in the Middle, and prepared for the *Sets*, which the
Planter sets with two *Quicks* upon the Surface of the Earth, almost
 upright, whilst another Workman lays the Mould forward, about
 twelve Inches, and then sets two more, and so continues. Some there
 are who plant three Rows of *Sets* about eight Inches Interval; but I
 do not approve it; for they choak one another. This finished, I order
 another Row of *Turfs* to be placed on each Side upon the Top of the
 former, and fill the Vacuity between the *Sets* and the *Turfs*, as high
 as their Tops, always leaving the Middle, where the *Sets* are planted,
hollow, and somewhat lower than the Sides of the Banks, by eight or
 ten Inches, that the *Rain* may descend to their Roots, which is of
 great Advantage to their Growth, and far better than by the old Way;
 where the *Banks* too much sloping, the *Roots* of the *Sets* are seldom
 wetted in an ordinary Season, the Summer following; but which if it
 prove dry, many of the *Sets* perish, especially the late planted:
 Whereas those which I planted in the latter End of *April*, though
 the Summer happen'd to be somewhat dry, generally escap'd, very few
 of them miscarrying. Now the Planting thus advanced, the next
 Care is *Fencing*; by setting an *Hedge* of about twenty Inches high
 upon the Top of the Bank, on each Side thereof, leaning a little out-
 ward from the *Sets*, which will protect them as well (if not better)
 than a *Hedge* of three *Foot*, or four Inches more, standing upon the
 Surface of the Ground, which being raised with the *Turfs* and *Sods*
 about twenty Inches, and the *Hedge* about twenty Inches more, will
 make three *Foot* four Inches; so as no *Cattle* can approach the *dead*
Hedge, to prejudice it, unless they set their Feet in the Ditch it self;
 which will be at least a *Foot* deep, and from the Bottom of the *Fosse*
 to the Top of the *Hedge*, about four *Foot* and half, which they can
 hardly reach over to crop the *Quick*, as they might in the old Way;
 and besides, such an *Hedge* will endure a Year longer. I have at this
 present an *Hedge* which has stood these five Years; and though nine
 or ten *Foot* be sufficient for both *Ditches* and *Bank*, yet where the
 Ground is but indifferent, 'tis better Husbandry to take twelve *Foot*,
 which will allow of a *Bank* at least six *Foot* broad, and gives more
 Scope to place the *dead Hedges* farther from the *Sets*; and the *Ditches*
 being shallow, will, in two Years time, *Graze*; though I confine my
 self for the most Part to nine or ten; because I would take off the only
 Objection of wasting Ground by this Way, should others follow it. In
 Reply to this, I affirm, That if you take twelve *Foot* in Breadth, for
Ditch and *Bank*, you wast more Ground than by the common Way:
 For in *that* a *Quick* is rarely set, but there is nine *Foot* between the
 dead

dead Hedges, which is entirely lost all the Time of *Fencing*: When as with double *Ditches*, there remains at least eighteen Inches on each Side where the Turfs were set on Edge, that bear more *Grafs* than when it lay on the Flat. But admitting it did totally lay waft three Foot of Ground, the Damage were very inconsiderable, since *forty Perch*, in Length two hundred and twenty *Yards*, which makes *Perches*, 7, 25", 9', or 7 *Pole* $\frac{1}{2}$, which at thirteen *Shillings* and four *Pence* the *Acre*, amounts not to 7d. $\frac{1}{2}$ per *Ann*. Now that this is not only the best and cheapest Way of *Quick-setting*, will appear by comparing the Charge of both: In the usual Way, the Charge of a three Foot *Ditch* is four *Pence* per *Pole*, the Owner providing *Sets*; if the Workman finds them, he will have for making the said *Ditch*, and setting them, eight *Pence* the *Pole*, and for *Hedging* two *Pence*; that is, for both Sides four *Pence* the *Pole*, which renders the Charge of *Hedging*, *Ditching*, and *Sets*, twelve *Pence* the *Pole*; that is, for *forty Rod* in Length, *forty Shillings*: Then one Load of *Wood* out of the *Copse* costs us, with the Carriage (though but two or three Miles Distance) ten *Shillings*; which will seldom *Hedge* above eight *Pole* (single *Hedge*.) But allowing it to do *ten*, to fence *forty Pole*, there must be at least eight Load of *Wood*, which costs four *Pounds*, making the whole Expence for *Ditching*, *Setting*, and *Fencing* of *forty Pole*, to be six *Pounds*, reckoning with the least; for I know not any that will undertake to do it under three *Shillings* and six *Pence* per *Pole*, and then the *forty Pole* costs seven *Pounds*. Whereas, with double *Ditches*, both of them, *Setting* and *Sets*, will be done for eight *Pence* per *Pole*, and the *Husbandman* get as good Wages, as with a single *Ditch* (for though the Labour about them is more, yet the making the *Table* is saved) which costs one Pound six *Shillings* and eight *Pence*. And the *Hedges* being but low, they'll make better Wages at *Hedging* for a *Penny* the *Pole*, than at *two Pence* for common *Hedges*; which comes to six *Shillings* and eight *Pence* for *Hedging forty Pole* on both Sides: Thus one Load of *Wood* will fence *thirty Pole* at least, and *forty hedged* with two thirds of *Wood* less than in the other Way, and cost but one Pound six *Shillings* and eight *Pence*, which makes the whole Charge of *Sets*, *Ditching*, *Fencing* and *Wood*, but *three Pounds*.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
	10	06	08
	00	06	08
	01	06	08
	03	00	00

Hitherto this obliging and industrious Gentleman.

USES.

II. To other Uses: The *Root* of an old *Thorn* is excellent both for *Boxes* and *Combs*, and is curiously and naturally wrought: I have read, that they made *Ribs* to some small *Boats* or *Vessels* with the *White-Thorn*; and it is certain, that if they would plant them *single*, and in *Standards*, where they might be safe, they would rise into large bodied Trees in Time, and be of excellent Use for the *Turner*, not inferior to *Box*, and accounted among the *fortunate* Trees, and therefore used in *Fasces Nupsiarum*, since the jolly *Shepherds* carried the *White-Thorn* at the *Rapine* of the *Sabines*; and ever since counted * *propitius*.
The

* See Varro
in Atius Ovid.
Fast. 6.
— despinat
sumitur alba.

The distilled *Water* and *Stone*, or *Kernels* of the *Haw* reduced to CH. XX.
Powder, is generally agreed to be *sovereign* against the *Stone*. The
Black-Crab, rightly seasoned and treated, is famous for *Walking-staves*,
and if over-grown, used in *Mill-work*; yea, and for *Rafters* of great
Ships. Here we owe due *Eulogy* to the Industry of the late Lord
Shaftsbury, who has taught us to make such Inclosures of *Crab-Stocks*
only (planted close to one another) as there is nothing more impreg-
nable and becoming; or you may sow *Cyder-kernels* in a *Rill*, and
fence it for a while with a double *dry Hedge*, not only for a sudden
and beautiful, but a very profitable *Inclosure*; because, amongst other
Benefits, they will yield you *Cyder-fruit* in abundance: But in *Devon-*
shire, they build two *Walls* with their *Stones*, setting them *Edge-ways*,
two, and then *one* between; and so as it rises, fill the Interval, or *Cofer*,
with Earth (the *Breadth* and *Height* as you please) and continuing
the *Stone-work*, and *filling*, and, as you work, beating in the *Stones*
flat to the Sides, they are made to stick everlastingly. This is absolute-
ly the neatest, most saving, and profitable *Fencing* imaginable, where
slaty Stones are in any abundance; and it becomes not only the most
secure to the *Lands*, but the best for *Cattle*, to lie warm under the
Walls; whilst other *Hedges* (be they never so thick) admit of some
cold *Winds* in Winter-time when the *Leaves* are off. Upon these *Banks*
they plant not only *Quick-sets*, but even *Timber-trees*, which exceed-
ingly thrive, being out of all Danger.

12. The *Pyracantha Paliurus*, and like preciouser Sorts of *Thorn*
and robust *Ever-greens*, adorned with *Caralin-Berries*, might easily
be propagated by *Seeds*, *Layers* or *Cuttings*, into Plenty sufficient to
store even these vulgar *Uses*, were *Men* industrious; and then, how
beautiful and sweet would the *Environs* of our *Fields* be! for there
are none of the *spinous Shrubs* more hardy, none that make a more
glorious *Shew*, nor fitter for our Defence, competently armed, espe-
cially the *Rhamnus*, which I therefore joyn to the *Oxycantha*, for its
terrible and almost irresistible *Spines*, able almost to pierce a Coat of
Mail; and for this made use of by the malicious *Jews*, to crown the
sacred Temples of our *Blessed Saviour*, and is yet preferred among the
most venerable *Relicks* in *St. Chapel* at *Paris*, as is pretended by the
Devotees, &c. and hence has the Tree (for it sometimes exceeds a *Shrub*)
the Name of *Christ's Thorn*. Thus might *Barberies* now and then be
also inserted among our *Hedges*, which, with the *Hips*, *Haws* and
Cornel-berries, do well in *light Lands*, and would rather be planted to
the *South*, than *North* or *West*, as usually we observe them.

13. Some (as we noted) mingle their very *Hedges* with *Oaklings*,
Ash, and *Fruit-Trees*, sown or planted, and 'tis a laudable Improve-
ment; though others do rather recommend to us *Sets* of all one Sort, and
will not so much as admit of the *Black-Thorn* to be mingled with the
White, because of their unequal Progress; and indeed, *Timber-trees*
set in the *Hedge* (though *Contemporaries* with it) do frequently wear
it out; and therefore I should rather encourage such *Plantations* to be
at some *Yards* Distance, near the *Verges*, than *perpendicularly* in
them. Lastly, if in planting any the most robust *Forest-Trees* (especial-
ly *Oak*, *Elm*, *Chestnut*) at competent Spaces, and in *Rows*, you open
a *Ring* of Ground, at about four Foot Distance from the *Stem*, and
prick in *Quick-set* Plants; you may after a while, keep them *clipped*,
at what Height you please: They will appear exceedingly beautiful to

BOOK I. the Eye, prove a good Fence, and yield useful *Bush*, *Bavin*, and (if you maintain them unshorn) *Hips* and *Haws* in abundance: This would therefore especially be practised, where one would invite the *Birds*.

14. In *Cornwal* they secure their *Lands* and *Woods* with high *Mounds*, and on them they plant *Acorns*, whose *Roots* bind in the looser *Mould*, and so form a double and most durable *Fence*, incircling the *Fields* with a *Coronet* of *Trees*. They do likewise (and that with great Commendation) make *Hedges* of our *Genista spinosa*, prickly *Furzes*, of which they have a taller Sort, such as the *French* employ for the same Purpose in *Bretaigne*, where they are incomparable *Husbands*.

15. It is to be sown (which is best) or planted of the *Roots* in a Furrow: If sown, weeded till it be strong; both *tonfile*, and to be diligently clipped, which will render it very thick, an excellent and beautiful *Hedge*: Otherwise, permitted to grow at large, 'twill yield very good *Faggot*: It is likewise admirable *Covert* for *Wild-fowl*, and will be made to grow even in moist as well as dry Places. The young and tender *Tops* of *Furzes*, being a little bruised, and given to a lean sickly *Horse*, will strangely recover and plump him. Thus, in some Places, they sow in barren *Grounds* (when they lay them down) the last *Crop* with this *Seed*, and so let them remain till they break them up again, and during that Interim, reap considerable Advantage: Would you believe (writes a worthy *Correspondent* of mine) that in *Herefordshire* (famous for Plenty of *Wood*) their *Thickets* of *Furzes* (*viz.* the *Vulgar*) should yield them more *Profit* than a like Quantity of the best *Wheat-Land* of *England*? for such is theirs. If this be questioned, the *Scene* is within a Mile of *Hereford*, and proved by anniversary Experience, in the *Lands*, as I take it, of a *Gentleman* who is now one of the *Burgesses* for that *City*. And in *Devonshire* (the *Seat* of the best *Husbands* in the *World*) they sow on their worst *Land* (well plowed) the *Seeds* of the rankest *Furzes*, which in four or five Years becomes a rich *Wood*: No Provender (as we say) makes *Horses* so hardy as the young *Tops* of these *Furzes*; no other *Wood* so thick, nor more excellent *Fuel*; and for some Purposes also, yielding them a Kind of *Timber* to their more humble *Buildings*, and a great Refuge for *Fowl* and other *Game*. I am assured, in *Bretaigne* 'tis sometimes sown no less than twelve *Yards* thick, for a speedy, profitable, and impenetrable *Mound*: If we imitated this *Husbandry* in the dry and hot barren Places of *Surrey*, and other Parts of this *Nation*, we might exceedingly spare our *Woods*; and I have bought the best Sort of *French-feed* at the Shops in *London*. It seems that in the more *Eastern* Parts of *Germany*, and especially in *Poland*, this vulgar Trifle, and even our common *Broom* is so rare, that they have desired the *Seeds* of them out of *England*, and preserve them with extraordinary Care in their best *Gardens*: 'This I learn out of our *Johnson's Herbal*; by which we may consider, that what is reputed a *Curse*, and a Cumber in some Places, is esteemed the Ornament and Blessing of another: But we shall not need go so far for this, since both *Beech* and *Birch* are almost as great Strangers in many Parts of this *Nation*, particularly *Northampton* and *Oxfordshire*. Mr. *Cook* is much in Praise of *Juniper* for *Hedges*, especially for the more elegant Inclosures; and we daily see how it's improved of late.

USES.

BROOM.

16. This puts me in mind of the *Genista scoparia*, *Broom*; another Improvement for barren *Grounds*, and Saver of more substantial *Fuel*:
It

It may be sown *English*, or (what is more sweet and beautiful) the *Spanish*, with equal Success. In the western Parts of *France* and *Cornwal*, it grows with us to an incredible Height (however our *Poet* gives it the *Epithet* of *humilis*) and so it seems they had it of old, as appears by *Gratius* his *Genistæ Altinates*, with which (as he affirms) they used to make *Staves* for their *Spears*, and hunting *Darts*. The *Seeds* of *Broom*, vomit and purge, whilst the *Buds* and *Flowers*, being pickled, are very grateful.

18. Lastly, (*Sambucus*) a considerable *Fence* may be made of the *Elder*, set of reasonable lusty *Trunchions*, much like the *Willow*, and (as I have seen them maintained) laid with great Curiosity, and far excelling those extravagant Plantations of them about *London*, where the *Lops* are permitted to grow without due and skilful laying. There is a Sort of *Elder* which has hardly any *Pith*; this makes exceeding stout *Fences*, and the *Timber* very useful for *Cogs* of *Mills*, *Butchers Skewers*, and such tough Employments. Old *Trees* do in Time become firm, and close up the *Hollowness* to an almost invisible *Pith*. But if the *Medicinal* Properties of the *Leaves*, *Bark*, *Berries*, &c. were thoroughly known, I cannot tell what our *Country-man* could ail, for which he might not fetch a *Remedy* from every *Hedge*, either for *Sickness* or *Wound*: The inner *Bark* of *Elder*, applied to any *Burning*, takes out the *Fire* immediately; That or, in Season, the *Buds* boiled in *Water-grewel* for a *Break-fast*, has effected Wonders in a *Fever*; and the *Decoction* is admirable to assuage *Inflammations* and *tetrous Humours*, and especially the *Scorbut*: But an *Extract* or *Theriaca* may be composed of the *Berries*, which is not only efficacious to eradicate this *epidemical* Inconvenience, and greatly to assist *Longevity* (so famous is the Story of *Neander*) but is a Kind of *Catholicon* against all *Infirmities* whatever: And of the same *Berries* is made an incomparable *Spirit*, which drunk by it self, or mingled with *Wine*, is not only an excellent *Drink*, but admirable in the *Dropsie*: In a Word, the *Water* of the *Leaves* and *Berries* is approved in the *Dropsie*; every Part of the *Tree* being useful, as may be seen at large in *Block-witzius's Anatomy* thereof. The *Ointment* made with the young *Buds* and *Leaves* in *May* with *Butter*, is most sovereign for *Aches*, shrunk *Sinews*, *Hæmorrhoids*, &c. and the *Flowers* macerated in *Vinegar*, not only are of a grateful relish, but good to attenuate and cut raw and gross *Humours*. Lastly, The *Fungus* (which we call *Jews-Ears*) decocted in *Milk*, or macerated in *Vinegar*, is of known Effect in the *Angina* and Sores of the *Throat*. And less than this could I not say (with the Leave of the charitable *Physician*) to gratifie our poor *Wood-man*; and yet when I have said all this, I do by no Means commend the *Scent* of it, which is very noxious to the *Air*; and therefore, though I do not undertake that all Things which sweeten the *Air*, are salubrious, nor all ill Savours pernicious; yet, as not for its Beauty, so neither for its Smell, would I plant *Elder* near my Habitation; since we learn from *Biesius*, that a certain House in *Spain*, seated amongst many *Elder-trees*, diseased and killed almost all the *Inhabitants*, which when at last they were grubbed up, became a very wholesome and healthy Place. The *Elder* does likewise produce a certain green *Fly*, almost invisible, which is exceedingly troublesome, and gathers a fiery Redness where it attacks.

19. There is a *Shrub*, called the *Spindle-Tree*, (*Evonymus*, or *Fu-sanum*) commonly growing in our *Hedges*, which bears a very hard *Wood*,

BOOK I.

USES.

Wood, of which they sometimes made *Bows* for *Viols*, and the *Inlayer* used it for its Colour, and *Instrument-makers* for *Toothing* of *Organs* and *Virginal-Keys*, *Tooth-Pickers*, &c. What we else do with it, I know not, save that (according with its Name abroad) they make *Spindles* with it. I also learn, that three or four of the *Berries*; purge both by *Vomit* and *Siege*, and the *Powder* made of the *Berry*, being baked, kills *Nits*, and cures *scurfy Heads*. *Matthiolus* says, the poor People about *Trent* press *Oil* out of the *Berries*, wherewith to feed their *Lamps*: But why they were wont to scourge *Parricides* with *Rods* made of this *Shrub*, before they put them into the *Sack*, see *Modestinus L. penult SS. ad Legem Pomp. de Parricid.* cited by Mr. Ray.

DOG-WOOD.

USES.

Here might come in (or be named at least) *Wild-cornel*, or *Dog-wood*, good to make *Mill-Cogs*, *Pestles*, *Bobins* for *Bone-lace*, *Spokes* for *Wheels*, &c. the best *Skewers* for *Butchers*, because it does not taint the *Flesh*, and is of so very hard a Substance, as to make *Wedges* to cleave and rive other *Wood* with, instead of *Iron*. But of this, see *VIBURNUM. Chap. xi. Book ii.* And Lastly, The *Viburnum*, or *Way-faring-tree*, growing also plentifully in every Corner, makes *Pins* for the *Yokes* of *Oxen*; and superstitious People think, that it protects their *Cattle* from being bewitched, and used to plant the *Shrub* about their *Stalls*; 'tis certainly the most pliant and best *Bands* to *Faggot* with. The *Leaves* and *Berries* are *astringent*, and make an excellent *Gargle* for loose *Teeth*, *fore Throats*, and to stop *Fluxes*. The *Leaves* decocted to a *Lie*, not only colour the *Hairs* black, but fasten their *Roots*; and the *Bark* of the *Root*, macerated under Ground, well beaten, and often boiled, serves for *Birdlime*.

YUCCA.

USES.

20. The *American Yucca* is a *hardier Plant* than we take it to be, for it will suffer our sharpest *Winter* (as I have seen by Experience) without that Trouble and Care of setting it in *Cases* in our *Conservatories* of *Hyemation*: Such as have beheld it in *Flower* (which is not indeed till it be of some Age) must needs admire the Beauty of it; and it being easily multiplied, why should it not make one of the best and most ornamental *Fences* in the World for our *Gardens*, with its natural *Palisadoes*, as well as the more tender and impatient of Moisture, the *Aloes*, does for their *Vineyards* in *Languedoc*, &c? But we believe nothing improveable, save what our *Grand-fathers* taught us. Finally, let *Trial* likewise be made of that *Thorn*, mentioned by *Captain Liggon* in his *History* of *Barbadoes*, whether it would not be made grow amongst us, and prove as convenient for *Fences* as there, the *Seeds* or *Sets* transported to us with due Care. And thus having accomplished what (by your *Commands*) I had to offer concerning the Propagation of the more *solid, material*, and useful *Trees*, as well the *dry* as *aquatical*, and to the best of my *Talent* fenced our *Plantation* in; I should here conclude, and set a *Bound* likewise to my *Discourse*, by making an *Apology* for the many *Errors* and *Impertinencies* of it, did not the *Zeal* and *Ambition* of this *illustrious Society* to promote and improve all *Attempts* which may concern *publick Utility* or *Ornament*, persuade me, that what I am adding for the farther Encouragement to the *planting* of some other *useful* (though less *vulgar*) *Trees*, will at least obtain your *Pardon*, if it miss of your *Approbation*.


FRUIT-TREES.

21. To discourse in this *Stile* of all such *Fruit-trees* as would prove of greatest *Emolument* to the whole *Nation*, were to design a just *Volume*; and there are *Directions* already so many, and so accurately delivered

livered and *published* (but which cannot be affirmed of any of the former *Classes* of *Forest-trees*, and other Remarks, at the least to my poor Knowledge and Research) that it would be needless to *repeat*.

22. I do only wish (upon the Prospect and Meditation of the universal *Benefit*) that every *Person* whatsoever, worth *ten Pounds per Annum*, within her *Majesty's* Dominions, were by some indispensable *Statute*, obliged to plant his *Hedge-rows* with the best and most useful *Kinds* of them, especially in such Places of the *Nation*, as being the more in-land *Counties*, and remote from the *Seas* and navigable *Rivers*, might the better be excused from the planting of *Timber*, to the *Proportion* of those who are more happily and commodiously situated for the *Transportation* of it.

23. Undoubtedly, if this Course were taken effectually, a very considerable Part both of the *Meat* and *Drink* which is spent to our Prejudice, might be saved by the *Country People*, even out of the *Hedges* and *Mounds*, which would afford them not only the *Pleasure* and *Profit* of their delicious *Fruit*, but such abundance of *Cyder* and *Perry*, as should suffice them to *drink* of one of the most *wholsome* and excellent *Beverages* in the *World*. Old Gerard did long since alledge us an *Example* worthy to be pursued; *I have seen* (saith he, speaking of *Apple-trees*, Lib. iii. Cap. ci.) *in the Pastures and Hedge-rows about the Grounds of a worshipful Gentleman, dwelling two Miles from Hereford, called Mr. Roger Bodnorne, so many Trees of all Sorts, that the Servants drink for the most part no other Drink but that which is made of Apples: The Quantity is such, that by the Report of the Gentleman himself, the Parson hath for Tythe many Hogsheads of Cyder: The Hogs are fed with the Fallings of them, which are so many, that they make choice of those Apples they do eat, who will not taste of any but of the best. An Example doubtless to be followed of Gentlemen that have Land and Living: But Envy saith, the Poor will break down our Hedges, and we shall have the least part of the Fruit. But forward, in the Name of God, graff, set, plant, and nourish up Trees in every Corner of your Ground; the Labour is small, the Cost is nothing, the Commodity is great; your selves shall have Plenty, the Poor shall have somewhat in Time of Want to relieve their Necessity, and God shall reward your good Minds and Diligence.* Thus far honest Gerard. And in Truth, with how small a *Charge* and infinite *Pleasure* this were to be effected, every one that is *Patron* of a little *Nursery*, can easily calculate: But by this *Expedient* many thousands of *Acres*, sowed now yearly with *Barley*, might be cultivated for *Wheat*, or converted into *Pasture*, to the increase of *Corn* and *Cattle*: Besides, the *Timber* which the *Pear-tree*, *Black-cherry* and many thorny *Plums* (which are best for *Grain*, *Colour*, and *Gloss*) afford, comparable (for divers curious *Uses*) with any we have enumerated. The *Black-cherry-wood* grows sometimes to that Bulk, as is fit to make *Stools* with, *Cabinets*, *Tables*, especially the *redder Sort*, which will polish well; also *Pipes*, and *musical Instruments*; the very *Bark* employed for *Bee-hives*: But of this I am to render a more ample *Account* in the *Appendix* to this *Discourse*. I would farther recommend the more frequent planting and Propagation of *Fir*, *Pine-trees*, and some other beneficial *Materials*, both for *Ornament* and *Profit*; especially, since we find by *Experience*, they thrive so well, where they are cultivated for *Curiosity* only.



DENDROLOGIA.

BOOK II.

CHAP. I.

Of the Mulberry.

BOOK II. I.
MULBERRY.

USES.

Morus, the *Mulberry*: It may possibly be wondered by some why we should insert this *Tree* amongst our *Forest Inhabitants*; but we shall soon reconcile our industrious *Planter*, when he comes to understand the incomparable Benefit of it, and that for its *Timber*, Durableness, and Use for the *Joyner* and *Carpenter*, and to make *Hoops*, *Bows*, *Wheels*, and even *Ribs* for small *Vessels*, instead of *Oak*, &c. though the *Fruit* and the *Leaves* had not the due Value with us, which they deservedly enjoy in other Places of the World.

2. But it is not here I would recommend our ordinary *black Fruit Bearers*, though that be likewise worth the Propagation; but that *Kind* which is called the *white Mulberry* (which I have had sent me out of *Languedoc*) one of them of a *broad Leaf*, found there and in *Provence*, whose Seeds being procured from *Paris*, where they have it from *Avignon*, should be thus treated in the *Seminary*.

3. In Countries where they cultivate them for the *Silk-worm*, and other Uses, they sow the perfectly mature *Berries* of a *Tree*, whose *Leaves* have not been gathered; these they shake down upon an old *Sheet* spread under the *Tree*, to protect them from *Gravel* and *Ordure*, which will hinder you from discerning the *Seed*: If they be not ripe, lay them to mature upon *Shelves*, but by no Means till they corrupt; to prevent which, turn them daily; then put them in a fine *Sieve*, and plunging it in *Water*, bruise them with your *Hand*; do this in several *Waters*, then change them in other clear *Water*, and the *Seed* will sink to the Bottom, whilst the *Pulp* swims, and must be taken off carefully: This done, lay them to dry in the *Sun* upon a *Linnen Cloth*, for which one Hour is sufficient, then van and sift it from the *Husks*, and reserve it till the Season. This is the Process of curious Persons; but the sowing of ripe *Mulberries* themselves is altogether as good, and from the Excrement of *Hogs*, and even *Dogs* (that will frequently eat them) they will rise abundantly. Note, That in sowing of the *Berry*, 'tis good to squash and bruise them with fine sifted *Mould*, and if it be rich, and of the *old Bed*, so much the better: They would be interred, well moistned and covered with *Straw*, and then rarely watered till they peep; or you may squeeze the ripe *Berries* in *Ropes* of *Hair* or *Bast*, and bury them, as is prescribed for *Hips* and *Haws*: The Earth in which you sow them, should be fine *Mould*, and as rich as for *Melons*,
raised

raised a little higher than the *Area*, as they make the Beds for ordinary *Pot-herbs*, to keep them loose and warm, and in such *Beds* you may sow *Seeds* as you do *Purslane*, mingled with some fine *Earth*, and thinly covered, and then for a Fortnight strewed over with *Straw*, to protect them both from sudden *Heat* and from *Birds*: The Season is *April* or *May*, though some forbear even till *July* and *August*, and in the second Quarter of the *Moon*, the Weather calm and serene. At the Beginning, keep them moderately fresh (not over wet) and clean weeded, secured from the Rigour of *Frosts*; the second Year of their Growth, about the Beginning of *October*, or early *Spring*, draw them gently out, prune the *Roots*, and dipping them a little in *Pond-water*, transplant them in a warm Place or *Nursery*; 'tis best ranging them in *Drills*, two Foot large, and one in *Depth*, each *Drill* three Foot Distance, and each *Plant* two. And if thus the new Earth be somewhat lower than the Surface of the rest, 'twill the better receive the *Rain*. Being planted, cut them all within three *Inches* of the Ground. Water them not in *Winter*, but in extream Necessity, and when the Weather is warm, and then do it in the Morning. In this cold Season you shall do well to cover the Ground with the Leaves of *Trees*, *Straw*, or short *Litter*, to keep them warm; and every Year you shall give them three *Dressings* or half Diggings; viz. in *April*, *June* and *August*; this, for the first Year, still after *Rain*: The second *Spring* after transplanting, purge them of all superfluous *Shoots* and *Cions*, reserving only the most towardly for the future *Stem*; this to be done yearly, as long as they continue in the *Nursery*; and if of the principal *Stem* so left, the *Frost* mortifie any Part, cut it off, and continue this Government till they are near six Foot high; after which suffer them to spread into *Heads*, by discreetly pruning and fashioning them: But if you plant where *Cattle* may endanger them, the *Stem* had need be taller, for they are extreamly liquorish of the Leaves.

4. When now they are about five Years Growth, you may transplant them without cutting the *Root* (provided you eradicate them with Care) only trimming the *Head* a little; the Season is from *September* to *November* in the *New-Moon*, and if the *Holes* or *Pits* you set them in were dug and prepared some *Months* before, it would much secure their taking: Some cast *Horns*, *Bones*, *Shells*, &c. into them, the better to loosen the *Earth* about them, which should be rich, and well refreshed all *Summer*. A light, and dry *Mould* is best, well exposed to the *Sun* and *Air*, which above all things this *Tree* affects, and hates watery low Grounds: In Sum, being a very lasting Tree, they thrive best where *Vines* prosper most, whose Society they exceedingly cherish; nor do they less delight to be amongst *Corn*, no Way prejudicing it with its *Shade*. The *Distance* of these *Standards* would be twenty, or twenty-four Foot every Way, if you would design *Walks* or *Groves* of them; if the *Environs* of *Fields*, Banks of *Rivers*, *High-ways*, &c. twelve or fourteen Foot may suffice, but the farther distant the better; for the *White* spreads its *Root* much farther than the *Black*, and likes the *Valley* more than the higher Ground.

5. Another Expedient to increase *Mulberries*, is by *Layers* from the *Suckers* at the Foot; this done in *Spring*, leaving not above two *Buds* out of the *Earth*, which you must diligently water, and the second Year they will be rooted: They will also take, by passing any Branch or Arm slit, and kept a little open with a *Wedge*, or Stone, through

BOOK II. through a Basket of *Earth*, which is a very sure Way: Nay, the very *Cuttings* will strike in *Spring*, but let them be from *Shoots* of two Years Growth, with some of the *old Wood*, though of seven or eight Years; these set in *Rills*, like *Vines*, having two or three *Buds* at the Top, will root infallibly, especially if you twist the *old Wood* a little, or at least back it; though some slit the *Foot*, inserting a *Stone*, or Grain of an *Oat*, to suckle and entertain the *Plant* with Moisture.

6. They may also be propagated by *Grafting* them on the *black Mulberry* in *Spring*, or *Inoculated* in *July*, taking the *Cyons* from some old Tree, that has broad, even, and round Leaves, which causes it to produce very ample and tender Leaves, of great Emolument to the *Silk-master*.

7. Some experienced *Husbandmen* advise to Poll our *Mulberries* every three or four Years, as we do our *Willows*; others not till eight Years; both erroneously. The best way is yearly to *prune* them of their dry and superfluous Branches, and to form their *Heads* round and natural. The first Year of *Removal* where they are to abide, cut off all the *Shoots*, to five or six of the most promising; the next Year leave not above three of these, which dispose in *Triangle* as near as may be, and then disturb them no more, unless it be to *purge* them (as we taught) of dead *Seare-wood*, and extravagant Parts, which may impeach the rest; and if afterward any *pruned* Branch shoot above three or four *Cyons*, reduce them to that number. One of the best Ways of *Pruning*, is what they practise in *Sicily* and *Provence*, to make the Head *hollow*, and like a *Bell*, by cleansing them of their inmost Branches; and this may be done, either before they bud, viz. in the *New-Moon* of *March*, or when they are full of *Leaves* in *June* or *July*, if the Season prove any Thing fresh. Here I must not omit what I read of the *Chinese* Culture, and which they now also imitate in *Virginia*, where they have found a Way to raise these *Plants* of the *Seeds*, which they mow and cut like a *Crop* of *Grass*, which sprout, and bear Leaves again in a few Months: They likewise (in *Virginia*) have planted them in *Hedges*, as near together as we do *Goosberries* and *Currans*, for their more convenient *Clipping*, which they pretend to do with *Scissors*.

8. The *Mulberry* is much improved by stirring the *Mould* at Root, and *Letation*.

9. We have already mentioned some of the *Uses* of this excellent Tree, especially of the *White*, so called, because the *Fruit* is of a paler Colour, which is also of a more luscious Taste, and lesser than the *Black*; the *Rind* likewise is whiter, and the *Leaves* of a mealy clear green Colour, and far tenderer, and sooner produced by at least a Fortnight, which is a marvelous Advantage to the newly disclosed *Silk-worm*: Also they arrive sooner to their Maturity, and the Food produces a finer *Web*. Nor is this Tree less beautiful to the Eye than the fairest *Elm*, very proper for *Walks* and *Avenues*: The *Timber* (amongst other Properties) will last in the *Water* as well as the most solid *Oak*, and the *Bark* makes good and tough *Bast-ropes*. It suffers no Kind of *Vermin* to breed on it, whether standing or felled, nor dares any *Caterpillar* attack it, save the *Silk-worm* only. The *Loppings* are excellent *Fuel*: But that for which this Tree is in greatest and most worthy Esteem, is for the *Leaves*, which (besides the *Silk-worm*) nourishes *Cows*, *Sheep*, and other *Cattle*, especially young *Porkers*, being boiled with a little *Bran*; and the *Fruit* excellent to feed *Poultry*.

In Sum, whatever eats of them, will with Difficulty be reduced to endure any Thing else, as long as they can come by them: To say nothing of their other sovereign Qualities, as *relaxing* of the *Belly*, being eaten in the Morning, and curing *Inflammations* and *Ulcers* of the *Mouth* and *Throat*, mixed with *Mel Rosarum*, in which *Receipt* they do best, being taken before they are over-ripe. I have* read, that in *Syria* they make *Bread* of them; but that the eating of it makes Men *bald*: As for *Drink*, the Juice of the *Berry* mixed with *Cyder-Apples*, makes an excellent Liquor, both for *Colour* and *Taste*.

* *Andr. Medicus apud Athenaeum Deipnos. Lib. iii. Cap. xxix.*

10. To proceed with the *Leaf* (for which they are chiefly cherished) the Benefit of it is so great, that they are frequently *let to farm* for vast Sums; so as some one *sole Tree* has yielded the *Proprietor* a Rent of twenty Shillings *per Annum*, for the *Leaves* only; and six or seven Pounds of *Silk*, worth as many Pounds Sterling, in five or six Weeks, to those who keep the *Worms*. We know that till after *Italy* had made *Silk* above a *thousand* Years (and where the *Tree* it self was not a Stranger, none of the *Antients* writing any Thing concerning it) they received it not in *France*; it being hardly yet an *hundred*, since they betook themselves to this *Manufacture* in *Provence*, *Languedoc*, *Dauphine*, *Lionnois*, &c. and not in *Tourain* and *Orleans*, till *Hen. IVth's* Time; but it is incredible what a *Revenue* it now amounts to in that *Kingdom*. About the same Time, or a little after, it was that King *James* did with extraordinary Care recommend it to this *Nation*, by a *Book of Directions*, *Acts of Council*, and all other Princely Assistance. But this did not take, no more than that of *Hen. IVth's* Proposal about the Environs of *Paris*, who filled the *High-ways*, *Parks*, and *Gardens* of *France* with the *Trees*, beginning in his own *Gardens* for Encouragement: Yet, I say, this would not be brought into Example, till this present great *Monarch*, by the indefatigable Diligence of *Monsieur Colbert* (*Superintendent of his Majesty's Manufactures*) who has so successfully revived it, that 'tis prodigious to consider what an happy Progress they have made in it; to our Shame be it spoken, who have no other Discouragements from any insuperable Difficulty whatever, but our *Sloth*, and want of *Industry*; since wherever these *Trees* will grow and prosper, the *Silk-worms* will do so also; and they were alike averse, and from the very same Suggestions, where now that *Manufacture* flourishes in our *Neighbour* Countries. It is demonstrable, that *Mulberries* in four or five Years may be made to spread all over this *Land*; and when the Indigent, and young *Daughters* in proud Families are as willing to gain three or four Shillings a Day for gathering *Silk*, and busying themselves in this sweet and easie *Employment*, as some do to get *four Pence* a Day for hard Work at *Hemp*, *Flax* and *Wool*; the Reputation of *Mulberries* will spread in *England* and other Plantations. I might say something like this of *Saffron*, which we yet too much neglect the *Culture* of; but, which for all this I do not despair of seeing re-assumed, when that good *Genius* returns. In order to this hopeful *Prognostick*, we will add a few *Directions* about the gathering of their *Leaves*, to render this *Chapter* one of the most accomplished, for certainly one of the most *accomplished* and agreeable *Works* in the World.

11. The *Leaves* of the *Mulberry* should be collected from *Trees* of seven or eight Years old; if of such as are very young, it impairs their Growth, neither are they so healthful for the *Worms*, making them

BOOK II. *hydropical*, and apt to burst: As do also the *Leaves* of such *Trees* as be planted in a too *waterish*, or over rich *Soil*, or where no *Sun* comes, and all sick and *yellow* *Leaves* are hurtful. It is better to *clip*, and let the *Leaves* fall upon a subtended *Sheet* or *Blanket*, than to gather them by *Hand*; and to *gather* them, than to *strip* them, which mars and gauls the *Branches*, and bruises the *Leaves* that should hardly be touched. Some there are who lop off the *Boughs*, and make it their *pruning*, and it is a tolerable Way, so it be discreetly done in the over-thick Parts of the *Tree*; but these *Leaves* gathered from a separated Branch, will die, and wither much sooner than those which are taken from the *Tree* immediately, unless you set the *Stem* in *Water*. *Leaves* gathered from *Boughs* cut off, will shrink in three *Hours*; whereas those you take from the living *Tree*, will last as many *Days*; and being thus a while kept, are better than *over-fresh* ones. It is a *Rule*, never to gather in a *rainy* Season, nor cut any *Branch* whilst the *Wet* is upon it; and therefore against such suspected Times, you are to provide beforehand, and to reserve them in some *fresh*, but *dry* Place: The same *Caution* you must observe for the *Dew*, though it do not rain, for *wet* Food kills the *Worms*. But if this cannot be altogether prevented, put the *Leaves* between a Pair of *Sheets* well dried by the *Fire*, and shake them up and down 'till the Moisture be drunk up in the *Linnen*, and then spreading them to the Air a little, on another dry Cloth, you may feed with them boldly. The top *Leaves* and oldest, would be gathered last of all, as being most proper to *repast* the *Worms* with, towards their last Change. The *Gatherer* must be neat, and have his Hands clean, and his *Breath* sweet, and not poisoned with *Onions* or *Tobacco*, and be careful not to press the *Leaves*, by crowding them into the Bags or Baskets. Lastly, That they *gather* only (unless in Case of Necessity) *Leaves* from the *present*, not from the *former* Years Sprigs, or old *Wood*, which are not only rude and harsh, but are annexed to stubbed Stalks, which injure the *Worms*, and spoil the denudated Branches. One *Note* more let me add, That in first *batching* the *Eggs* disclosing (as sometimes) earlier than there is Provision for them on the *Tree*, the tender *Leaves* of *Lettuce*, *Dandelion* or *Endive* may supply, so they feed not on them too long, or over-much, which gives them the *Lask*.

12. This is what I thought fit to premonish concerning the gathering of the *Leaves* of this *Tree* for *Silk-worms*, as I find it in *Monsieur Isnard's Instructions*, and that exact *Discourse* of his, published some Years since, and dedicated to *Monsieur Colbert* (who has, it seems, constituted this industrious and experienced *Person*, *Surveyor* of this princely *Manufacture* about *Paris*) and because the *Book* it self is *rare*, and known by very few. I have no more to add, but *this* for our *Encouragement*, and to encounter the *Objections* which may be suggested about the Coldness and Moisture of our *Country*; that the *Spring* is in *Provence* no less *inconstant* than is ours in *England*; that the Colds at *Paris* are altogether as *sharp*; and that when in *May* it has continued raining for *nine and twenty* Days successively, *Monsieur Isnard* assures us, he proceeded in his *Work* without the least Disaster; and in the Year 1664, he presented the *French King* his *Master*, with a considerable Quantity of better *Silks* than any *Messina* or *Bononia* could produce, which he sold *raw* at *Lions*, for a *Pistol* the *Pound*; when that of *Avignon*, *Provence* and *Dauphine* produced little above *half* that Price.

Price. But you are to receive the compleat *History* of the *Silk-worm*, CHAP. I.
 from that incomparable *Treatise* which the learned *Malpighius* has
 lately sent out of *Italy*, and dedicated to the *Royal Society*, as a *Speci-*
men and noble *Effect* of its universal *Correspondence* and *Concern-*
ments for the Improvement of *useful Knowledge*. To this I add that
 beneficial Passage of the learned *Dr. Beal*, communicated in the twelfth
 Volume of *Philosophical Transactions*, Number cxxxiii. p. 816.
 where we find recommended the Promotion of this *Tree* in *England*,
 from its Success in several *Northern Countries*, and even in the moist
 Places of *Ireland*: He shews how it may be improved by *grafting* on
 the *Fig*; or the larger *black Mulberry*, on that of the *smallest Kind*:
 Also of what Request the *Diamoron*, or *Guidenie* made of the *Juice*
 of this *Fruit*, was with the *Antients*, with other excellent *Observa-*
tions: What other incomparable Remedies the *Fruit* of this *Tree* af-
 fords, see *Pliny's Natural History*, Lib. xxiii. Chap. vii. There is a
Mulberry-tree brought from *Virginia* not to be contemned; upon
 which they find *Silk-worms*, which would exceed the *Silk* of *Persia*
 it self, if the *Planters* of nauseous *Tobacco* did not hinder the *Culture*.
 Sir *Jo. Berkley* (who was many Years *Governor* of that ample *Colony*)
 told me, he presented the King (*Charles II.*) with as much of *Silk*
 made there, as made his *Majesty* a compleat *Suit* of *Apparel*. Last-
 ly, Let it not seem altogether impertinent, if I add one Premonition to
 those less experienced *Gardeners*, who frequently expose their *Orange*,
 and like tender Furniture-Trees of the *Green-house* too early: That the
 first Leaves putting forth of this wise Tree (*Sapientissima*, as * *Pliny* * *A Mera, ob*
 calls it) is a more infallible Note when those delicate *Plants* may be *tarditatem.*
 safely brought out to the Air, than by any other *Prognostick* or Indica-
 tion. For other *Species*, vid. *Raii Dendro.* p. xii.

CHAP. II.

Of the *Platanus*, *Lotus*, *Cornus*, *Acacia*, &c.

1. *Platanus*, that so beautiful and precious Tree, antiently sacred to PLATANUS.
 * *Helena* (and with which she crowned the *Lar*, and *Genius* * *Euripides*
 of the Place) was so doated on by *Xerxes*, that *Ælian* and other *Auth-* *Epithai.*
ors tells us, he made *Halt*, and stopped his prodigious *Army* of seven-
 teen hundred thousand Soldiers, which even covered the *Sea*, exhaust-
 ed *Rivers*, and thrust Mount *Athos* from the *Continent*, to admire the
 Pulcritude and *Procerity* of one of these goodly *Trees*; and became
 so fond of it, that spoiling both himself, his *Concubines*, and great
 Persons of all their *Jewels*, he covered it with *Gold*, *Gems*, *Neck-*
laces, *Scarfs* and *Bracelets*, and infinite Riches: In sum, was so
 enamoured of it, that for some Days, neither the Concernment of his
 Grand *Expedition*, nor Interest of *Honour*, nor the necessary Motion
 of his portentous *Army*, could persuade him from it: He stiled it his
Mistress, his *Minion*, his *Goddes*; and when he was forced to part
 from it, he caused the Figure of it to be stamped in a *Medal* of *Gold*,
 which he continually wore about him. Where-ever they built their
 sumptuous and magnificent *Colleges* for the Exercise of *Youth* in *Gym-*
nastics, as *Riding*, *Shooting*, *Wrestling*, *Running*, &c. (like to our
French Academies) and where the graver *Philosophers* also met to con-
 verse

BOOK II. verse together and improve their *Studies*, betwixt the *Xista* and *Subdiales ambulationes* (which were *Portico's* open to the Air) they planted *Groves* and *Walks* of *Platans*, to refresh and shade the *Palestinae*; as you have them described by *Vitruvius*, Lib. v. Chap. xi. and as *Claudius Perrault* has assisted the *Text*, with a *Figure*, or *Ichnographical Plot*. These *Trees* the *Romans* first brought out of the *Levant*, and cultivated with so much Industry and Cost, for their state-ly and proud Heads only, that great *Orators* and *Statesmen*, *Cicero* and *Hortensius*, would exchange now and then a *Turn* at the *Bar*, that they might have the Pleasure to step to their *Villas*, and refresh their *Platans*, which they would often irrigate with *Wine* instead of *Water*; *Crevit & affuso letior umbra mero*: when *Hortensius* taught *Trees* to tippie *Wine*; and so prized the very *Shadow* of it, that when afterwards they transplanted them into *France*, they exacted a * *Solarium* and *Tribute* of any of the *Natives* who should presume but to put his *Head* under it. But whether for any *Virtue* extraordinary in the *Shade*, or other propitious Influence issuing from them, a worthy *Knight*, who stayed at *Ispahan* in *Persia*, when that famous City was infected with a raging *Pestilence*, told me, that since they have planted a greater Number of these noble *Trees* about it, the *Plague* has not come nigh their *Dwellings*. *Pliny* affirms, there is no *Tree* whatsoever which so well defends us from the *Heat* of the *Sun* in *Summer*, nor that admits it more kindly in *Winter*. And for our Encouragement, I do upon Experience assure you, that they will flourish and abide with us, without any more Trouble than frequent and plentiful *watering*, which from their Youth they excessively delight in, and gratefully acknowledge by their Growth accordingly; so as I am persuaded that, with very ordinary Industry, they might be propagated to the incredible Ornament of the *Walks* and *Avenues* to great *Mens Houses*. The Introduction of this true *Plane* among us is, perhaps, due to the great *Lord Chancellor Bacon*, who planted those (still flourishing ones) at *Vetulam*; as to mine, to that honourable Gentleman, the late *Sir George Crook* of *Oxfordshire*, from whose Bounty I received an hopeful *Plant* now growing in my *Villa*: Nor methinks should it be so great a *Rarity*, (if it be true) that being brought from *Sicily*, it was planted as near us as the *Morini*.

Macrob. Saturnal. iii. c. xi.

* *Solarium* quod pro solo pendetur, as the *Pandects* name the Tax paid for the *Shades* that bear no Fruit.

3. There was lately at *Basil* in *Switzerland*, an antient goodly *Platanetum*, and now in *France* they are come again in *Vogue*: I know it was antiently accounted ἀγαπῶν; but they may with us be raised of their *Seeds* with Care, in a moist Soil, as here I have known them. But the Reason of our little Success is, that we very rarely have them sent us ripe; which should be gathered late in *Autumn*, and brought us from some more *Levantine* Parts than *Italy*. They come also of *Layers* abundantly, affecting a fresh and feeding Ground; for so they plant them about their *Rivulets* and *Fountains*. The *West Indian Plane* is not altogether so rare, but it rises to a goodly *Tree*, and bears a very ample and less jagged *Leaf*: That the *Turks* use their *Platanus* for the building of *Ships*, I learn out of *Ricciolus Hydrog.* Lib. x. Chap. xxxvii. and out of *Pliny*, *Canoos* and *Vessels* for the *Sea* have been excavated out of their prodigious *Trunks*.

Lo vs.

4. The same Opinion have I of the noble *Lotus Arbor* (another Lover of the *Water*) which in *Italy* yields both an admirable *Shade* and *Timber* immortal, growing to a vast *Tree*, where they come spontaneously;

spontaneously ; but its Fruit seems not so tempting as it is storied it was CHAP. II.
to the Companions of *Ulysses* : The first who brought the *Lotus* out ~
of *Virginia*, was the late industrious *Tradescant*. Of this *Wood* are USES.
made *Pipes*, and *Wind-instruments*, and of its *Root*, Hafts for *Knives*,
and other *Tools*, &c. The Offer of *Crassus* to *Domitius* for half a
Dozen of these *Trees*, growing about an House of his in *Rome*, testi-
fies in what Esteem they were had, for their incomparable Beauty and
Use.

The *Cornel Tree*, though not mention'd by *Pliny* for its *Timber*, is CORNEL.
exceedingly commended for its Durableness and Use in *Wheel-work*,
Pins and *Wedges*, in which it lasts like the hardest *Iron* ; and it will
grow with us to good Bulk and Stature ; and the preserv'd and pickled
Berries (or *Cherries* rather) are most refreshing, an excellent *Condi-*
ment, and do also well in *Tarts*. But that is very odd, which *Ma-*
thiolus affirms upon his own Experience, That one who has been bit-
ten of a *Mad-dog*, if in a Year after he handle the *Wood* of this *Tree*,
till it grow warm, relapses again into his former Distemper.

The same reported of the *Cornus femina*, or *wild Cornel* ; which
is like the former for Compactness, and made use of for *Cart-timber*, USES.
and other rustick Instruments ; besides, for the best of *Butchers*
Skewers, *Tooth-pickers*, and in some Countries abroad they decoct the
Berries, which press'd, yield an *Oil* for the *Lamp*.

Lastly, The *Acacia*, and that of *Virginian*, deserves a Place among ACACIA.
our *Avenue Trees* (could they be made to grow upright) adorning
our Walks with their *exotic* Leaf and sweet *Flowers* ; very hardy a-
gainst the pinching *Winter*, but not so Proof against its blustering
Winds ; though it be armed with *Thorns* : Nor do the *Roots* take such
hold of the Ground, insinuating, and running more like *Liquorish*, and
apt to *emaciate* the Soil ; I will not therefore commend it for *Gardens*,
unless for the Variety ; of which there are several, some without *Thorns* :
They love to be planted in moist Ground.

One Thing more there is, which (for the Use and Benefit which
these and the like *Exotics* afford us) I would take hold of, as upon
all occasions I do in this Work : Namely, to encourage all imagi-
nary Industry of such as travel *foreign* Countries, and especially *Gentle-*
men who have Concerns in our *American Plantations*, to promote
the Culture of such *Plants* and *Trees* (especially *Timber*) as may yet
add to those we find already agreeable to our Climate in *England*. What
we have said of the *Mulberry*, and the vast Emolument rais'd by the
very *Leaves*, as well as *Wood* of that only *Tree* (beside those we now
have mentioned, Strangers till of late, and believed *incurable* here)
were sufficient to excite and stir up our utmost Industry. History tells
us, the noble and fruitful Country of *France* was heretofore thought
so sterile and barren, that nothing almost prospering in it, the Inhabi-
tants were quite deserting it, and with their *Wives* and *Children* go-
ing to seek some other more *propitious* Abodes ; till some of them hap-
pening to come into *Italy*, and tasting the *Juice* of the delicious *Grape*,
the rest of their Countrymen took *Arms*, and invaded the *Territories*
where those *Vines* grew ; which they *transplanted* into *Gallia*, and
have so infinitely improved since, that *France* alone yields more of that
generous *Liquor*, than not only *Italy* and *Greece*, but all *Europe* and
Asia beside : Who almost would believe that the austere *Rhenish*, a-
bounding on the fertile Banks of the *Rhine*, should produce so soft and
G g charming

BOOK II. charming a *Liquor*, as does the same *Vine*, planted among the Rocks and Pumices of the so remote and mountainous *Canaries*?

This for the Encouragement and Honour of those who improve their Countries with Things of *Use* and general Benefit: Now in the mean Time, how have I beheld a *Florist*, or meaner *Gardener* transported at the casual Discovery of a new little *Spot*, *double Leaf*, *Streak* or *Dash* extraordinary in a *Tulip*, *Anemomy*, *Carnation*, *Auricula* or *Amuranth*! cherishing and calling it by their own Names, raising the Price of a *single Bulb*, to an enormous Sum; till a Law in *Holland* was made to check that *Tulipa-mania*: The *Florist* in the mean Time priding himself, as if he had found the *Elixir*, or performed some notable Atchievement, and discover'd a new Country.

This for the *Defects* (for such those *Variegations* produced by Practice, or Mixture, *Mangonisms* and *starving the Root*, are by Chance met with now and then) of a fading *Flower*: How much more Honour then were due in Justice to those Persons, who bring in Things of much real Benefit to their Country? Especially Trees for *Fruit* and *Timber*; the *Oak* alone (besides the Shelter it afforded to our late Sovereign *Charles II.*) having so often sav'd and protected the whole Nation from *Invasion*, and brought it in so much *Wealth* from foreign Countries. I have been told, there was an Intention to have instituted an *Order* of the *Royal-Oak*; and truly I should think it to become a *Green-Ribbon* (next to that of *St. George*) superior to any of the *Romantick Badges*, to which Abroad is paid such Veneration, deservedly to be worn by such as have *signaliz'd* themselves by their Conduct and Courage, for the *Defence* and *Preservation* of their Country. Bespeaking my *Reader's Pardon* for this *Digression*, we proceed in the next to other useful *Exoticks*.

C H A P. III.

Of the Fir, Pine, Pinafter, Pitch-tree, Larsh, and Subterranean Trees.

FIR. I. **A** *Bies*, *Picea*, *Pinus*, *Pinafter*, *Larsh*, &c. are all of them easily rais'd of the *Kernels* and *Nuts*, which may be gotten out of their *Polysperm* and *Turbinate*, *Cones*, *Clogs*, and *Squams*, by exposing them to the *Sun*, or a little before the *Fire*, or in warm *Water*, till they begin to gape, and are ready to deliver themselves of their numerous Burthens.

2. There are of the *Fir* two principal *Species*; the *Picea*, or *Male*, which is the bigger Tree; very beautiful and aspiring, and of an harder Wood, and *hirsute* Leaf; and the *Silver-Fir*, or *Female*. I begin with the first: The Boughs whereof are flexible and bending; the *Cones* dependent, long and smooth, growing from the Top of the Branch; and where gaping, yet retain the Seeds in their Receptacles, when fresh gather'd, giving a grateful Fragrancy of the *Rosin*: The *Fruit* is ripe in *September*. But after all, for a perfecter Account of the *true* and *genuine Fir-tree* (waving the Distinction of *Sapinum* from *Sapinus*, *litera sed una* differing, as of another kind) is a noble upright Tree from the Ground, smooth and even, to the Eruption of the Branches; as is that they call the *Sapinum*, and thence tapering to the *Summit* of the

the *Fusterna*: The Arms and Branches (with *Yew*-like Leaves) grow from the Stem opposite to one another, *seriatim* to the Top (as do all *Cone-bearers*) discovering their Age; which in Time, with their Weight, bend them from their natural Tendency, which is upright, especially toward the Top of aged Trees, where the Leaf is flattish, and not so regular: The *Cone* great and hard, *Pyramidal* and full of *Winged-seeds*.

The *Silver-Fir*, of a whitish Colour, like *Rosemary* under the Leaf, is distinguished from the rest, by the *pectinal* Shape of it: The *Cones* not so large as the *Picea*, grow also upright, and this they call the *Female*: For I find *Botanists* not unanimously agreed about the *Sexes* of *Trees*. The *Layers*, and even *Cuttings* of this Tree, take *Root*, and improve to *Trees*, tho' more naturally by its *Winged-seeds*: But the *masculine Picea* will endure no *Amputation*, nor is comparable to the *silver Fir* for Beauty, and so fit to adorn *Walks* and *Avenues*; though the other also be a very stately Plant, yet with this Infirmary, that though it remain always *green*, it sheds the old Leaves more visibly, and not seldom breaks down its ponderous Branches: Besides, the *Timber* is nothing so white; though yet even *that* Colour be not always the best *Character*: That which comes from *Bergin*, *Swinsund*, *Mott*, *Longland*, *Dranton*, &c. (which experienc'd Workmen call the *Dram*) being long, strait and clear, and of a Yellow more *Cedry* Colour, is esteemed much before the *White* for *Flooring* and *Wainscot*, for *Masts*, &c. those of *Prussia*, which we call *Spruce*, and *Norway* (especially from *Gottenberg*) and about *Riga*, are the best; unless we had more Commerce of them from our *Plantations* in *New-England*, which are preferable to any of them; there lying rotting at present at *Pascataway*, a *Mast* of such prodigious Dimensions, as no Body will adventure to ship and bring away. All these bear their *Seeds* in *Conick Figures* and *Squamons*, after an admirable Manner and Closeness, to protect their *Winged-seeds*.

The *Hemlock-tree* (as they call it in *New-England*) is a kind of *Spruce*: In the *Scotish Highlands* are *Trees* of wonderful Altitude (though not altogether so tall, thick and fine as the former) which grow upon Places so inaccessible, and far from the *Sea*, that (as one says) they seem to be planted by *God* on purpose for *Nurseries* of *Seed*, and *Monitors* to our *Industry*, reserved with other Blessings, to be discover'd in our Days amongst the new-invented *Improvements* of *Husbandry*, not known to our *Southern* People of this *Nation*, &c. Did we consider the Pains they take to bring them out of the *Alps*, we should less stick at the Difficulty of transporting them from the utmost Parts of *Scotland*. To the former Sorts we may add the *Esterund* *Firs*, *Tonsberry*, *Frederick-stad*, *Hellerone*, *Holmstrand*, *Landifer*, *Stavenger*, *Lawrwat*, &c. There is likewise a kind of *Fir* call'd in *Dutch* the *Green-boome*, much us'd in building of *Ships*, though not for *Men of War*, because of its Lightness, and that it is not so strong as *Oak*; but yet proper enough for *Vessels* of great *Burden*, and which stand much out of the *Water*: This Sort comes into *Holland* from *Norway*, and other *Eastland* Countries; it is somewhat heavier yet than *Fir*, and stronger, nor do either of them bend sufficiently: As to the *Seeds*, they may be sown in *Beds* or *Cases* at any Time, during *March*; and when they *peep*, carefully defended with *Furzes*, or the like *Fence*, from the rapacious *Birds*, which are very apt to pull

BOOK II. pull them up, by taking hold of that little *infecund* Part of the *Seed*, which they commonly bear upon their *Tops*: The *Beds* wherein you sow them, had need be sheltered from the Southern *Aspects*, with some *Skreen* of *Reed*, or thick *Hedge*: Sow them in shallow *Rills*, not above half-Inch-deep, and cover them with fine light Mould: Being risen a Finger in Height, establish their weak *Stalks*, by sifting some more Earth about them; especially the *Pines*, which being more *Top-heavy*, are more apt to swag. When they are of two or three Years Growth, you may *transplant* them where you please; and when they have gotten good Root, they will make prodigious Shoots, but not for the three or four first Years comparatively. They will grow both in moist and barren *Gravel* and poor Ground, so it be not over-*sandy* and light, and want a *loamy* Ligature; but before sowing (I mean here for large Designs) turn it up a Foot deep, sowing, or setting your *Seeds* an Hand distance, and riddle Earth upon them: In five or six Weeks they will peep. When you *transplant*, water them well before, and cut the *Clod* out about the *Root*, as you do *Melons* out of the *Hot-bed*, which knead close to them like an *Egg*: Thus they may be sent safely many *Miles*, but the *Top* must neither be bruised, nor much less cut, which would *dwarf* it for ever: One kind also will take off *Slips* or *Layers*, interr'd about the latter End of *August*, and keep moist.

3. The best Time to transplant, were in the Beginning of *April*; they would thrive mainly in a stiff, hungry *Clay*, or rather *Loam*; but by no means in over-light, or rich *Soil*: Fill the Holes therefore with such barren *Earth*, if your Ground be improper of it self; and if the *Clay* be too stiff and untractable, with a little *Sand*, removing with as much *Earth* about the *Roots* as is possible, though the *Fir* will better endure a naked *Transplantation* than the *Pine*: If you be necessitated to plant towards the latter End of *Summer*, lay a pretty deal of *Horse-litter* upon the Surface of the Ground, to keep off the Heat, and in *Winter* the Cold; but let no *Dung* touch either Stem or Root: You may likewise sow in such Earth about *February*, they will make a *Shoot* the very first Year of an *Inch*; next an Handful, the third Year three Foot, and thence-forward, above a Yard annually. A *Northern Gentleman* (who has obliged me with this *Process* upon his great *Experience*) assures me, that *Fir*, and this *Feralis Arbor* (as *Virgil* calls the *Pine*) are abundantly planted in *Northumberland*, which are in few Years grown to the Magnitude of *Ship-masts*; and from all has been said, deduces these *Encouragements*. 1. The Facility of their *Propagation*. 2. The Nature of their *Growth*, which is to affect Places where nothing else will thrive. 3. Their *Uniformity* and Beauty. 4. Their perpetual *Verdure*. 5. Their *Sweetness*. 6. Their *Fruitfulness*; affording *Seed*, *Gum*, *Fuel*, and *Timber*, of all other Woods the most useful and easy to work, &c. All which highly recommend it as an excellent *Improvement* of *Husbandry*, fit to be enjoyn'd by some solemn *Edict*, to the *Inhabitants* of this our *Island*, that we may have *Masts*, and those other *Materials* of our own Growth: In planting the *silver Abies*, set not the Roots too deep, it affects the Surface more than the rest.

PINE.

4. The *Pine* (of which are reckon'd no less than ten several Sorts, preferring the *Domestic*, or *Sative*, for the fuller Growth) is likewise of both *Sexes*, whereof the *Male* growing lower, with a rounder Shape, hath

hath its *Wood* more knotty and rude than the *Female*; it's lank, long-er, narrow and pointed; bears a black, thick, large *Cone*, including the *Kernel* within an hard *Shell*, covered under a thick *Scale*: The *Nuts* of this *Tree* (not much inferior to the *Almond*) are used, among other Ingredients, in *Beatilla-Pies*, at the best *Tables*. They would be gathered in *June*, before they gape; yet having hung *two Years* (for there will be always some *ripe*, and some *green* on the same *Tree*) preserve them in their *Nuts*, in *Sand*, as you treat *Acorns*, &c. 'till the Season invite, and then *set* or *sow* them in *Ground* which is cultivated like the *Fir* in most Respects; only, you may bury the *Nuts* a little deeper. By a *Friend* of mine they were rolled in a fine *Compost* made of *Sheeps-dung*, and scattered in *February*, and this way never failed *Fir* and *Pine*; they came to be above *Inch* high by *May*; and a *Spanish Author* tells us, that to *macerate* them five Days in a *Child's Urine*, and three Days in *Water*, is of wonderful Effect: This were an expeditious *Process* for great *Plantations*; unless you would rather set the *Pine* as they do *Pease*, but at wider Distances, that when there is occasion of removal, they might be taken up with the *Earth* and all, I say, *taken up*, and not removed by *Evulsion*, because they are (of all other *Trees*) the most obnoxious to miscarry without this Caution; and therefore it were much better (where the *Nuts* might be commodiously set and defended) never to remove them at all, it gives this *Tree* so considerable a Check. The safest Course of all, were to set the *Nuts* in an *Earthen-pot*, and in frosty Weather, shewing it a little to the *Fire*, the entire *Clod* will come out with them, which are to be reserved, and set in the *naked Earth*, in convenient and fit *Holes* prepared before Hand, or so soon as the *Thaw* is universal. Some commend the strewing a few *Oats* at the Bottom of the *Fosses* or *Pits* in which you transplant the *naked Roots*, for a great Promotement of their taking, and that it will cause them to shoot more in *one Year* than in *three*: but to this I have already spoken. Other Kinds not so rigid, nor the *Bark*, *Leaf*, *Cone* and *Nuts* so large, are those called the *Mountain-Pine*, a very large stately *Tree*: There is likewise the *wild*, or *Bastard-Pine*, and *Tea*, clad with thin long *Leaves*, and bearing a *turbinated Cone*: Abundance of excellent *Rosin* comes from this *Tree*. There is also the *Pinafter*, another of the *wild Kind*; but none of them exceeding the *Spanish*, called by us, the *Scotch Pine*, for its tall and erect Growth, proper for large and ample *Walks* and *Avenues*: several of the other *wild Sorts*, inclining to grow crooked. But for a more accurate Description of these *Coniferous Trees*, and their perfect *Distinctions*, consult our Mr. *Ray's* most elaborate and useful Work, where all that can be expected or desired, concerning this profitable, as well as beautiful *Tree*, is amply set down, *Hist. Plant. Lib. xxv. Cap. i.*

5. I am assured (by a Person most worthy of Credit) that in the *Territory* of *Alzey* (a Country in *Germany*, where they were miserably distressed for *Wood*, which they had so destroyed as that they were reduced to make use of *Straw* for their best *Fuel*) a very large *Tract* being newly plowed (but the *Wars* surprizing them, not suffered to sow) there sprung up the next Year a whole Forest of *Pine-trees*, of which Sort of *Wood* there was none at all within less than *four score Miles*; so as 'tis verily conjectured by some, they might be waisted thither from the Country of *Westrasia*, which is the nearest Part to that where they grow: If this be true, we are no more to wonder how,

BOOK II. when our *Oak-woods* are grubbed up, *Beech*, and *Trees* of other *Kinds*, have frequently succeeded them: What some impetuous *Winds* have done in this Nature, I could produce Instances almost *miraculous*: I shall say nothing of the Opinion of our Master *Varro*, and the learned * *De Causis*, * *Theophrastus*, who were both of a Faith that the *Seeds* of *Plants* dropped out of the *Air*. *Pliny*, in his *Book* xvi. *Chap.* xxxiii. upon Discourse of the *Cretan Cypress*, attributes much to the *Indoles*, and Nature of the *Soil*, *Virtue* of the *Climate*, and *Impressions* of the *Air*. And indeed it is very strange, what is affirmed of that *Pitchy-rain*, (reported to have fallen about *Cyrene*, the Year 430 *U. C.*) after which, in a short Time, sprung up a whole *Wood* of the *Trees* of *Lasertium*, producing a precious *Gum*, not much inferior to *Benzoin*, if at least the *Story* be warrantable: But of these *Aerial Irradiations*, various *Conceptions*, and *equivocal* Productions without *Seed*, &c. Difficulties to be solved by our *Philosophers*, whence those *Leaves* of the *Platan* come, which *Dr. Spon* tells us (in his *Travels*) are found floating in some of the *Fountains* of the *Isles* of the *Strophades*; no such *Tree* growing near them by thirty *Miles*: But these may haply be conveyed through some unknown *subterranean* Passage; for were it by the *Wind*, it having a very large *Leaf*, they would be seen flying in, or falling out of the *Air*.

* *De Causis*,
Lib. i. Cap. v.

6. In transplanting of these *Coniferous* *Trees*, which are generally *Resinaceous*, viz. *Fir*, *Pine*, *Larix*, *Cedar*, and which have but thin and single *Roots*, you must never diminish their *Heads*, nor be at all busie with their *Roots*, which pierce deep, and is all their *Foundation*, unless you find any of them bruised, or much broken; therefore such down-right *Roots* as you may be forced to cut off, it were safe to *sear* with an *hot Iron* and prevent the *Danger* of bleeding, to which they are obnoxious even to *Destruction*, though unseen, and unheeded: Neither may you *disbranch* them, but with great *Caution*, as about *March*, or before, or else in *September*, and then 'tis best to *prune* up the side *Branches* close to the *Trunk*, cutting off all that are above a *Year* old; if you suffer them too long, they grow too big, and the *Cicatrice* will be more apt to spend the *Tree* in *Gum*; upon which *Accident*, I advise you to rub over their *Wounds* with a Mixture of *Cowdung*; the Neglect of this cost me dear, so apt are they to spend their *Gum*. Indeed, the *Fir* and *Pine* seldom out-live their being lopped. Some advise us to break the *Shells* of *Pines*, to facilitate their *Delivery*, and I have essayed but to my *Loss*; *Nature* does *obstetricate* and do that *Office* of her self, when it is the proper *Season*; neither does this *Preparation* at all prevent those which are so buried, whilst their hard *Integuments* protect them both from *rotting*, and the *Vermin*.

PINASTER.

Pinastres, the *domestick Pine* grows very well with us, both in *Mountains* and *Plains*; but the *Pinaster*, or wilder (of which are four Sorts) best for *Walks*; *Pulcherrima in hortis* (as already we have said) because it grows tall and proud, maintaining their *Branches* at the *Sides*, which the other *Pine* does less frequently. There is in *New-England* a very broad *Pine*, which increases to a wonderful Bulk and Magnitude, insomuch as large *Canoos* have been excavated out of the *Body* of it, without any *Addition*. But beside these large and *gigantick Pines*, there is the *Spinet*, with sharp thick *Bristles*, yielding a *Rosin* or *Liquor* *odorous*, and useful in *Carpentary-work*.

8. The *Fir* grows tallest, being planted reasonable close together; but suffers nothing to thrive under them. The *Pine* not so inhospitable; for (by *Pliny's* good Leave) it may be sown with any *Tree*, all Things growing well under its *Shade*; and excellent in *Woods*: Hence *Claudian*,

a The friendly Pine the mighty Oak invites.

9. They both affect the *Cold, high* and *rocky* Grounds, *Abies in montibus altis*: Those yet which grow on the more *southern*, and less exposed *Quarters*, a little visited with the Beams of the *Sun*, are found to thrive beyond the other, and to afford better *Timber*; and this was observed long since by *Vitruvius* of the *Infernates* (as he calls them) in Comparison with the *Supernates*, which growing on the *northern* and shady Side of the *Appennines*, were nothing so good, which he imputes to the want of due Digestion. They thrive (as we said) in the most sterile Places, yet will grow in better, but not in over-rich and *pinguid*. The worst Land in *Wales* bears (as I am told) large *Pine*; and the *Fir*, according to his aspiring Nature, loves also the Mountain more than the *Valley*; but ἐν τοῖς παλίσκίοις ἔλκει & φύεται, it cannot endure the *Shade*, as *Theophrastus* observes, *de Plin. Lib. iv. Cap. i.* But this is not rigidly true; for they will grow in Confort, till they even shade and darken one another, and will also descend from the *Hills*, and succeed very well, being desirous of plentiful *Waterings*, till they arrive to some competent *Stature*; and therefore they do not prosper so well in an over *sandy* and *hungry* Soil or *Gravel*, as in the very Entrails of the *Rocks*, which afford more *Drink* to the *Roots*, that penetrate into their *Meanders* and winding Recesses. But though they require this refreshing at first, yet do they perfectly abhor all *Stercoration*; nor will they much endure to have the Earth opened about their *Roots* for *Ablaqueation*, or be disturbed: This is also to be understood of *Cypress*. A *Fir*, for the first half dozen Years, seems to stand, or at least make no considerable Advance, but it is when thoroughly *rooted*, that it comes away miraculously. That honourable and learned Knight, Sir *Norton Knatchbull* (whose delicious *Plantation* of *Pines* and *Firs* I beheld with great Satisfaction) having assured me, that a *Fin-tree* of his raising, did shoot no less than *sixty Foot* in *Height*, in little more than *twenty* Years; and what are extant at Sir *Peter Wentworth's* of *Lillingston-Lovel, Cornbury* in *Oxfordshire*, and other Places, but especially those *Trees* growing now in *Harefield-Park*, in the County of *Middlesex* (belonging to Mr. Serjeant *Nudigate*) where there are two *Spanish*, or *Silver Firs*, that at two Years Growth from the *Seed*, being planted there *Ann. 1603.* are now become goodly *Masts*: The biggest of them from the Ground to the upper Bough, is eighty one Feet, though forked on the Top, which has not a little impeded its Growth: The *Girt*, or *Circumference*, below, is *thirteen Foot*, and the Length (so far as is *Timber*, that is, to *six Inches* square) *seventy-three Foot*, in the middle *seventeen Inches* square, amounting by Calculation to one hundred and forty-six Foot of good *Timber*: The other *Tree* is indeed not altogether so large, by reason of its standing near the *House* when it was burnt (about

a Et comitem quercum Pinus amica trahit.

Book II. forty Years since) when one Side of the *Tree* was scorched also ; yet it has not only recovered that Scar, but thrives exceedingly, and is within eight or nine *Foot* as tall as the other, and would probably have been the better of the two, had not that Impediment happened, it growing so taper, and erect, as nothing can be more beautiful : *This* I think (if we had no other) is a pregnant Instance, as of the speedy growing of that *material*, so of all the Encouragement I have already given for the more frequent cultivating this ornamental, useful, and profitable *Tree*, abounding doubtless formerly in this Country of ours, if what a grave and authentick *Author* writes to be true, *Athenæus* relating, that the stupendious *Vessel*, built so many Ages since by *Hiero*, had its *Mast* out of *Britain*. Take notice that none of these mountainous *Trees* should be planted deep, but as shallow as may be, for their competent Support.

PICEA.

The *Picea* (already described) grows on the *Alps* among the *Pine*, but neither so tall, nor so upright, but bends its Branches a little, which have the Leaf quite about them, short and thick, not so flat as the *Fir* : The *Cones* grow at the Point of the *Branches*, and are much longer than most other *Cones*, containing a small darkish *Seed*. This *Tree* produces a *Gum* almost as white and firm as *Frankincense* : But it is the *Larix* (another Sort of *Pine*) that yields the true *Venetian Turpentine* ; of which hereafter.

10. There is also the *Piceaster*, already mentioned, a wilder Sort, (the Leaves stiff and narrow pointed, and not so close) out of which the greatest store of *Pitch* is boiled. The *Tæda* likewise, which is (as some think) another Sort abounding in *Dalmatia*, more unctuous, and more patient of the warmer Situations, and so inflammable, that it will slit into *Candles* ; and therefore some will by no means admit it to be of a different *Species*, but a *Metamorphosis* of over-grown Fattiness, to which the most judicious incline. But of these, the grand *Canaries* (and all about the Mountains near *Tenariff*) are full, where the Inhabitants do usually build their *Houses* with the *Timber* of the *Pitch-tree* : They cut it also into *Wainscot*, in which it succeeds marvellously well ; abating, that it is so obnoxious to *firing*, that whenever a House is attacked, they make all imaginable haste out of the Conflagration, and almost despair of extinguishing it : They there also use it for *Candle-wood*, and to travel in the Night by the Light of it, as we do by *Links* and *Torches* : Nor do they make these *Tæas* (as the *Spaniards* call them) of the *Wood* of *Pine* alone, but of other *Trees*, as of *Oak* and *Hassel*, which they cleave and hack, and then dry in the *Oven* or *Chimney*, but have certainly some unctuous and inflammable Matter, in which they afterwards dip it ; but thus they do in *Biscay*, as I am credibly informed.

11. The *Bodies* of these being cut, or burnt down to the Ground, will emit frequent *Suckers* from the *Roots* ; but so will neither the *Pine* nor *Fir*, nor indeed care to be topped : But the *Fir* may be propagated of *Layers* and *Cuttings*, which I divulge as a considerable Secret that has been essayed with Success.

12. That all these, especially the *Fir* and *Pine*, will prosper well with us, is more than probable, because it is a Kind of *Demonstration*, that they did heretofore grow plentifully in *Cumberland*, *Cheshire*, *Stafford* and *Lancashire*, if the Multitudes of these *Trees* to this Day found entire, and buried under the *Earth*, though supposed to have been

been o'erthrown and covered so ever since the universal *Deluge*, be indeed of this *Species*. Dr. Plot speaks of a *Fir-tree* in *Staffordshire*, of one hundred and fifty Foot high, which some think of *spontaneous* Growth; besides several more so irregularly standing, as shews them to be *Natives*: But to put this at last out of Controversy, see the *Extract* of Mr. de la *Prim's* Letter to the *Royal Society, Transactions*, Number 277, and the old Map of *Croat*, and of the yet (or lately) remaining *Firs*, growing about *Hatfield* in the Commons, flourishing from the Shrubs and Stubs of those *Trees*, to which I refer the *Reader*. As for buried Trees of this Sort, the late Dr. Merrett, in his *Pinax*, mentions several Places of this Nation, where *subterraneous* Subterranean Trees. *Trees* are found; as, namely, in *Cornwal*, *ad finem terræ, in agris Flints*; in *Pembrokeshire* towards the Shore, where they so abound, *ut totum littus* (says the Doctor) *tanquam Silva cadua apparet*; in *Cheshire* also (as we said) *Cumberland* and *Anglesey*, and several of our *Euro-boreal* Tracts, and are called *Noah's Ark*. By *Chatnesse* in *Lancashire* (says *Cambden*) the low *mossie* Ground was no very long Time since, carried away by an impetuous *Flood*, and in that Place now lies a low irriguous *Vale*, where many prostrate *Trees* have been digged out: And from another I receive, that in the *Moors* of *Somersetshire* (towards *Bridgewater*) some Lengths of Pasture growing much withered, and parched more than other Places of the same Ground, in a great Drowth, it was observed to bear the Length and Shape (in gross) of *Trees*; they digged, and found in the Spot *Oaks* as black as *E-bony*, and have been from hence instructed, to take up many hundreds of the same Kind: In a *fenny* Tract of the *Isles* of *Axbolme* (lying part in *Lincolnshire*, and part in *Yorkshire*) have been found *Oaks* five Yards in Compass, and fifteen in Length, some of them erect, and standing as they grew, in firm Earth below the *Moors*, with abundance of *Fir*, which lie more stooping than the *Oak*, some being thirty-six Yards long, besides the Tops: And so great is the Store of these *subterraneans*, as the Inhabitants have for divers Years carried away above two thousand *Cart-loads* yearly: See *Dugdale's History of Draining*. This might be of good use for the like Detections in *Essex*, *Lincolnshire*, and Places either low situate, or adjacent to the Sea; also at *Binfield Heath* in *Kent*, &c. These *Trees* were (some think) carried away in Times past, by some Accident of *Inundation*, or by *Waters* undermining the Ground, till their own *Weight*, and the *Winds* bowed them down, and overwhelmed them in the *Mud*: For 'tis observed, that these *Trees* are no where found so frequently, as in *boggy* Places; but that the burning of these *Trees* so very bright, should be an Argument they were *Fir*, is not necessary, since the *bituminous* Quality of such *Earth*, may have imparted it to them; and *Cambden* denies them to be *Fir-trees*; suggesting the *Query*; whether there may not possibly grow *Trees* even under the Ground, as well as other Things? *Theophrastus* indeed, Lib. iv. Cap. viii. speaks of whole *Woods*; *Bays* and *Olives*, bearing *Fruit*; and that of some *Oaks* bearing *Acorns*, and those even under the Sea; which was so full of *Plants* and other *Trees*, as ('tis said) *Alexander's* Forces sailing to the *Indies*, were much hindered by them. There are in *Cumberland*, on the Sea-shore, *Trees* sometimes discovered at *Low-water*, and at other Times, that lie buried in the Sand; and in other *mossie* Places of that *County*, 'tis reported, the People frequently dig up the Bodies of vast *Trees* with-

BOOK II. out *Boughs*, and that by Direction of the *Dew* alone in *Summer*; for they observe it never lies upon that Part under which those *Trees* are interred. These Particulars I find noted by the ingenious *Author* of the *Britannia Baconica*. How vast a *Forest*, and what goodly *Trees* were once standing in *Holland*, and those *Low-countries*, till about the Year 860, that an *Hurricane* obstructing the Mouth of the *Rhine* near *Catwic*, made that horrid Devastation good *Authors* mention; and they do this Day find monstrous Bodies and Branches (nay, with the very *Nuts*, most intire) of prostrate and buried *Trees*, in the *Veene*, especially towards the *South*, and at the Bottom of the Waters: Also near *Bruges* in *Flanders*, whole *Woods* have been found twenty Ells deep, in which the *Trunks*, *Boughs* and *Leaves* do so exactly appear, as to distinguish their several Species, with the Series of their *Leaves* yearly falling; of which see *Boetius de Boot*.

Dr. Plot, in his *Nat. Hist.* of *Oxford* and *Stafford-shires* mentions divers *subterraneous Oaks*, black as *Ebony*, and of *mineral Substance* for Hardness (See *Cap. iii. Oak*) quite through the whole Substance of the *Timber*, caused (as he supposes, and learnedly evinces) a *vitriolic Humour* of the *Earth*, of Affinity to the Nature of the *Ink-galls*, which that kind of *Tree* produces: Of these he speaks of some found sunk under the Ground, in an upright and growing Posture, to the *perpendicular Depth* of sixty *Foot*; of which one was three *Foot Diameter*, of an Hardness emulating the politest *Ebony*: But these *Trees* had none of them their *Roots*, but were found plainly to have been cut off by the *Kerf*. There were great Store of *Hassel-nuts*, whose Shells were as found as ever, but no *Kernel* within. It is there the inquisitive *Author* gives you his Conjecture, how these deep *Interments* happen'd; namely, by our *Ancestors* (many Ages since) clearing the Ground for *Tillage*, and when *Wood* was not worth converting to other Uses, digging *Trenches* by the Sides of many *Trees*, in which they buried some; and others they flung into *Quagmires* and *Lakes*, to make Room for more profitable *Agriculture*: But I refer you to the *Chapter*. In the mean time, concerning this *mossie Wood* (as they usually term it, because, for the most Part, dug up in *mossie* and *moor-y Bogs* where they cut for *Turf*) it is highly probable (with the Learned Mr. Ray) that these Places were many Ages since, Part of *firm Land* covered with *Wood*, afterwards undermined and overwhelmed by the Violence of the *Sea*, and so continuing submerg'd, till the *Rivers* brought down *Earth* and *Mud* enough to cover the *Trees*, filling up the Shallows, and restoring them to the *Terra-firma* again, which he illustrates from the like Accident upon the Coast of *Suffolk*, about *Dunwich*, where the *Sea* does at this Day, and hath for many *Years* past, much incroach'd upon the Land, undermining and subverting by Degrees, a great deal of high Ground; so as by antient Writings it appears, a whole *Wood* of more than a Mile and half, at present is so far within the *Sea*. Now, if in succeeding Ages (as probable it is enough) the *Sea* shall by Degrees be filled up, either by its own working, or by *Earth* brought down by *Land-floods*, still subsiding to the Bottom, and surmounting the Tops of these *Trees*, and so the Space again added to the *firm Land*; the *Men* that shall then live in those Parts, will, it's likely, dig up these *Trees*, and as much wonder how they came there, as we do at present those we have been speaking of.

In the mean Time, to put an End to the various Conjectures, concerning the Causes of so many *Trees* being found *submerg'd*, for the most Part attributed to the Destruction made by the *Noatick Inundation*; after all has been said of what was found in the *Level of Hatfield* (drain'd at the never to be forgotten Charge and Industry of Sir *Cornelius Vermuiden*) I think there will need no more Enquiry: For there was discover'd *Trees* not only of *Fir* and *Pitch*, but of very goodly *Oaks*, even to the Length of one hundred *Foot*, which were sold at fifteen *Pounds* the Tree, black and hard as *Ebony*; all their *Roots* remaining in the Soil, and their natural Posture, with their Bodies prostrate by them, pointing for the most Part *North-East*: And of such there seem'd to be *Millions*, of all the usual *Species* natural to this Country, found and firm *Ash* only excepted, which were become so rotten and soft, as to be frequently cut through with the *Spade* only; whereas *Willows*, and other tender *Woods*, continu'd very found and entire: Many of these *subterranean Trees* of all Sorts, were found to have been cut and burnt down, squar'd and converted for several Uses, into *Boards*, *Pales*, *Stakes*, *Piles*, *Bars*, &c. Some *Trees* half riven, with the *Wedges* sticking in them; broken *Axe-heads* in Shape of *sacrificing Instruments*, and frequently several *Coins* of the *Emperor Vespasian*, &c. There was among others, one prodigious *Oak* of one hundred and twenty *Foot* in Length, and twelve in Diameter, ten *Foot* in the Middle, and six at the small End; so, as by Computation, this Monster must have been a great deal longer, and for this Tree was offered twenty *Pounds*. The *Truth* and *History* of all this is so perfectly describ'd by Mr. *Alan. de la Pryme* (inserted among the *Transactions* of the *Royal Society*) that there needs no more to be said of it to evince, that not only *here*, but in other Places, where such *Trees* are found in the like Circumstances, that it has been the Work and Effects of vast *Armies* of the *Romans*, when finding they could not with all their Force subdue the *barbarous* Inhabitants, by reason of their continual issuing out of those intricate *Fortresses* and Impediments, they caus'd whole *Forests* to be cut down by their *Legions* and Soldiers, whom they never suffer'd to remain *idle* during their *Winter Quarters*, but were continually exercis'd in such publick and useful Works, as required Multitude of Hands; by which *Discipline* they became hardy, active, and less at Leisure to mutiny, or corrupt one another. I do not affirm that this answers all *submerged Trees*, but of very many imputed to other Causes.

But we shall enquire farther concerning these *subterranean* Productions anon, and whether the *Earth*, as well as the *Water*, have not the Virtue of strange *Transmutations*. These *Trees* are found in *Moors*, by poking with *Staves* of three or four *Foot* length, shod with *Iron*.

13. In *Scotland* many *submerged Oaks* are found near the River *Nesse*; and (as we noted) there is a most beautiful Sort of *Fir*, or rather *Pine*, bearing small sharp *Cones* (some think it the *Spanish Pinaster*) growing upon the *Mountains*; of which, from the late *Marquis of Argyle*, I had sent me some Seeds, which I have sown with tolerable Success; and I prefer them before any other, because they grow both very erect, and fixing themselves stoutly, need little, or no Support. Near *Loughbrun*, 'twixt the *Lough* and an *Hill*, they grow in such Quantity, that from the spontaneous Fall, Ruin and Decay of the *Trees* lying cross one another to a Man's Height, partly covered with *Mosse*,
and

BOOK II. and partly *Earth* and *Grass* (which rots, fills up, and grows again) a considerable *Hill* has, in Process of Time, been raised to almost their very Tops, which being an Accident of singular Remark, I thought fit to mention. Both *Fir* and *Pine* (sociable Trees) planted pretty near together (shread and clipt at proper Seasons) make stately, noble, and very beautiful *Skreens* and Fences to protect *Orange*, *Myrtle* and other curious *Greens*, from the scorching of the *Sun*, and ruffling *Winds*, preferable to Walls: See how to be planted and cultivated with the Dimensions of a *Screen*, in the *Rules* for the Defence of *Gardens*, annex to *de la Quintin*, Num xv. by Mr. *London* and Mr. *Wise*. In the mean time, none of these Sorts are to be mingled in taller *Woods* or *Copses*, in which they starve one another, and lose their Beauty. And now those who would see what *Scotland* produces (of innumerable Trees of this kind) should consult the Learned Sir *Rob. Sibald*.

USES. 14. For the many, and almost universal Use of these *Trees*, both *Sea* and *Land* will plead,

^a *The useful Pine for Ships*——

Hence *Papinius* 6. *Thebaid.* calls it *audax abies*. They make our best *Mast*, *Sheathing*, *Scaffold-poles*, &c. heretofore the whole *Vessel*: It is pretty (saith *Pliny*) to consider, that those *Trees* which are so much sought after for Shipping, should most delight in the highest of Mountains, as if it fled from the *Sea* on purpose, and were afraid to descend into the Waters. With *Fir* we likewise make all intestine Works, as *Wainscot*, *Floors*, *Pales*, *Balks*, *Laths*, *Boxes*, *Bellies* for all *Musical Instruments* in general, nay the *Ribs* and *Sides* of that enormous *Stratagem*, the so famous *Trojan* * *Horse*, may be thought to be built of this *Material*; and if the *Poet* mistake not,

* *Matrob.*
Sat. 16. cap.
9.

^b —— *The Ribs with Deal they fit* :

There being no *Material* more obedient and ready to bend for such Works.

In *Holland* they receive their best *Masts* out of *Norway*, and even as far as *Muscovy*, which are best esteemed (as consisting of long *Fibres*, without *Knots*) but *Deal-boards* from the *first*; and though *Fir* rots quickly in *Salt-water*, it does not so soon perish in *fresh*; nor do they yet refuse it in *Merchant-ships*, especially the upper Parts of them, because of its Lightness: The true *Pine* was ever highly commended by the *Antients* for naval *Architecture*, as not so easily decaying; and we read that *Trajan* caused *Vessels* to be built both of the true and *spurious* Kind, well *pitch'd*, and over-laid with *Lead*, which perhaps might hint our modern *Sheathing* with that *Metal* at present. *Fir* is exceeding smooth to *polish* on, and therefore does well under *Gilding-work*, and takes *Black* equal with the *Pear-tree*: Both *Fir*, and especially *Pine*, succeed well in *Carving*, as for *Capitals*, *Festoons*, nay *Statues*, especially being *gilded*, because of the easiness of the *Grain* to work, and take the *Tool* every way; and he that shall examine it nearly, will find that famous *Image* of the *B. Virgin* at *Loretto* (reported to be carved by the Hands of *St. Luke*) to be

^a —— dant utile Lignum
Navigiis Pinos ——

Georg. ii.

^b —— Sectaque intexunt *Abiete* costas.

Æn. ii.

made of *Fir*, as the Grain easily discovers it : The *Torulus* (as *Vitruvius* terms it) and *Heart of Deal*, kept dry, rejecting the *Albumen* and *White*, is everlasting ; nor does there any *Wood* so well agree with the *Glew*, as it, or is so easy to be wrought : It is also excellent for *Beams*, and other *Timber-work* in *Houses*, being both light, and exceedingly strong, and therefore of very good Use for *Bars* and *Bolts* of *Doors*, as well as for *Doors* themselves, and for the Beams of *Coaches* ; a Board of an Inch and half thick, will carry the *Body* of a *Coach* with great Ease, by Reason of a natural *Spring* which it has, not easily violated. You shall find, that of old they made *Carts* and other *Carriages* of it ; and for *Piles* to superstruct on in *boggy Grounds* ; most of *Venice* and *Amsterdam* is built upon them, with so excessive Charge, as some report, the *Foundations* of their *Houses* cost as much as what is erected on them ; there being driven in no fewer than thirteen Thousand six Hundred and Fifty-nine great *Masts* of this *Timber*, under the new *Stadt-house* of *Amsterdam*. For *Scaffolding* also there is none comparable to it ; and I am sure we find it an extraordinary Saver of *Oak*, where it may be had at reasonable *Price*. I will not complain what an incredible Mass of ready *Money* is yearly exported into the *Northern Countries* for this sole Commodity, which might all be saved, were we *industrious* at *Home*, or could have them out of *Virginia*, there being no Country in the whole World stor'd with *better* ; besides, another Sort of *Wood*, which they call *Cypress*, much exceeding either *Fir* or *Pine* for this Purpose, being as tough and springy as *Tew*, and bending to Admiration ; it is also lighter than either, and everlasting in *Wet* or *Dry* ; so as I much wonder that we enquire no more after it : In a Word, not only here and there an *House*, but whole *Towns* and great *Cities* are and have been built of *Fir* only ; nor that alone in the *North*, as *Mosco*, &c. where the very Streets are paved with it (the *Bodies* of the Trees lying prostrate one by one in Manner of a *Raft*) but the renowned City of *Constantinople* ; and nearer Home *Tholouse* in *France*, was, within little more than an hundred Years, most of *Fir*, which is now wholly *Marble* and *Brick*, after Eight hundred Houses had been burnt, as it often chances at *Constantinople* ; but where no Accident even of this devouring Nature will at all move them to re-edifie with more lasting Materials. To conclude with the Uses of *Fir*, we have most of our *Pot-ashes* of this *Wood*, together with *Torch*, or *Funeral-staves* ; nay, and of Old, *Spears* of it, if we may credit *Virgil's Amazonian Combat* :

* ————— *She prest*
A long Fir-Spear through his exposed Breast.

Lastly, the very *Chips* or *Shavings* of *Deal-boards*, are of other Use than to kindle *Fires* alone. *Thomas Bartholinus* in his *Medicina Danorum*, *Dissert. vii*, &c. where he disclaims the Use of *Hops* in *Beer* (as pernicious and malignant, and from several Instances how apt it is to produce and usher in *Infections*, nay *Plagues*, &c.) would substitute in its Place the *Shavings* of *Deal-boards*, as he affirms, to give a grateful *Odour* to the *Drink* ; and how sovereign those *resinous Woods*,

* ————— Cujus apertum
 Adversus longa transferberat abiete pectus.

Æn. xi.

BOOK II. the Tops of *Fir* and *Pines*, are against the *Scorbut*, *Gravel* in the *Kidneys*, &c. we generally find: It is in the same *Chapter*, that he commends also *Wormwood*, *Marrubium*, *Chameleagnum*, *Sage*, *Tamarisc*, and almost any Thing, rather than *Hops*. The *Bark* of the *Pine* heals *Ulcers*; and the inner *Rind* cut small, *contused*, and boiled in Store of *Water*, is an excellent Remedy for Burns and Scalds, washing the *Sore* with the *Decoction*, and applying the softened *Bark*: It is also sovereign against *frozen* and benumb'd *Limbs*: The distilled *Water* of the green *Cones* takes away the *Wrinkles* of the *Face*, dipping Cloths therein, and laying them on it, becomes a *Cosmetic* not to be despised. The *Pine*, or *Picea*, buried in the Earth, never decay: From the latter *Trausudes* a very bright and pellucid *Gum*; hence we have likewise *Rosin*: also of the *Pine* are made *Boxes* and *Barrels* for dry Goods; yea, and it is cloven into (*Scandulae*) *Shingles* for the covering of Houses in some Places; also *Hoops* for *Wine-vessels*, especially of the easily flexible *Wild-pine*; not to forget the *Kernels* (this *Tree* being always furnished with *Cones*, some ripe, others green) of such admirable Use in *Emulsions*; and for *Tooth-pickers*, even the very *Leaves* are commended: In sum, they are *Plantations* which exceedingly improve the *Air*, by their *odoriferous* and *balsamical* Emissions, and for Ornament, create a *perpetual Spring* where they are plentifully propagated. And if it could be proved, that the *Almugim-Trees*, recorded * 1 Reg. 11, 12. (whereof *Pillars* for that famous *Temple*, and the *royal Palace*, *Harps* and *Psalteries*, &c. were made) were of this Sort of *Wood* (as some doubt not to assert) we should esteem it at another Rate; yet we know *Josephus* affirms they were a kind of *Pine-tree*, though somewhat resembling the *Fig-tree* *Wood* to appearance, as of a most lustrous *Candor*. In the 2 *Chron.* ii. 8. there is mention of *Almug-trees* to grow in *Lebanon*; and if so, methinks it should rather be (as *Buxtorf* thinks) a kind of *Cedar* (yet we find *Fir* also in the same Period) for we have seen a whiter Sort of it, even very *White* as well as *Red*; though some affirm it to be but the *Sap* of it (so our *Cabinet-makers* call it) I say, there were both *Fir* and *Pine-trees* also growing upon those *Mountains*; and the learned *Meibomius* (in that curious Treatise of his *De Fabrica Triremium*) shews that there were such Trees brought out of *India*, or *Ophir*. In the mean Time, Mr. *Purchas* informs us, that Dr. *Dee* writ a laborious *Treatise* almost wholly of this *Subject* (but I could never have the good Hap to see it) wherein, as *Commissioner* for *Solomon's Timber*, and like a learned *Architect* and *Planter*, he has summoned a *Jury* of twelve Sorts of *Trees*; namely, 1. the *Fir*, 2. *Box*, 3. *Cedar*, 4. *Cypress*, 5. *Ebony*, 6. *Ash*, 7. *Juniper*, 8. *Larch*, 9. *Olive*, 10. *Pine*, 11. *Oak*, and 12. *Sandal-trees*, to examine which of them were this *Almugim*, and at last seems to concur with *Josephus* in Favour of *Pine* or *Fir*; who possibly, from some ancient *Record* or *Fragment* of the *Wood* itself, might learn something of it; and 'tis believed, that it was some Material both *odoriferous* to the *Scent*, and *beautiful* to the *Eye*, and of fittest Temper to refract *Sounds*; besides its Serviceableness for *Building*; all which Properties are in the best Sort of *Pine*, or *Thyina*, as *Pliny* calls it; or perhaps some other rare *Wood*, of which the *Eastern Indies* are doubtless the best provided; and yet I find, that those vast *Beams* which sustain'd the Roof of St. *Peter's* Church at *Rome*, laid (as reported) by *Constantine the Great*, were made

* Where the LXX calls it ἀπὸ τῆς οὐρα, non decolata; others ligna undulata, See Ezek. xxvii. 5, 6.

made of the *Pitch-tree*, and have lasted from *Anno* 336, down to our Days, above one Thousand three Hundred Years. CHAP. III.

13. But now whilst I am reciting the *Uses* of these beneficial Trees, Mr. *Winthorp* presents the *Royal Society* with the *Process* of making the *Tar* and *Pitch* in *New-England*, which we thus abbreviate. *Tar* is made out of that Sort of *Pine-tree*, from which naturally *Turpentine* extilleth; and which at its first flowing out, is liquid and clear; but being hardened by the *Air*, either on the *Tree*, or wherever it falls, is not much unlike the *Burgundy Pitch*; and we call them *Pitch-pines* out of which this gummy Substance transudes: They grow upon the most barren *Plains*, on *Rocks* also, and *Hills* rising amongst those *Plains*, where several are found blown down, and have lain so many *Ages*, as that the whole Bodies, Branches and Roots of the Trees being perished, some certain *Knots* only of the Boughs have been left remaining intire (these *Knots* are that Part where the *Bough* is joined to the *Body* of the *Tree*) lying at the same Distance and Posture as they grew upon the *Tree* for its whole Length. The Bodies of some of these *Trees* are not corrupted through Age, but quite consumed, and reduced to *Ashes*, by the annual *Burnings* of the *Indians*, when they set their Grounds on *Fire*; which yet has, it seems, no Power over these hard *Knots*, beyond a black Scorching; although being laid on Heaps, they are apt enough to burn. It is of these *Knots* they make their *Tar* in *New-England*, and the *Country* adjacent, whilst they are well impregnated with that *terebinthine* and *resinous* Matter, which, like a *Balsam*, preserves them so long from *Putrefaction*. The rest of the *Tree* does indeed contain the like *terebinthine Sap*, as appears (upon any slight Incision of *Bark* on the Stem or Boughs) by a small crystalline Pearl, which will sweat out; but *this*, for being more watery and undigested, by Reason of the *Porosity* of the *Wood*, which exposes it to the Impressions of the *Air* and *Wet*, renders the *Tree* more obnoxious, especially if it lie prostrate with the *Bark* on, which is a Receptacle for a certain *intercutaneous* Worm, that accelerates its Decay. They are the *Knots* then alone, which the *Tar-makers* amass in *Heaps*, carrying them in *Carts* to some convenient Place not far off, where, finding *Clay* or *Loam* fit for their Turn, they lay an *Hearth* of such ordinary Stone as they have at Hand: This they build to such an Height from the Level of the Ground, that a *Vessel* may stand a little lower than the *Hearth*, to receive the *Tar* as it runs out: But first the *Hearth* is made wide, according to the Quantity of *Knots* to be set at once, and that with a very smooth *Floor* of *Clay*, yet somewhat descending, or dripping from the extrem Parts to the *Middle*, and thence towards one of the *Sides*, where a *Gullet* is left for the *Tar* to run out at. The *Hearth* thus finished, they pile the *Knots* one upon another, after the very same Manner as our *Colliers* do their *Wood* for *Charcoal*, and of a Height proportionable to the Breadth of the *Hearth*; and then cover them over with a Coat of *Loam*, or *Clay* (which is best) or in Defect of those, with the best and most tenacious *Earth* the Place will afford; leaving only a small *Spiracle* at the Top, whereat to put the *Fire* in; and making some little *Holes* round about at several Heights, for the Admission of so much *Air* as is requisite to keep it burning, and to regulate the *Fire*, by opening and stopping them at Pleasure. The *Process* is almost the same with that of making *Charcoal*, as will appear in due Place; for, when it is well

See *Plin. Nat. Hist.* Lib. xvi. Cap. xi. or rather *Theophrastus Hist. Lib. ix. Cap. ii, iii. & Lib. xiv. Cap. xx. Lib. xxiii. Cap. i. Lib. xxiv. Cap. vi.*

BOOK II. well on *Fire*, that middle *Hole* is also stopped, and the rest of the *Registers* so governed, as the *Knots* may keep burning, and not be suffocated with too much *Smoak*; whilst all being now thorough-heated, the *Tar* runs down to the *Hearth*, together with some of the more watery *Sap*, which hastning from all *Parts* towards the *Middle*, is conveyed by the forementioned *Gutter* into the *Barrel* or *Vessel* placed to receive it: Thus, the whole *Art* of *Tar-making* is no other than a kind of rude Distillation *per descensum*, and might therefore be as well done in *Furnaces* of large Capacity, were it worth the Expence. When the *Tar* is now all melted out and run, they stop up all the *Vents* very close; and afterwards find the *Knots* made into excellent *Charcoal*, preferred by the *Smiths* before any other whatsoever which is made of *Wood*, and nothing so apt to burn out when their *Blas*t ceaseth; neither do they sparkle in the *Fire*, as many other Sorts of *Coal* do; so as, in Defect of *Sea-coal*, they make Choice of *this*, as best for their Use, and give greater *Prices* for it. Of these *Knots* likewise do the *Planters* split out small *Slivers*, about the Thickness of one's *Finger*, or somewhat thinner, which serve them to burn instead of *Candles*, giving a very good Light. This they call *Candle-wood*, and it is in much Use both in *New-England*, *Virginia*, and amongst the *Dutch Planters* in their *Villages*; but for that it is something offensive, by Reason of the much fuliginous *Smoak* which comes from it, they commonly burn it in the *Chimney-corner*, upon a flat *Stone* or *Iron*; except, occasionally, they carry a single *Stick* in their Hand, as there is need of Light to go about the House. It must not be conceived, by what we have mentioned in the former Description of the *Knots*, that they are only to be separated from the *Bodies* of the *Trees* by devouring *Time*, or that they are the only *Materials* out of which *Tar* can be extracted: For there are in these *Tracts* Millions of *Trees* which abound with the same Sort of *Knots*, and full of *Turpentine* fit to make *Tar*: But the Labour of felling these *Trees*, and of cutting out their *Knots*, would far exceed the Value of the *Tar*, especially in *Countries* where *Work-men* are so very dear: But those *Knots* above-mentioned are provided to Hand, without any other Labour than the gathering only. There are sometimes found of those Sort of *Pine-trees*, the lowest Part of whose Stems towards the *Root* is as full of *Turpentine* as the *Knots*; and of these also may *Tar* be made: But such *Trees* being rarely found, are commonly preserved to split into *Candle-wood*; because they will be easily riven out into any Lengths and Scantlings desired, much better than the *Knots*. There be, who pretend an *Art* of as fully impregnating the *Body* of any living *Pine-tree*, for six or eight Foot high; and some have reported that such an *Art* is practised in *Norway*: But upon several *Experiments*, by girdling the *Tree* (as they call it) and cutting some of the *Bark* round, and a little into the *Wood* of the *Tree*, six or eight Foot distant from the Ground, it has yet never succeeded; whether the just *Season* of the Year were not observed, or what else omitted, were worth the *Disquisition*; if at least there be any such *Secret* amongst the *Norwegians*, *Swedes*, or any other *Nation*. Of *Tar*, by boiling it to a sufficient *Height*, is *Pitch* made: And in some Places where *Rosin* is plentiful, a fit Proportion of *that* may be dissolved in the *Tar* whilst it is boiling, and this *Mixture* is soonest converted to *Pitch*; but it is of somewhat a differing *Kind* from that which is made of *Tar* only,

only, without other Composition. There is a Way which some *Ship-Carpenters* in those Countries have used, to bring their *Tar* into *Pitch* for any sudden Use, by making the *Tar* so very hot in an *Iron-Kettle*, that it will easily take *fire*, which when *blazing*, and set in an *airy* Place, they let burn so long, till by taking out some small Quantity for trial, being *cold*, it appears of a sufficient *Consistence*: Then by covering the *Kettle* close, the *Fire* is extinguished, and the *Pitch* is made without more Ceremony. There is a *Process* of making *Rosin* also, out of the same *Knots*, by splitting them out into thin Pieces, and then boiling them in *Water*, which will educe all the *resinous* Matter, and gather it into a *Body*, which (when cold) will harden into pure *Rosin*. It is more over to be understood, that the *Fir* and most *coniferous* Trees, yield the same *Concretes*, *Lachrymæ*, *Turpentine*s, and there is a *Fir* which exsils a *Gum* not unlike the *Balm* of *Gilead*, and a Sort of *Thus*; *Rosins*, *Hard*, *naval Stone*, *liquid Pitch*, and *Tar* for Remedies against the *Cough*, *Arthritic* and *Pulmonic* Affections, are well known, and the *Chirurgion* uses them in *Plaisters* also; and, in a word, for *mechanic* and other innumerable *Uses*; and from the burning and fuliginous Vapour of these, especially the *Rosin*, we have our *Lamp* and *Printers Black*, &c. I am persuaded the *Pine*, *Pitch* and *Fir-trees* in *Scotland*, might yield his Majesty Plenty of excellent *Tar*, were some industrious Person employed about the Work; so as I wonder it has been so long neglected. But there is another *Process*, not much unlike the former, which is given us by the present *Archbishop* of *Samos*, *Joseph Georgirenes*, in his Description of *that*, and other *Islands* of the *Ægean*.

Their Way of making *Pitch* (says he) is thus: They take *Sapines*, that is, that Part of the *Fir*, so far as it hath no *Knots*; and shaving away the extream Parts, leave only that which is nearest to the Middle, and the *Pith*: That which remains, they call *Dadi* (from the old *Greek* Word *Δάδες*, whence the *Latin*, *Teda*): These they split into small Pieces, and laying them on a *Furnace*, put *Fire* to the upper Part, till they are all burnt, the Liquor in the mean Time running from the *Wood*, and let out from the bottom of the *Furnace* into a Hole made in the Ground, where it continues like *Oil*: Then they put *Fire* to it, and stir it about till it thicken, and has a *Consistence*: After this, putting out the *Fire*, they cast *Chalk* upon it, and draw it out with a *Vessel*, and lay it in little Places cut out of the Ground, where it receives both its Form, and a firmer Body for easie Transportation: Thus far the *Archbishop*; but it is not so instructive and methodical as what we have described above.

Other *Processes* for the extracting of these Substances, may be seen in Mr. *Ray's History of Plants*, already mentioned, Lib. xxix. Cap. i. And as to *Pitch* and *Tar*, how they make it near *Marseilles* in *France*, from the *Pines* growing about that City, see *Philosophical Transactions*, Number 243. p. 291. Ann. 1696. very well worthy the transcribing, if what is mentioned in this Chapter were at all defective.

I had in the former Editions of *Silva*, placed the *Larix* among the *Trees* which shed their Leaves in *Winter* (as indeed does this) but not before there is an almost immediate Supply of fresh; and may therefore, both for its Similitude, Stature, and Productions, challenge Rank among the *Coniferous*: We raise it of Seeds, and grows spontaneously in *Stiria*, *Carinthia*, and other *Alpine* Countries: The Change of the

BOOK II. Colour of the old Leaf, made an ignorant *Gardener* of mine eradicate what I had brought up with much Care as dead ; let this therefore be a Warning : The Leaves are thin, pretty long and bristly ; the *Cones* small, grow irregular, as do the Branches, like the *Cypress*, a very beautiful *Tree*, the ponderous Branches bending a little, which makes it differ from the *Libanus Cedar*, to which some would have it allied, nor are any found in *Syria*. Of the deep wounded *Bark*, exsudes the purest of our *Shop-turpentine* (at least as reputed) as also the Drug *Agaric* : That it flourishes with us, a *Tree* of good Stature (not long since to be seen about *Chelmsford* in *Essex*) sufficiently reproaches our not cultivating so useful a *Material* for many Purposes, where lasting and substantial Timber is required : For we read of *Beams* of no less than an hundred and twenty *Foot* in Length, made out of this goodly *Tree*, which is of so strange a Composition, that 'twill hardly burn ; whence *Mantuan*, *Et robusta Larix igni impenetrabile lignum* : For so *Cæsar* found it in a Castle he besieged, built of it ; (the Story is recited at large by *Vitruvius*, Lib. ii. Cap. ix.) but see what *Philander* says upon the Place, on his own Experience : Yet the *Coals* thereof were held far better than any other, for the melting of *Iron*, and the *Locksmith* ; and to say the Truth, we find they burn it frequently as common *Fuel* in the *Valtoline*, if at least it be the true *Larix*, which they now call *Melere*. There is abundance of this *Larch* Timber in the *Buildings* at *Venice*, especially about the *Palaces* in *Piazza San Marco*, where I remember *Scamozzi* says, he himself used much of it, and infinitely commends it. Nor did they only use it in *Houses*, but in *Naval Architecture* also : The Ship mentioned by *Witsen* (a late *Dutch* Writer of that useful *Art*) to have been found not long since in the *Numidian* Sea, twelve Fathoms under Water, being chiefly built of this *Timber* and *Cypress*, both reduced to that *Induration* and Hardness, as greatly to resist the *Fire*, and the sharpest *Tool* ; nor was any thing perished of it, though it had lain above a thousand and four hundred Years submerg'd : The *Decks* were covered with Linnen, and Plates of Lead, fixed with Nails gilt, and the entire Ship (which contained thirty Foot in Length) so staunch, as not one drop of *Water* had soaked into any Room. *Tiberius*, we find, built that famous *Bridge* to his *Naumachia* with this *Wood*, and it seems to excel for *Beams*, *Doors*, *Windows*, and *Masts* of Ships, resists the *Worm* : Being driven into the Ground, it is almost petrified, and will support an incredible Weight ; which (and for its Property of long resisting *Fire*) makes *Vitruvius* wish, they had greater Plenty of it at *Rome* to make *Goists* of, where the *Forum* of *Augustus* was (it seems) built of it, and divers *Bridges* by *Tiberius* ; for that being attempted with *Fire*, it is long in taking hold, growing only black without ; and the *Timber* of it is so exceedingly transparent, that *Cabbins* being made of the thin *Boards*, when in the dark Night they have lighted Candles in them, People who at are distance without Doors, would imagine the whole Room to be on fire ; which is pretty odd, considering there is no *Material* so (as they pretend) unapt to kindle. The *Larix* bears polishing excellently well, and the *Turners* Abroad much desire it : *Vitruvius* says 'tis so ponderous, that it will sink in the *Water* : It also makes everlasting *Spouts*, *Pent-houses*, and *Featheridge*, which needs neither *Pitch* or *Painting* to preserve them ; and so excellent *Pales*, *Posts*, *Rails*, *Pedaments* and *Props* for *Vines*, &c. to which add the *Palats*

on which our *Painters* separate and blend their *Colours*, and were (till CHAP. IV. the use of *Canvas* and *Bed-tike* came) the *Tables* on which the great *Raphael*, and most famous *Artists* of the last Age, eternized their Skill.

CHAP. IV.

Of the Cedar, Juniper, Cypress, Savine, Thuya, &c.

I. **B**UT now after all the beautiful and stately *Trees*, clad in perpetual *Verdure*,

Quid tibi odorato referam sudantia ligno?

Should I forget the *Cedar*? which grows in all Extreams; in the moist CEDAR. *Barbados*, the hot *Bermudas*, (I speak of those *Trees* so denominated) the cold *New-England*, even where the *Snows* lie, as I am told, almost half the Year; for so it does on the Mountains of *Libanus*, from whence I have received *Cones* and *Seeds* of those few remaining *Trees*. Why then should they not thrive in *Old England*? I know not, save for want of Industry and Trial.

They grow in the *Bogs* of *America*, and in the *Mountains* of *Asia*, so as there is, it seems, no Place or Clime which affrights it; and I have frequently raised them from their *Seeds* and *Berries*, of which we have the very best in the World from the *Summer-Islands*, though now almost exhausted by the unaccountable Negligence of the *Planters*; as are likewise those of *M. Libanus*, by the wandering and barbarous *Arabs*. The *Cedars* we have from *Jamaica* are a *spurious* Sort, and of so porous a Contexture, that *Wine* will sink into it: On the contrary, that of *Carolina* so firm and close, that *Barrels* and other *Vessels* preserve the strongest *Spirits* in Vigour. The *New-England Cedar* is a lofty Grower, and prospers into excellent *Timber*, which, being sawn into *Planks*, make delicate *Floors*. They shingle their Houses also with it, and generally employ it in all their Buildings. Why have we no more of it brought us, to raise, plant, and convert to the same Uses? There is the *Oxycedrus* of *Lycia*, which the *Architect Vitruvius* describes to have its Leaf like *Cypress*; but the right *Phœnician* resembles more the *Juniper*, bearing a *Cone* not so pointed as the other, as we shall come to shew.

After these, I shall not here descend to the inferior Kinds, which some call *Dwarfs*, and common *Juniper-like Shrubs*, fitter to Head the Borders of *Coronary Gardeners*, and to be shorn. There is yet another of the *North-America*, lighter than *Cork* it self, of a *fragrant Scent*, which is its only Virtue. In short,

After all these *Exotics* brought from our *Plantations*, answering to the Name of *Cedar*, I should esteem that of the *Vermuda*, little inferior, if not superior, to the noblest *Libanon*; and next, that of *Carolina* for its many Uses, and lasting.

Having spoken of their several *Species*, we come now to the *Culture*, best raised from the *Seeds*, since it would be difficult to receive any Store from Abroad. To begin with that of *M. Libanus*; those which seem of the greatest *Antiquity*, are indeed majestic, extending the Boughs and Branches, with their *Cones sursum spectantia*, as by most

BOOK II. we are told; though a late * *Traveller* found otherwise, and depending, like other *coniferous Trees*; the sturdy *Arms*, though in smaller Sprigs, grow in Time so weighty, as often to bend the very Stem, and main Shaft, whilst that which is most remarkable, is the Structure of the *Cones* and *Seeds Receptacles*, tack'd and ranged between the Branch-leaves, in such order, as nothing appears more curious and artificial, and, at a little Distance, exceedingly beautiful: These *Cones* have the *Bases* rounder, shorter, or rather thicker, and with blunter Points, the whole *circum-zoned*, as it were, with pretty broad thick *Scales*, which adhere together in exact *Series* to the very Top and Summit, where they are somewhat smaller; but the entire *Lorication* smoother couched than those of the *Fir-kind*: Within these *Repositories*, under the *Scales*, nestle the small *nutting Seeds*, or rather *Kernels*, of a *Pear-shape*, though somewhat bigger; which how nourished and furnished from the *central Style*, with their other *Integuments*, is admirably described by Mr. Ray, as that of the *Stalk* of the *Clogs*, thicker and longer, and so firmly knit to them, that it requires considerable Force to part them from the Branch, without splitting the Arm it self. We have said nothing concerning the *Leaf* of this *Tree*, which much resembles those of the *Larix*, but somewhat longer and closer set, *erect* and perpetually *green*, which those of the *Larch* are not; but hanging down, drop off, and desert the *Tree* in *Winter*.

The *Seeds* drop out of the *Cones* as other *Fir*, *Pine-kernels* and *Nuts* do, when the *Air*, *Sun*, or *Moisture* open and unglue the *Scales*, which naturally it else does not in those of the *Cedar* till the second Year; but which after all the Preparations of burying in Holes made in the Earth and Sand (in which they are apter to rot) may more safely be done, by exposing the *Clogs* discreetly to the *Sun*, or before the soft and gentle *Fire*, or, I think, best of all, by soaking them in warm *Water*: The *Cones* thus discharged the gaping *Seeds*, together with the rest of the *Skeleton*, adhere a long while to the *Branches*, which not seldom hang on above two Years; as we likewise find in those of other *resinous Trees*, though falling sooner.

U.S.E.S. The *Lachrymæ*, *Gum*, and other *Transsudations*, serving more for *Unguents* and the *Chirurgion's Box*, than for other *Medicaments*, in which we find *Pliny* has little Faith: But that which is more remarkable, is the Virtue of the famous *Timber* of this noble *Tree*, being Proof against all *Putrefaction* of human and other Bodies, above all other *Ingredients* and *Compositions* of *Embalmers*; and that by a pretty *Contradiction*, giving *Life*, as it were, to the *Dead*, and destroying the *Worms* which are *living*; and as it does where any Goods are kept in *Chests* and *Presses* of the *Wood*, excepting *woollen Cloth* and *Furs*, which 'tis observed they corrupt. In the mean Time, touching the Manner of these Operations, as it concerns the Preservation of the *Dead*, see more where we speak of *Cypress*, &c. The Effects being ascribed to the extream *Bitterness* of the *resinous Juices*, whilst the *Odour* is most grateful. The worthy Mr. Ray mentions the *Powder* and *Saw-dust* of *Cedar* to be one of the greatest Secrets used by our *Pollinfectors* and *Mountebanks*, who pretend to this *embalming Mystery*; and indeed, that the *Dust* and very *Chips* are *exitial* to *Moths* and *Worms*, daily Experience shews us; though none in mine, than the dried Leaves and Stalks of *Marum-Syriacum*, familiarly planted in our *Gardens*. What therefore the late Traveller *Dampier* speaks of *Cedar*, which

which he has seen *Worm-eaten*, could neither be that of *Libanus* or *Bermudas*, but haply of *Barbados*, *Jamaica*, or some other *Species*. Note, that the *Cedar* is of so dry a Nature, that it does not well endure to be fastned with *Nails*, from which it usually shrinks, and therefore *Pins* of the same Wood are better. Whatever other Property this noble *Tree* is deservedly famous for, it is said to yield an *Oil*, which above all other, best preserves the *Monuments* of the *Learned*, *Books* and *Writings*; whence *Cedro dignus* became one of the highest *Elogies*: But whether that of the ingenious *Poet*,

Notandus minio, nec Cedro Charta notantur,

refers not to the *Colour* rather, which was usually *red*, and perhaps tempered with this *bitter Oil* (as some conjecture) let our *Antiquaries* determine: The *Horns* and *Knobs* at the Ends of the *Rolling-slaves*, on which those Sheets of *Parchment*, &c. (before the Invention of *Printing*, and compacted *Covers* now in use) as at present our *Maps* and *Geographical Charts* (peeping out a little beyond the Volume) were likely coloured with this *rutilant Mixture*.

Touching the *Diüternity* of this *Material*, 'tis recorded, that in the *Temple* of *Apollo Utica*, there was found *Timber* of near *two thousand Years* old; and at *Sagunti* in *Spain*, a Beam in a certain *O-ratory* consecrated to *Diana*, which has been brought to *Zant*, two *Centuries* before the Destruction of *Troy*: That great *Sesostris*, King of *Egypt*, had built a Vessel of *Cedar* of two hundred and eighty *Cubits*, all over gilded without and within: And the *Statue* of the *Goddeß* in the famous *Ephesine Temple*, was said to be of this *Material* also, as was most of the *Timber-work* of that glorious Structure: Though as to the *Idol* τὸ Διοπέλης mentioned in the *Acts* (when the *Mob* rose up against the *Apostle*) some will have to be of *Ebony*, others of a *Vine-tree*, the most unlikely of all the rest fit for the *Carver*. The *Sittim*, mentioned in *Holy Writ*, is thought to have been a Kind of *Cedar* of which most precious *Utenßils* were formed.

As to the *Magnitude* of *Cedar-trees*; we read of divers whose *Bodies* eight or nine Persons could not embrace (as we shall shew hereafter) not here to let pass what *Josephus* relates *Solomon* planted in *Judea*, who doubtless tried many Experiments of this Nature, none being more *kingly* than that of *planting* for *Posterity*: I do not speak of those growing on the Mountains of *Libanon*, in the northern and colder Tracts of *Syria*; or what store those *Forests* of them then afforded: But, as we are informed by that curious Traveller * *Ranwolsius* (since confirmed also by the *Virtuoso Monconys*) there were not remaining above *twenty-five* of those stately *Trees*, and since they were there, but sixteen of that small Number, as the ingenious Mr. *Mandeville* reports in his Journey from *Aleppo* to *Jerusalem*: There was yet, he says, abundance of *young Trees*, and a single *old one* of a prodigious Size *twelve Yards* and *six Inches* in the *Girt*; I suppose the same described by the late Traveller *Bruyn*, who speaking of the Shadow of this *umbragious Tree*, alludes to that of *Hosea*, Chap. xiv. Ver. 5. which 'tis not improbable might be one of those yet remaining, where that *heroick Prince* employed *fourscore thousand* Hewers at work, for the Materials of one only *Temple*, and the *Palace* he built in the *City*; a pregnant Instance what *Time*, *Negligence* and *War* will bring to Ruin. But to return to what is said of their present Number, *Le Bruyn*

BOOK II. (whom just now we mentioned) makes them thirty-five or thirty-six, for he could not exactly tell, and pretends (like our *Stonehenge* on *Salisbury Plain*) none could ever yet agree of their *Number*.

In short, upon Reflection of what we have hitherto concerning the universal Waste and Destruction of *Timber-trees* (where due Regard is not taken to propagate and supply them) whole Countries have suffered as well as particular Provinces: Thus the *Apennines* are stripped of their goodly *Pine* and *Fir-trees* (which formerly the *Naturalist* commends those Mountains for) to that Degree, as to render not only the City of *Florence*, but *Rome* her self so exposed to the nipping *Tramontan's* (for so they call the *Northern Winds*) that almost nothing, which is rare and curious, will thrive without *Hyemation* and *Art*; so as even through the most of those Parts of *Italy*, on this Side the Kingdom of *Naples*, flanked by the *Alpestral Hills* (clad as they perpetually are with *Snow*) they are fain to *House*, and retire their *Orange*, *Citron*, and other delicate and tender Plants, as we do in *England*. There remains yet one *Mountain* among the *Apennines*, covered and crowned with *Cypress*; whereof some are of considerable Stature: Nor is all this indeed so great a Wonder, if we find the entire *Species* of some Trees totally lost in Countries, as if there never had been any such planted or growing in them: Be this applied to *Fir* and *Pine*, and several other Trees, for want of *Culture*, several Accidents in the *Soil*, *Air*, &c. which we daily find produces strange Alterations in our *Woods*; the *Beech* almost constantly succeeding the *Oak*, to our great Disadvantage, whilst we neglect new *Seminations*. *Herodotus*, speaking of the *Palms* (plentifully growing about *Delos*) says the whole *Species* was utterly lost: More I might add on this Subject; but having perhaps been too long on these Remarks, and long enough on Cold M. *Libanus*. I pass to,

1. *Juniper*; Let it not seem *unduly* placed, if after such *Giants*, we bring that humble *Shrub* (such as abound with us being so reckoned) to claim Affinity to the tallest *Cedar*; since were not ours continually cropped, but maintained in single *Stems*, we might perhaps see some of them rise to competent *Trees*, fit for many curious Works, *Tables*, *Cabinets*, *Coffers*, *Inlaying*, *Floors*, *Carvings*, &c. we have of some of these Trees so large, as to have made *Beams* and *Rafters* for a certain *Temple* in *Spain*, dedicated to *Diana*; nor need we question their being fit for other Buildings; celebrated for its emulating the *Cedar*, though not in Stature, yet in its Lastingness: And such, I think, the learned Dr. *Sloane* mentions, growing in *Jamaica*, little inferior to the *Vermudas*.

2. Of *Juniper*, we have three or four Sorts, *Male*, *Female*, *Dwarf*; whereof *one* is much taller, and more fit for Improvement. The *Wood* is *yellow*, and being cut in *March*, *sweet* as *Cedar*, whereof it is accounted a *spurious* Kind; all of them difficult to remove with Success; nor prosper, they being shaded at all, or over-dripped: The *Swedish Juniper* (now so frequent in our new *modish* Gardens, and shorn into *Piramids*) is but a taller and somewhat brighter Sort of the *Vulgar*.

3. I have raised them abundantly of their *Seeds* (neither *watering* nor *dunging* the *Soil*) which in two Months will peep; and being governed like the *Cypress*, apt for all the Employments of that beautiful Tree: To make it grow *tall*, *prune*, and cleanse it to the very *Stem*; the *Male* best. The discreet loosening of the *Earth* about the *Roots* also,

also, makes it strangely to prevent your Expectations, by suddenly spreading into a *Bush* fit for a thousand pretty Employments; for coming to be much unlike that which grows *wild*, and is subject to the treading and cropping of *Cattle*, &c. it may be formed into most beautiful and useful *Hedges*. My late *Brother* having formerly cut out of one only *Tree*, an *Arbour* capable for *three* to fit in; it was at my last measuring *seven* Foot square, and *eleven* in Height; and would certainly have been of a much greater Altitude, and farther spreading, had it not continually been kept *shorn*: But what is most considerable, is, the little Time since it was *planted*, being then hardly *ten Years*, and then it was brought out of the *Common* a slender *Bush*, of about *two Foot* high: But I have experimented a proportionable Improvement in my own *Garden*, where I do mingle them with *Cypress*; and they would perfectly become their Stations, where they might enjoy the *Sun*, and may very properly be set where *Cypress* does not so well thrive, namely, in such *Gardens* and *Courts* as are open to the *Eddy-winds*, which indeed a little discolours our *Junipers* when they blow *easterly* towards the *Spring*, but they constantly recover again; and besides, the Shrub is *tonfide*, and may be shorn into any Form. I wonder *Virgil* should condemn its Shadow. *Juniperi gnavis Umbra* — I suspect him misreported.

In the mean Time, *Botanists* are not fully agreed to what *Species* many noble and stately Trees, passing under the Names of *Cedar*, are to be reckoned; and therefore (for I cannot but mention those of the *Vermuda* again in this Place) being so beautiful, tall, thick set with *Evergreen-leaves*, like the *Juniper*, with *Berries* indeed much larger, and may also be propagated by *Layers*; affording a *Timber* close, ruddy for the most Part, easy to work, and yielding excellent *Flooring* fit for *Wainscot*, and all curious *Cabinet-works*; keeping its agreeable *Odour* and *Fragrancy* longer than the rest: There is also made a pleasant and wholesome Drink of the *Seeds*, as they do of our common *Juniper*; of which hereafter. Nearest the *Bermuda Juniper* comes the *Virginia*, both yet exceeded by that of *Carolina*, for the Perfections already mentioned, speaking of *Cedar*, not forgetting the *Oxy-Cedrus*, which is reputed a Sort of *Juniper*; the *Berries* so abounding on our uncultivated *Bushes* and barren *Heaths*, always pregnant, annually ripen, though not all at a Time; some sticking longer, so as there will be *black*, *green* and *gray* succeeding one another.

4. And these afford (besides a tolerable *Pepper*) one of the most universal *Remedies* in the World, to our crazy *Forester*; the *Berries* swallowed only, instantly appease the *Wind-cholick*, and in Decoction most *sovereign* against an inveterate *Cough*: They are of rare Effect, being steep'd in *Beer*; and in some *Northern* Countries they use a *Decoction* of the *Berries*, as we do *Coffee* and *Tea*: The *Water* is a most singular *Specifick* against the *Gravel* in the *Reins*; but all is comprehended in the Virtue of the *Theriacle*, or *Electuary*, which I have often made for my poor *Neighbours*, and may well be termed the *Forester's Panacea* against the *Stone*, *Rheum*, *Pthysic*, *Dropsy*, *Jaundice*, inward *Imposthumes*, nay, *Palsie*, *Gout*, and *Plague* it self, taken like *Venice-Treacle*. Of the extracted *Oil* (with that of *Nuts*) is made an excellent good *Varnish* for *Pictures*, *Wood-work*, and to preserve polished *Iron* from the *Rust*. The *Gum* is good to rub on *Parchment* or *Paper*, to make it bear *Ink*, and the *Coals*, which are made of the *Wood*,

BOOK II. *Wood*, endure the longest of any ; so as live *Embers* have been found after a Year's being covered in the *Asbes* : See St. *Hierom ad Fabiolam*, upon that Expression, *Psal.* cxx. v. 4. If it arrive to full Growth, *spits* and *spoons*, imparting a grateful Relish, and very wholesome where they are used, are made of this *Wood*, being well dried and seasoned : And the very *Chips* render a wholesome *Perfume* within Doors, as well as the dusty *Blossoms* in *Spring without*, and excellent *within* to correct the *Air*, and expel *Infection* ; for which Purpose the *Wood* should be cut about *May*, and the *Rasures* well dried.

5. And since we now mention *Pepper*, it is by the most prudent and princely Care of his late Majesty, *Charles II.* that I am assured of a late solemn *Act of Council*, enjoining the preserving of that incomparable *Spice*, which comes to us from *Jamaica* under that *Denomination* ; though in Truth it be a Mixture of so many *Aromatics* in one, that it might as well have been called *Cinamon*, *Nutmeg* or *Mace*, and *All-spice*, to every of which it seems something allied : And that there is not only prohibited the Destruction of these *Trees* (for it seems some *Prodigals* used to cut them down, for the more easie gathering) but Order taken likewise for their *Propagation*, and that *Affays* and *Samples* be from Time to Time sent over, what other *Fruits*, *Trees*, *Gums* and *Vegetables* may there be found, and which I prognostick will at last also incite the *Planters* there to think of procuring *Cinamon*, *Cloves*, and *Nutmeg-trees* indeed from the *East-Indies*, and what other useful *Curiosities* do not approach our *Northern Bear* (and that are yet *Incicurable* amongst us) and to plant them in *Jamaica*, and other of the *Western Islands*, as a more safe and frugal Expedient to humble our *emulous* Neighbours ; since there is nothing in their *Situation*, or Defect of *Nature's* Benignity, which ought in the least to discourage us : And what if some of the *Trees* of those *Countries* (especially such as aspire to be *Timber*, and may be of Improvement amongst us) were more frequently brought to us likewise here in *England* ? since we daily find how many rare *Exotics* and Strangers, with little Care, become *endenizon'd*, and so contented to live amongst us, as may be seen in the *Platanus*, *Constantinople-Chesnut*, the greater *Glandiferous Ilex*, *Cork*, *NuxVesicaria* (which is an hard *Wood* fit for the *Turner*, &c.) the *Styrax*, *Bead-tree*, the famous *Lotus*, *Virginian Acacia*, *Guaiaicum Patavium*, *Paliurus*, *Cypress*, *Pines*, *Fir*, and sundry others, which grow already in our *Gardens*, exposed to the *Weather* ; and so doubtless would many more : So judiciously observed is that of the learned *Author* of the *History* of the *Royal Society*, Part. iii. Sect. xxviii. ' That whatever Attempts of ' this Nature have succeeded, they have redounded to the great Ad- ' vantage of the *Undertakers*. The *Orange* of *China* being of late ' brought into *Portugal*, has drawn a great *Revenue* every Year from ' *London* alone. The *Vine* of the *Rhene*, taking Root in the *Canaries*, ' has produced a far more delicious Juice, and has made the Rocks, ' and Sun-burnt *Asbes* of those *Islands*, one of the richest Spots of ' Ground in the *World*. And I will also instance in that which is now ' in a good Forwardness ; *Virginia* has already given *Silk* for the ' Cloathing of our *King* ; and it may happen hereafter, to give *Cloaths* ' to a great Part of *Europe*, and a vast Treasure to our *Kings* : If the ' *Silk-worms* shall thrive there (of which there seems to be no Doubt) ' the Profit will be inexpressible. We may guess at it, by considering ' what

‘ what Numbers of *Caravans*, and how many great *Cities* in *Persia* are maintained by that *Manufacture* alone, and what mighty *Customs* it yearly brings unto the *Sophi’s* Revenue.’ Thus he : To which we might add, that not only the *China-orange* mentioned by the *Doctor*, but the whole *Race* of *Orange-trees*, were Strangers in *Italy*, and unknown to *Rome*; nor grew they nearer than *Persia*, whence first they travelled into *Greece*, as *Athenens* tells us. But to return to that of *China*, and give some Account of its Propagation in *Europe* : The first was sent for a *Present* to the old *Conde Mellor*, then *prime Minister* to the *King of Portugal* : But of that whole *Case* (they came to *Lisbon* in) there was but one only *Plant*, which escaped the being so spoiled and tainted, that with great *Care* it hardly recovered, to be since become the *Parent* and *Progenitor* of all those flourishing *Trees* of that *Name*, cultivated by our *Gardeners*, though not without sensibly *degenerating*. Receiving this *Account* from the illustrious *Son* of the *Conde* (Successor in *Title* and *Favour*) upon his being recalled (then an *Exile* at our *Court*, where I had the Honour to be known to him) I thought fit to mention it in this Place, for an Instance of what the *Industry* we have recommended, would questionless, in less than half an *Age*, produce of *Wonders*, by Introduction, if not of quite *different*, yet of *better Kinds*, and such *Variety* for *Pulchritude* and *Sweetness*; that when, by some princely *Example*, our late *Pride*, *Effeminacy* and *Luxury* (which has, to our vast *Charges*, excluded all the *Ornaments* of *Timber*, &c. to give Place to *Hangings*, *Embroideries*, and foreign *Leather*) shall be put out of Countenance, we may hope to see a *new Face* of Things, for the Encouragement of *Planters* (the more *immediate* Work of *God’s* Hands) and the natural, wholesome and antient *Use* of *Timber*, for the more *lasting Occasions*, and *Furniture* of our *Dwellings* : And though I do not speak all this for the Sake of *Joynd-stools*, *Benches*, *Cup-boards*, *massy Tables*, and *gigantic Bedsteads* (the hospitable *Utensils* of our *Fore-fathers*) yet I would be glad to encourage the *Carpenter* and the *Joyner*, and rejoice to see, that their *Work* and *Skill* do daily improve ; and that by the *Example* and *Application* of his *Majesty’s* *Universities*, and *Royal Society*, the *Restoration* and *Improvement* of *Shipping*, *mathematical* and *mechanical* Arts, the *Use* of *Timber* grows daily in more Reputation. And it were well if *great Persons* might only be indulged to enrich and adorn their *Palaces* with *Tapestry*, *Damask*, *Velvet* and *Persian* Furniture ; whilst by some wholesome *sumptuary* Laws, the universal Excess of those costly and *luxurious Moveables* were prohibited meaner Men, for divers *politick* Considerations and Reasons, which it were easie to produce ; but by a less Influence than *severer Laws*, it will be very difficult, if not altogether impossible, to recover our selves from a *Softness* and *Vanity*, which will in Time not only *effeminate*, but undo the *Nation*.

6. *Cupressus*, the *Cypress-tree* is either the *Stative*, or *Garden-tree*, the most *pyramidal* and beautiful ; or that which is called the *Male* (though somewhat preposterously) which bears the small *Cones*, but is of a more extravagant Shape : Should we reason only from our common *Experience*, even the *Cypress-tree* was, but within a few Years past, reputed so tender, and nice a *Plant*, that it was cultivated with the greatest *Care*, and to be found only amongst the *Curious* ; whereas, we see it now in every *Garden*, rising to as goodly a Bulk and *Stature*,

BOOK II. ture, as most which you shall find even in *Italy* it self; for such I remember to have once seen in his late *Majesty's Gardens* at *Theobalds*, before that princely Seat was demolished. I say, if we did argue from this *Topic*, methinks it should rather encourage our *Country-men* to add yet to their *Plantations* other foreign and useful Trees, and not in the least deter them, because many of them are not as yet become *endenizon'd* amongst us: But of this I have said enough, and yet cannot but still repeat it.

7. We may read that the *Peach* was at first accounted so tender, and delicate a *Tree*, as that it was believed to thrive only in *Persia*; and even in the Days of *Galen*, it grew no nearer than *Egypt*, of all the *Roman Provinces*, but was not seen in the *City*, till about thirty Years before *Pliny's* Time; whereas, there is now hardly a more common and universal in *Europe*: Thus likewise the *Avellana* from *Pontus* in *Asia*, thence into *Greece*, and so *Italy*, to the City of *Abellino* in *Campania*.

Una tantum litera immutata, Avellina dici, quæ prius Abellina.

I might affirm the same of our *Damasco Plum*, *Quince*, *Medlar*, *Fig*, and most ordinary *Pears*, as well as of several other *Peregrine Trees*, *Fruit-bearers* and others; for even the very *Damask-rose* it self (as my Lord *Bacon* tells us, *Cent. ii. Exp. 659.*) is little more than an hundred Years old in *England*: Methinks this should be of wonderful Incitement. It was six hundred and eighty Years after the Foundation of *Rome*, e'er *Italy* had tasted a *Cherry* of their own, which being then brought thither * out of *Pontus* (as the above-mentioned *Filberts* were) did, after one hundred and twenty Years, travel *ad ultimos Britannos*.

* *A Cerasunte*.
Indeed *Servius*, l. ii.
Geor. i. says,
it was earlier
in *Italy*; but
hard and
wild, and
usually call'd
Corna, and
sometimes
Corno-Cerofa, perhaps
the *Black-Cherry*.

8. We had our first *Myrtles* out of *Greece*, and *Cypresses* from *Crete*, which was yet a mere Stranger in *Italy*, as *Pliny* reports, and most difficult to be raised; which made *Cato* to write more concerning the *Culture* of it, than of any other *Tree*: Notwithstanding we have in this *Country* of ours, no less than three Sorts, which are all of them easily propagated, and prosper very well, if they are rightly ordered; and therefore I shall not omit to disclose one *Secret*, as well to confute a popular Error, as for the Instruction of our *Gardeners*.

9. The Tradition is, That the *Cypress* (being a *Symbol* of *Mortality*, *ferales* & *invisas*, they should say of the contrary) is never to be cut, for fear of killing it. This makes them to *impale* and *wind* them about, like so many *Ægyptian Mummies*; by which Means, the inward Parts of the *Tree* being heated, for want of *Air* and Refreshment, it never arrives to any Perfection, but is exceedingly troublesome and chargeable to maintain; whereas, indeed, there is not a more *tonfible* and governable *Plant* in Nature; for the *Cypress* may be cut to the very *Roots*, and yet spring afresh, as it does constantly in *Candy*, if not yielding *Suckers* (as *Bellonius* affirms) I rather think produced by the *Seeds*, which the *Mother-Trees* shed at the Motion of the Stem in the Felling: And this we find was the *Husbandry* in the *Isle* of *Ænaria*, where they used to fell it for *Copse*: For the *Cypress* being raised from the *Nursery* of *Seeds* sown in *September* (or rather *March*) and within two Years after *transplanted*, should at two Years standing more, have the *Master-Stem* of the middle Shaft cut off some Handsbreadth below the *Summit*; the *Sides*, and smaller Sprigs shorn into

a conic, or pyramidal Form, and so kept *clipp'd* from April to September, as oft as there is occasion; and by this *Regimen*, they will grow furnished to the Foot, and become the most beautiful Trees in the World, without *Binding* or *Stake*; still remembering to *abate* the middle Stem, and to bring up the collateral Branches in its Stead, to what Altitude you please: But when I speak of *shortening* the middle Shoot, I do not intend the *dwarfing* of it; and therefore it must be done discreetly, so as it may not over-hastily advance, till the Foot thereof be perfectly furnished. But there is likewise another, no less commendable Expedient, to dress this Tree with all the former Advantages; if sparing the Shaft altogether, you diligently cut away all the forked Branches, reserving only such as radiate directly from the Body, which being shorn, and clipt in due Season, will render the Tree very beautiful; and though more subject to obey the shaking Winds, yet the natural Spring of it does immediately redress it, without the least Discomposure; and this is a Secret worth the learning of Gardeners, who subject themselves to the Trouble of *Stakes* and *Binding*, which is very inconvenient. Thus likewise may you form them into *Hedges*, *topiary* Works, *Limits* and *Boundary*, *Metas imitata Cupressus*; or by sowing the Seeds in a shallow Furrow, and plucking up the Supernumeraries, where they come too close and thick: For in this Work, it will suffice to leave them within a Foot of each other; and when they are risen about a Yard in Height (which may be to the half of your *Palisado*) cut off their Tops, as you are taught, and keep the Sides *clipp'd*, that they ascend but by Degrees, and thicken at the Bottom as they climb. Thus they will present you (in half a Dozen or eight Years) with incomparable *Hedges*; because they are perpetually green, able to resist the Winds better than most which I know, the *Holly* only excepted, which indeed has no Peer.

10. For when I say Winds, I mean their fiercest Gusts, not their cold: For though it be said, *Brumæque illæsa Cupressus*, and that indeed no Frost impeaches them (for they grow even on the snowy Tops of *Ida*) yet our cruel eastern Winds do sometimes mortally invade them which have been late *clipp'd*, seldom the untouch'd, or that were dressed in the Spring only: The Effects of March and April Winds (in the Year 1663 and 1665) accompanied with cruel Frosts and cold Blasts, for the Space of more than two Months, Night and Day, did not, amongst near a thousand *Cypresses* (growing in my Garden) kill above three or four, which, for being very late cut to the Quick (that is, the latter End of October) were raw of their Wounds, took cold, and gangreen'd; some few others, which were a little smitten towards the Tops, might have escaped all their Blemishes, had my Gardener capp'd them but with a Wisp of Hay or Straw, as in my Absence I commanded. As for the Frost of those Winters (than which I believe there was never known a more cruel and deadly piercing since England had a Name) it did not touch a *Cypress* of mine, till it joined Forces with that destructive Wind: Therefore, for Caution, clip not your *Cypresses* late in Autumn, and cloath them (if young) against these Winds; for the Frosts they only discolour them, but seldom or never hurt them, as by long Experience I have found; nor altogether despair of the Resurrection of a *Cypress*, subverted by the Wind; for some have redressed themselves, and one (as *Ziphilinus* mentions) that rose the very next Day, which happening about the Reign of the Emperor

BOOK II. Emperor *Vespasian*, was esteem'd an happy Omen: But of such Accidents more hereafter.

11. If you affect to see your *Cypress* in *Standard*, and grow wild (which may in Time come to be of a large Substance, fit for the most immortal of *Timber*, and indeed are the least obnoxious to the Rigours of our *Winters*, provided you never *clip* or *disbranch* them) plant of the reputed *Male-fort*; it is a *Tree* which will prosper wonderfully; and where the Ground is *hot* and *gravelly*, though (as we said) he be nothing so beautiful; and it is of *this*, that the *Venetians* make their greatest Profit.

12. I have already shew'd how this *Tree* is to be rais'd from the *Seed*; but there was another *Method* amongst the *Antients*, who (as I told you) were wont to make great *Plantations* of them for their *Timber*: I have practis'd it my self, and therefore describe it.

13. If you receive your *Seed* in the roundish small *Nuts*, which use to be gathered *thrice* a Year (but seldom ripening with us) expose them to the *Sun* till they *gape*, or near a gentle *Fire*, or put them in *warm Water* (as was directed in those of *Cedar*) by which means the *Seeds* will be easily shaken out; for if you have them open before, they do not yield you half their Crop: About the Beginning of *April* (or before, if the *Weather* be *showery*) prepare an even *Bed*, which being made of fine *Earth*, clap down with your *Spade*, as *Gardeners* do for *Purselain-seed* (of old they roll'd it with some *Stone* or *Cylinder*) upon this strew your *Seeds* pretty thick; then sift over them some more *Mould*, somewhat better than half an *Inch* in height: Keep them duly *watered* after *Sun-set*, unless the Season do it for you; and after one *Year's* Growth (for they will be an *Inch* high in little more than two *Months*) you may *transplant* them where you please: If in the *Nursery*, set them at a *Foot* or eighteen *Inches* distance in even *Lines*, kept watered and moist, till they are well rooted, and fit to be removed. In watering them, I give you this *Caution* (which may also serve you for most tender and delicate *Seeds*) that you *bedew* them rather with a *Broom* or *Spergitory*, than hazard the beating them out with the common *Watering-pot*; and when they are well come up, be but sparing of *Water*: Be sure likewise that you cleanse them when the *Weeds* are very young and tender, lest instead of *purging*, you quite eradicate your *Cypress*. We have spoken of *watering*, and indeed whilst young, if well followed, they will make a prodigious Advance. When that long and incomparable Walk of *Cypress* at *Frascati* near *Rome*, was first planted, they drew a small Stream (and indeed *irrigare* is properly thus, *aquam inducere riguis*, i. e. in small *Gutters* and *Rills*) by the Foot of it (as the *Water* there is in abundance tractable) and made it (as I was credibly inform'd) arrive to seven or eight Foot Height in one Year (which does not agree with the *Epithet*, *Lenta Cupressus*); but with us, we may not be too prodigal; since, being once well taken, they thrive best in our sandy, light and warmest Grounds; whence *Cardan* says, *juxta aquas arescit*; meaning in low and moonish Places, stiff and cold Earth, &c. where they never thrive.

There is also a *Virginian Cypress*, of an enormous Height, beautiful and very spreading, the Branches and Leaves large and regular, with the *Clogs* resembling the *Cypress*; and though the *Timber* be somewhat coarse and *cross-grained*, 'tis, when polish'd, very agreeable; as I can shew in a very large *Table*, made out of the *Planks* of a *Spur* on-ly;

ly; and had Experience of its Lastingness, though exposed both to the *Air* and *Weather*. CHAP. IV.

14. What the *Uses* of this *Timber* are, for *Chests* and other *Uten- s i l s*, *Harps*, and divers other *Musical Instruments* (it being a very *sonorous Wood*, and therefore employed for *Organ-pipes*, as heretofore for *Supporters* of *Vines*, *Poles*, *Rails* and *Planks* (resisting the *Worm*, *Moth*, and all *Putrefaction* to *Eternity*) the *Venetians* sufficiently understood; who did every *twenty Year*, and oftner (the *Romans* every *thirteen*) make a considerable *Revenue* of it out of *Candy*: And certainly, a very gainful *Commodity* it was, when the *Fell* of a *Cupressetum* was heretofore reputed a good *Daughter's Portion*, and the *Plantation* it self called *Dos filiae*. But there was in *Candy* a vast *Wood* of these *Trees*, belonging to the *Republick*, by *Malice* or *Accident* (or perhaps by *solar Heat*, as were many *Woods* seventy-four *Years* after, even here in *England*) set on *Fire*, which *Anno 1400*, burning for seven *Years* continually, before it could be quite extinguished, fed so long a *Space* by the *unctuous* Nature of the *Timber*, of which there were to be seen at *Venice* *Planks* of above *four Foot* in *Breadth*; and formerly the *Valves* of *St. Peter's Church* at *Rome*, were framed of this *Material*, which lasted from the great *Constantine* to *Pope Eugenius* the *Fourth's* Time, *eleven hundred Years*; and then were found as fresh and entire as if they had been new: But this *Pope* would needs change them for *Gates* of *Brass*, which were cast by the famous *Antonio Philarete*; not in my Opinion so venerable as those of *Cypress*. It was in *Coffins* of this *Material*, that *Thucydides* tells us, the *Athenians* used to bury their *Heroes*, and the *Mummy-Chests* brought with those *condited Bodies* out of *Egypt*, are many of them of this *Material*, which 'tis probable may have lain in those dry and sandy *Crypta*, many *thousand Years*.

15. The *Timber* of this *Wood* was of infinite Esteem with the *Antients*: That lasting *Bridge* built over the *Euphrates* by *Semiramis*, was made of this *Material*; and it is reported, *Plato* chose it to write his *Laws* in, before *Brass* it self, for the *Diurnity* of the Matter: It is certain, that it never *rists* or *cleaves*, but with great *Violence*; and the *Bitterness* of its *Juice*, preserves it from all *Worms* and *Putrefaction*. To this Day those of *Crete* and *Malta* make use of it for their *Buildings*; because they have it in *Plenty*, and there is nothing outlasts it, or can be more beautiful, especially, than the *Root* of the wilder Sort, incomparable for its *crisped Undulations*. Divers learned Persons have conceived the *Gopher* mentioned in *Holy Writ*, *Gen. vi. 14.* (and of which the *Ark* was built) to have been no other than this *Κυπάρισσος*, *Cupar* or *Cuper*, by the easie Mutation of *Letters*: *Aben Ezra* names it a *light Wood* apt to swim; so does *David Kimchi*; which rather seems to agree with *Fir* or *Pine*, and such as the *Greeks* call *ξύλα τετεράγωνα* *quadrangular Trees*, about which *Criticks* have made a deal of *Stir*: But *Isa. Vossius* (on the *LXX. Cap. xi.*) has sufficiently made it out, that the *Timber* of that Denomination was of those Sort of *Trees* whose *Branches* breaking out just opposite to one another at right *Angles*, make it appear to have been *Fir*, or some Sort of *Wood* whose *Arms* grew in a uniform manner; but surely this is not to be universally taken; since we find *Yew*, and divers other *Trees*, brittle, heavy, and unapt for *Shipping*, do often put forth in that Order. The same learned *Author* will have *Gopher* to signify only *Pitch* or *Bitumen*, as

BOOK II. much as if the *Text* had said, Make an *Ark* of *resinous Timber*. The *Chaldee Paraphrase* translates it *Cedar*, or as *Junius* and *Tremellius*, *Cedrelaten*, a Species between *Fir* and *Cedar*: *Munster* contends for the *Pine*, and divers able *Divines* endeavour to prove it *Cypress*; and besides, 'tis known, that in *Crete* they employed it for the same Use in the largest *Contignations*, and did formerly build *Ships* of it: And *Epiphanius Hæres.* Lib. i. tells us, some *Relicks* of that *Ark* (*circa Campos Sennaar*) lasted even to his Days, and was judged to have been of *Cypress*. Some indeed suppose that *Gopher* was the Name of a Place, à *Cupressis*, as *Elon* à *Quercubus*; and might possibly be that which *Strabo* calls *Cupressetum*, near *Adiabene* in *Assyria*: But for the Reason of its long lasting, *Coffins* (as noted) for the *Dead* were made of it, and thence it first became to be *Diti sacra*; and the *Valves*, or *Doors* of the *Ephesine Temple* were likewise of it, as we observed but now, were those of *St. Peter's* at *Rome*: Works of *Cypress-wood*, *permanent ad diuturnitatem*, says *Vitruvius*, Lib. ii. And the *Poet*,

——perpetuâ nunquam moritura Cupresso.

MART. Ep. vi. 6.

The *Medical Virtues* of this *Tree* are for all Affects of the *Nerves*, astringent and refrigerating, for the *Hernia*, applied outwardly, or taken inwardly, for the *Dysentary*, *Strangury*, &c.

But to resume the Disquisition, whether it be truly so proper for *Shipping*, is controverted; though we also find in *Cassiodorus Var.* Lib. v. Ep. xvi. *Theodoric* (writing to the *Prætorio-præfectus*) caused Store of it to be provided for that Purpose; and *Plato* (who we told you made *Laws*, and *Titles* to be engraven in it) nominates it, *inter Arbores vavvnyois*, *utiles* Lib. iv. *Leg.* and so does *Diodorus*, Lib. xix. And as *Travellers* observe, there is no other Sort of *Timber* more fit for *Shipping*, though others think it too heavy: *Aristobulus* affirms that the *Assyrians* made all their *Vessels* of it; and indeed the *Romans* praised it, pitched with *Arabian Pitch*: And so frequent was this *Tree* about those Parts of *Assyria* (where the *Ark* is conjectured to have been built) that those vast *Armada's*, which *Alexander the Great* caused to be equipped and set out from *Babylon*, consisted only of *Cypresses*, as we learn out of *Arrian* in *Alex.* Lib. vii. and *Strabo*, Lib. xvi. *Plutar.* *Sympos.* Lib. i. Prob. ii. *Vegetius*, Lib. iv. Cap. xxxiv, &c. *Paulus Colomesius* (in his *καμὴλια literaria* Cap. xxiv.) perstringes the most learned *Is. Vossius*, that in his *Vindiciæ pro LXX. Interp.* he affirms *Cypress* not fit for *Ships*, as being none of the *τελεγγαυοι*: But besides what we have produced, *Fuller*, *Bochartus*, &c. *Lilius Gyraldus* (*Lib. de Navig.* Cap. iv.) and divers others sufficiently evince it, and that the *Vessel* built by *Trajan* was of that Material, lasting uncorrupt near 1400 Years, when it was afterwards found in a certain *Lake*; if it were not rather (as I suspect) that which *Æneas Silvius* reports to have been discovered in his Time, lying under Water in the *Numidian Lake*, crufted over with a certain ferruginous Mixture of Earth and Scales, as if it had been of *Iron*; but (as we have elsewhere noted) it was pronounced to be *Larix*, and not *Cypress*, employed by *Tiberius*: Finally (not to forget even the very *Chips* of this precious *Wood*, which give that Flavour to *Muscadines* and other rich *Wines*) I commend it for the Improvement of the *Air*, and a *Specifick* for the *Lungs*, as sending forth

Hadrian Junius Animadv. lib. i. cap. 20.

forth most sweet and *Aromatick* Emissions, whenever it is either *clipped* or handled, and the *Chips* or *Cones* being burnt, extinguish *Moths*, and expel the *Guats* and *Flies*, &c. not omitting the *Gum* which it yields, not much inferior to the *Terebinthine* or *Lentisc*.

We have often mentioned the Virtue of these *Odoriferous Woods*, for the Improvement of the *Air*; upon which I take Occasion here to add, what I have (some Years since) already * published, concerning the *Melioration* of it, in and about this great and populous City, accidentally obnoxious to the Effects of those nauseous Vapours, exhaling from those many unclean Places, and tainting that dismal Cloud of *sulphurous* (if not *arsenical*) *Smoak* which we uncessantly breath in. I know the late terrible *Conflagration*, by the Care and Industry of the *Magistrate*, in causing so many *Kernels*, *Sinks*, *Gutters*, *Lay-stalls* and other *Nusances* (Receptacles of a stagnant Filth) to be removed, must needs have exceedingly contributed to the purifying of the *Air*; as I am persuaded would appear upon a *Political* Observation in the *Bills of Mortality*: But what I yet cannot but deplore, is, that (when that spacious *Area* was so long a *Rasa Tabula*) the *Church-yards* had not been banished to the *North-walls* of the City, where a *grated Inclosure* of competent Breadth (for a Mile in Length) might have served for an universal *Cemetery*, to all the *Parishes*, distinguished by the like Separations, and with ample Walks of *Trees*; the *Walks* adorned with *Monuments*, *Inscriptions* and *Titles* apt for *Contemplation* and *Memory* of the *Defunct*; and that wise and antient Law of the twelve *Tables* restored and revived: But concerning this, and *Hortulan Buryings* upon this and other weighty Reasons, see *Cap. i. Book iv.* Happy in the mean Time, had it been for the further *Purgation* of this *August Metropolis*, had they there (or did they yet) banish and proscribe those bellish *Vulcano's*, disgorging from the *Brew-houses*, *Soap* and *Salt-Boilers*, *Chandlers*, *Hat-makers*, *Glass-houses*, *Forges*, *Lime-Kilns*, and other *Trades*, using such Quantities of *Sea-coals*, one of whose *Funnels* vomits more *Smoak* than all the *Culinary* and *Chamber-fires* of a whole *Parish*, as I have (with no small Indignation) observed, at what Time they usually put out their Fires, on *Saturday* Evening, and re-kindle on *Sunday* Night, or *Monday* Morning; perniciously infecting the ambient *Air* with a black *melancholy* Canopy, to the Detriment of the most valuable *Moveables* and *Furniture* of the *Inhabitants*, and the whole Country about it. A *Bar* of *Iron* shall be more exeded and consumed with *Rust* in one Year in this City, than in thrice-seven in the Country: Why might it not therefore be worth a severe and publick *Edict*, to remove these *Vulcano's* and *Infernal Houses* of *Smoak* to competent Distance; some down the *River*, others (which require Conveniency of *Fresh-water*) up the *Thames*, among the *Streams* about *Wandsworth*, &c? Their *Commodities* and *Manufactures* brought up to capacious *Wharfs*, on the *Bank*, or *London* Side, to the Increase of a thousand *Water-men* and other *Labourers*, of which we cannot have too many?

Now to demonstrate that not only the *Amoval* of these unsufferable *Nusances* would infinitely clarify the *Air*, and render it more wholesome, and to return to my Subject of *Trees* and *Plants*; the Reputation they have had for contributing to the *Health* of whole Countries and Cities, frequently occur in *History*: For Instance, in the *Island* of *Cyprus*, abounding with the *Trees* of that Name, and other resi-

BOOK II. *nous Plants*, curing *ulcerated Lungs*, &c. *Sardinia*, *Melancholy* and *Madness*, replanted with true *Anticyran Hellebore*, was famous; whilst *Thusus* (especially in *Summer*) brought almost all the Inhabitants to *Lunacy* and *Distraction* for want of it: And what the Effects and Benefit of such *Plantations* have produced, is conspicuous in one of the most celebrated Cities of the *East*, the famous *Ispahan*, clear'd of the *Pestilence*, since the surrounding it with that beautiful *Platan*, as I have already noted. To these add the *Bay-tree*, for abating all such Infections; of which see many famous Instances in *Cap. vi.* to which I refer. Not that there are no *nociferous* Trees, as well as *sanniferous*, which by removing the one, and planting other in their Places, make sensible Changes for the better. I give Instance, when we speak of the *Tew*; and even that otherwise incomparably useful *Shrub* the *Elder*.

Upon what therefore has been produced of Expedients for the *Melioration* of the *Air* by *Plantations* of proper Trees, I cannot but wish, that since these precious *Materials* may now be had at such tolerable Rates (as certainly they might from *Cape-Florida*, the *Vermuda*, or other Parts of the *West-Indies*) I say, I cannot but suggest that our more *wealthy* Citizens of *London*, every Day building and embellishing their Dwellings, might be encouraged to make use of it in their Shops, at least for *Shelves*, *Counters*, *Chests*, *Tables* and *Wainscot*, &c. the *Fencerings* (as they term it) and *Mouldings*; since besides the Everlastingness of the *Wood*, Enemy to *Worms*, and those other Corruptions we have named, it would likewise greatly cure and reform the Malignancy and Corrosiveness of the *Air*.

Sabin.

Sabin, or, as we call it, *Savine*, not for Dignity to be named with the former, but for its being absolutely the best *Succedaneum* to *Cypress* (which the Rigour of our *Climate* is not so benign to) if our *Gardeners* did only increase and cultivate it for the other's Defects, and bring up *Nurseries* of them for *Pyramids*, and other *Tonsile* and *Topiary* Works, they would oftner use it instead of *Cypress*: As to its other Quality, it has, indeed, an ill Report (as most other Things have when not rightly applied) whilst there is nothing more efficacious for the Destruction of *Worms* in little *Children*, the Juice being given in a Spoonful of *Milk*, dulcified with a little *Sugar*, which brings them away in Heaps; as it does in *Horses* and other *Cattle*, above all other Remedies.

There is another *Berry-bearing Savine* in warmer *Climates*, which also resembles the *Cypress*, commonly taken for the *tarrentine Cypress*, so much celebrated by *Cato*, which grew to noble *Standards*: But that, and the *Melesian*, worthy the Culture, are rare with us, and indeed is as well supplied by the more *hardy*, as well as the *sweedish Juniper*, and other *Shrubs*. The *Sabine* is easily propagated by Slips and Cuttings sooner than by the Seeds, though sometimes found in the small *squamous* Seed-Cases.

Tamaric.

Tamaric (growing to a considerable *Tree*) for its Aptness to be shorn and governed like the *Sabine* and *Cypress*, may be entertained, but not for its lasting *Verdure*, which forsakes it in *Winter*, but soon again restores it. It was of old counted *Infelix*, and under Malediction, and therefore used to wreath, and be put on the Heads of *Malefactors*: But it has other excellent Properties, in particular sovereign against the

* *Elizab. Spleen*, which, as * *Cambden* tells us, was therefore brought first into Eng-

England by Grindal Archbishop of Canterbury : They also made Cans CHAP. V.
to drink out of this Wood.

Thuya, by some called *Arbor Vitæ* (brought us from *Canada*) is an hardy *Green* all the *Winter* (though a little tarnished in very sharp Weather) raised to a *Tree* of moderate Stature, bearing a ragged Leaf, not unlike the *Cypress*, only somewhat flatter, and not so thick set and close : It bears small longish *Clogs* and *Seeds*, but takes much better by *Layers* and *Slips*, as those we have before mentioned, and may be kept into the same Shapes, but most delights in the Shade, where the Roots running shallow, the Stem needs Support. The *Leaf* being bruised between the Fingers, emits a powerful *Scent*, not easily conquered, seeming to breath something of a *sanative Unguent*, and (as I am told) makes one of the best for the Closure of green and fresh *Wounds* : But that those curious *Utensils* and Works of the *Turners*, *Bowls*, *Boxes*, *Cups*, *Mortars*, *Pestles*, &c. are of this Material (as is pretended) and pass under the Name of *Lignum Vitæ* (or rather of some of the *exotic* more close and ponderous *Wood*) as *Brasil*, *Log-wood*, &c. is a Mistake. Upon *Recension* therefore of these *Exotics*, I cannot but encourage the more frequent raising the rest of those *Semper-vivents*, especially such as are fittest for the *shrubby* Parts, and Furniture of our *Groves*, mere Gardens of Pleasure, which none but the *Ever-green* become. To these we might add (not for their *Verdure* only) other more rare *Exotics*, *Styrax*, *Arbor*, and *Terebynth*, noting, by the way, that we have no true *Turpentine* to be bought in our Shops, but what is from the *Larch* ; whilst *Apothecaries* substitute that which exsils from the *Fir-tree*, instead of it : All of them minding me again of the great Opportunities and Encouragement we have of every Day improving our Stores with so many useful Trees from the *American Plantations* ; for which I have the Suffrage of the often-cited Mr. Ray, who is certainly a very able Judge. Might we not therefore attempt the more frequent *Locust*, *Sassafras*, &c. and that Sort of *Elm*, or *Sugar-tree*, whose Juice yields that sweet *Halymus Latifolius*, and several others for Encouragement. But,

14. I produce not these Particulars, and other *amæna vireta* already mentioned, as signifying any Thing to *Timber*, the main Design of this *Treatise* (though I read of some *Myrtles* so tall, as to make *Spear-shafts*) but to *exemplifie* in what may be farther added to *Ornament* and *Pleasure*, by a cheap and most agreeable *Industry*.

C H A P. V.

Of the Cork, Ilex, Alaternus, Celastrus, Ligustrum, Philyrea, Myrtle, Lentiscus, Olive, Granade, Syring, Jasmine, and other Exotics.

WE do not exclude this useful *Tree* from those of the *Glandiferous* and *Forest* ; but being inclined to gratify the Curious, I have been induced to say something farther of such *semper Virentia*, as may be made to sort with those of our *own* (especially of the next *Chapter*.) I begin with the

1. *Cork*, [*Suber*] of which there are *two* Sorts (and divers more in the *Indies*) one of a narrow, or less jagged Leaf, and *perennial* ; the other

CORK.

BOOK II. other of a broader, falling in *Winter*; grows in the *coldest* Parts of *Biscay*, in the *North* of *New-England*, in the *South-West* of *France*, especially the second *Species*, fittest for our *Climate*; and in all Sorts of Ground, dry *Heaths*, *stony* and *rocky Mountains*, so as the Roots will run even above the Earth, where they have little to cover them; all which considered, methinks we should not despair. We have said where they grow plentifully in *France*; but by *Pliny*, *Nat. Hist.* l. xvi. c. viii. it should seem they were since transplanted thither; for he affirms there were none either *there* or in *Italy* in his Time: But I exceedingly wonder that *Carolus Stephanus*, and *Curcius*, should write so peremptorily, that there were none in *Italy*; where I my self have travelled through vast *Woods* of them about *Pisa*, *Aquin*, and in divers Tracts between *Rome* and the Kingdom of *Naples*, and in *France*. The *Spanish Cork* is a *Species* of *Enzina*, differing chiefly in the *Leaf*, which is not so prickly; and in the *Bark*, which is frequently four or five Inches thick. The Manner of *Decortication* thereof, is *once* in two or three Years to strip it in a dry Season; otherwise the intercutaneous *Moisture* endangers the *Tree*, and therefore a rainy Season is very pernicious; when the *Bark* is off, they unwarps it before the *Fire*, and press it *even*, and *that* with Weights upon the *convex* Part, and so it continues, being cold.

2. The *Uses* of *Cork* is well known amongst us, both at *Sea* and *Land*, for its resisting both Water and Air: The *Fisher-men* who deal in *Nets*, and all who deal with *Liquors*, cannot be without it: Antient Persons prefer it before *Leather* for the *Soles* of their *Shoes*, being light, dry, and resisting *Moisture*; whence the *Germans* name it *Pantoffel-holts* (Slipper-wood) perhaps from the *Greek* Παντός & φάλλος; for I find it first applied to that Purpose by the *Grecian Ladies*, whence they were called *light-footed*; I know not whether the *Epithet* do still belong to that *Sex*; but from them it is likely the *Venetian Dames* took it up for their monstrous *Choppines*; affecting, or usurping an artificial Eminency above *Men*, which *Nature* has denied them. Of one of the Sorts of *Cork* are made pretty *Cups*, and other *Vessels*, esteemed good to drink out of for *betical* Persons. The *Egyptians* made their *Coffins* of it, which being lined with a *resinous* Composition, preserved their *Dead* incorrupt. The poor People in *Spain*, lay broad *Planks* of it by their *Beds-side* to tread on (as great Persons use *Turky* and *Persian* Carpets) to defend them from the *Floor*, and sometimes they line or *wainscot* the Walls and Inside of their Houses built of *Stone*, with this *Bark*, which renders them very warm, and corrects the *Moisture* of the Air: Also they employ it for *Bee-hives*, and to double the Insides of their *Contempires*, and *Leather-cases*, wherein they put *Flask-quer's* with *Snow* to refrigerate their *Wine*. This *Tree* has beneath the *Cortex*, or *Cork*, two other *Coats*, or *Libri*, of which one is *reddish*, which they strip from the *Bole* when it is felled only; and this bears good Price with the *Tanner*; the rest of the *Wood* is very good *Firing*, and applicable to many other *Uses* of *Building*, *Palisade-work*, &c. The *Ashes* drunk, stop the *Bloody-flux*.

ILEX. 3. *Ilex, major Glandifera*, or great *Scarlet-Oak*, of several *Species*, and various in the Shape of their *Leaf*, pointed rounder, longer, &c. (a devoted *Tree* of old, and therefore *incædua*) thrives manifestly with us; witness his Majesty's *Privy-Garden* at *White-Hall*, where once flourished a goodly *Tree*, of more than *four-score* Years Growth, and there

there was lately a sickly *Imp* of it remaining : And now very many CHAP. V. raised by me, have thrived wonderfully, braving the most severe *Winters*, planted either in *Standards* or *Hedges*, which they most beautifully become. The only Difficulty is in their being dextrously removed out of the *Nursery*, with the *Mould* adhering to the *Roots* ; otherwise apt to miscarry ; and therefore best trusting to the *Acorn* for a goodly *Standard*, and that may be removed without Prejudice. Trials should be made by Grafting the *Ilex* in the *Oak-stock*, taken out of our *Woods*, or better, grown from the *Acorn* to the Bigness of one's little *Finger*.

4. By what I have touched in the *Chapter* of the *Elms*, concerning the *Peregrination* of that *Tree* into *Spain* (where even in *Pliny's* Time there were none, and where now they are in great abundance) why should we not more generally endeavour to propagate the *Ilex* amongst us, I mean, that which the *Spaniards* call the *Enzina*, and of which they have such *Woods* and profitable Plantations ? They are an hardy Sort of *Tree*, and familiarly raised from the *Acorn*, if we could have them found, and well put up in *Earth* or *Sand*, as I have found by Experience.

5. The *Wood* of these *Ilexes* is serviceable for many *Uses*, as *Stocks* of *Tools*, *Mallet-heads*, *Mall-balls*, *Chairs*, *Axle-trees*, *Wedges*, *Beetles*, *Pins*, and above all, for *Palisadoes* used in *Fortifications* : Besides, it affords so good *Fuel*, that it supplies all *Spain* almost with the best and most lasting of *Charcoals*, in vast abundance. Of the first Kind is made the *Painter's Lac*, extracted from the *Berries* ; to speak nothing of that noble Confection *Alkermes*, and that noble *Scarlet-Die* the Learned Mr. *Ray* gives us the *Process* of at large, in his *Chapter* of the *Ilexes* ; where also of their *medecinal Uses* : To this add that most accurate Description of this *Tree* and the *Vermicula* ; see *Quinquernus*, L. ii. de *Laud. Provid.* fol. 48, naturally abounding about *Alos*. The *Acorns* of the *Coccigera*, or *Dwarf-Oak*, yield excellent Nourishment for *Rustics*, sweet, and little, if at all, inferior to the *Chestnut* ; and this, and not the *Fagus*, was doubtless the true *Esculus* of the *Antients*, the Food of the *Golden Age*. The *Wood* of the *Enzina*, when old, is curiously chambletted and embroidered with natural *Vermiculations*, as if it were painted. Note, that the *Kermes-Tree* does not always produce the *Coccum*, but near the *Sea*, and where it is very hot ; nor indeed when once it comes to bear *Acorns* ; and therefore the People do often burn down the old *Trees*, that they may put forth fresh Branches, upon which they find them. This (as well as the *Oak*, *Cork*, *Beech* and *Corylus*) is numbered amongst the *Felices*, and *Lucky-Trees* ; but for what Reason, the *Alaternus* (which I am next speaking of) together with the *Agrifolium* [*Holly*] *Pines*, *Salix*, &c. should be excommunicated, as *Infelices*, I know not, unless for their being dedicated to the *infernal Deities* ; of which *Macrob. Sat.* Lib. xii. Cap. xvi. In the mean Time, take this for a general Rule, that those were called *Infelices* only, which bare no *Fruit* ; for so *Livy*, Lib. v. *Nulla folix arbor, nihil frugiferum in agro relictum*. Whence that of *Phædrus*, L. iii. *Fab.* upon *Jupiter's Esculus* :

*O nata, merito sapiens dicere omnibus
Nisi utile est quod facimus, stulta est gloria.*

Reciting the ancient *Trees* sacred to the *Diety*, the most desirable being those that were *fruitful*, and for *use*.

6. The

BOOK II.

ALATERNUS.

6. The *Alaternus*, which we have lately received from the hottest Parts, of *Languedoc* (and that is equal with the Heat of almost any Country in *Europe*) thrives with us in *England*, as if it were an *Indigine* and *Natural*; yet sometimes yielding to a severe *Winter*, followed with a tedious *Eastern* Wind in the *Spring*, of all the most hostile and cruel Enemies of our *Climate*; and therefore to be artificially and timely provided against with Shelter.

7. I have had the Honour to be the first who brought it into *Use* and *Reputation* in this *Kingdom*, for the most beautiful and useful of *Hedges* and *Verdure* in the World (the *Swiftness* of the *Growth* considered) and propagated it from *Cornwal* even to *Cumberland*: The *Seed* grows ripe with us in *August*; and the Honey-breathing *Blossoms* afford an early and marvellous Relief to the *Bees*.

CELASTRUS.

8. The *Celastrus* (of the same *Class*) *Ligustrum* and *Privitis*, so flexible and accomodate for *Topiary-works*, and so well known, I shall need say no more of.

PHILYREA.

9. The *Philyrea* (of which there are five or six Sorts, and some variegated) are sufficiently *hardy* (especially the *Seratifole*) which makes me wonder to find the *Angustifolia* planted in *Cases*, and so charily set into the *Stoves*, amongst the *Oranges* and *Lemons*; when, by long Experience, I have found it equaling our *Holly*, in suffering the extreamest Rigours of our cruel *Frosts* and *Winds*, which is doubtless (of all our *English* Trees) the most insensible and stout.

10. They are (both *Alaternus*, and *this*) raised of the *Seeds* (though those of the *Philyrea* will be long under Ground) and being transplanted for *Espalier-Hedges* or Standards, are to be governed by the *Sheers*, as oft as there is occasion: The *Alaternus* will be up in a *Month* or two after it is sown: I was wont to wash them out of the *Berry*, and drying them in a little Cloth, commit them to the *Nursery-bed*. Plant it out at two Years Growth, and clip it after *Rain* in the *Spring*, before it grows sticky, and whilst the Shoots are tender; thus will it form an *Hedge* (though planted but in single Rows, and at two Foot distance) of a Yard in Thickness, twenty Foot high (if you desire it) and furnished to the Bottom: But for an Hedge of this Altitude, it would require the Friendship of some *Wall*, or a *Frame* of lusty *Poles*, to secure against the *Winds* one of the most delicious Objects in Nature: But if we could have store of the *Philyrea folio leviter serrato* (of which I have raised some very fine *Plants* from the *Seeds*) we might fear no *Weather*, and the *Verdure* is incomparable, and all of them *tonfile*, fit for *Cradle-work* and *Umbracula frondium*: A *Decoction* of the *Angusti fol.* soveraign for sore Mouths.

MYRTLE.

11. The *Myrtle*. The vulgar *Italian* wild *Myrtle* (though not indeed the most *fragrant*) grows high, and supports all *Weathers* and *Climates*; they thrive abroad in *Bretany*, in Places cold and very sharp in *Winter*; and are observed no where to prosper so well, as by the *Sea-coasts*, the Air of which is more propitious to them (as well as to *Oranges* and *Lemons*, &c.) than the *inland* Air. I know of one near eighty Years old, which has been continually exposed, unless it be, that in some exceeding sharp Seasons, a little dry *Straw* has been thrown upon it; and where they are smitten, being cut down near the Ground, they put forth and recover again; which many Times they do not in *Pots* and *Cases*, where the *Roots* are very obnoxious to perish with *Mouldiness*. The Shelter of a few *Mats* and *Straw*, secured

cured very great Trees (both Leaf and Colour in Perfection) this last *Winter* also, which were planted *abroad*; whilst those that were carried into the *Conserve* were most of them lost. *Myrtles* (which are of six or eight Sorts) may be raised of *Seeds*; as also may several Varieties of *Oranges* and *Lemons*, and made (after some Years Attendance) to produce *Fruit* in the cold *Rhetia* and *Helvetick* Valleys; but with great Caution, and after all, seldom prove worth the Pains, being so abundantly multiplied of *Suckers*, *Slips* and *Layers*: The *Double-flower* (which is the most beautiful) was first discovered by the incomparable *Fabr. Piereshy*, which a *Mule* had cropt from a wild Shrub. Note, that you cannot give those *Plants* too much *Compost* or refreshing, nor clip them too often, even to the *Stem*; which will grow tall, and prosper into any Shape; so as *Arbours* have been made of single Trees of the hardy Kind, protected in the *Winter* with *Sheds* of Straw and Reeds. Both *Leaves* and *Berries* refrigerate, and are very *astringent* and drying, and therefore seldom used *within*, except in *Fluxes*: With *Wine* and *Honey* it heals the noisome *Polypus*, and the *Powder* corrects the Rankness of the *Arm-pits* and *Gousses* (as the *French* term it) to which divers of the *Female Sex* are subject: The *Berries* mitigate the *Inflammations* of the *Eyes*, consolidate *broken Bones*; and a *Decoction* of the *Juice*, *Leaves* and *Berries*, dyes the *Hair* black, & enecant *Vitiligenes*, as *Dioscorides* says, *Lib. i. Cap. cxxviii*. And there is an excellent sweet *Water* extracted from the distilled *Leaves* and *Flowers*: To which the *Naturalist* adds, that they used the *Berries* instead of *Pepper*, to stuff and farce with them. Hence the *Mortadella* a *Mortatula*, still so called by the *Italians*, perhaps the *μωπλίδες* of *Athenæus*, *Deip. Lib. ii. Cap. xii*. The *Vinum Myrtites* so celebrated by the * *Antients*, and so the *Oil*; and in some Places the *Leaves* for *Tanning* of *Leather*: And *Trees* have grown to such Substance, as of the very *Wood* curious *Cups* and *Boxes* have been turn'd.

* *Cato*,
Columella,
Paladius.

The Variety of this rare *Shrub*, now furnishing the *Gardens* and *Portico's* (as long as the Season and Weather suits) and even in the severest *Winters* in the *Conclave*, are cut and contrived into various Figures, and of divers *Variegations*, most likely to be produced by the *Seeds*, as our learned Mr. *Ray* believes, rather than by *Layers*, *Suckers* or *Slips*, or from any Difference of *Species*. In the mean Time, let *Gardeners* make such Trials, whilst those most worth the Culture, are the *small* and *broad-leav'd*, the *Tarentine*, the *Belgick*, *Latifolia*, and *Double-flower'd*, and several more among the Curious; and of old, sacred to *Venus*, so called from a *Virgin* belov'd of *Minerva*, the Garlands of the *Leaves* and *Blossoms*, impaling the Brows of *Incruentous* and unbloody *Victors* and *Ovations*.

And now if here, for the Name only, I mention the *Myrtus Brasanica*, or *Candle-berry* Shrub (which our Plantations in *Virginia*, and other Places have in Plenty) let it be admitted: It bears a *Berry*, which being boiled in *Water*, yields a *Suet* or *pinguid* Substance, of a *green* Colour, which being scumm'd and taken off, they make *Candles* with, in the Shape of such as we use of *Tallow*, or *Wax* rather; giving not only a very clear and sufficient Light, but a very agreeable Scent, and are now not seldom brought hither to us, but the Tree itself, of which I have seen a thriving one.

BOOK II.

MASTIC-
TREE.

12. *Lentiscus* (a very beautiful *Ever-green*) refuses not our *Climate*, protected with a little Shelter, amongst other exposed *Shrubs*, by *Suckers* and *Layers*: It is certainly an extraordinary *Astringent* and *Dryer*, applicable in the *Hernia*, *Strangury*, and to stop *Fluxes*; closes and cures *Wounds*; being infused in *red Wine*, is also used to tinge *Hairs* of that Colour, to *black* and *brown*: Not forgetting the best *Tooth-pickers* in the World, made of the *Wood*; but above all, the *Gum* for fastening loose *Teeth* in the *Gums*; the *Mastick*, gathered from this profitable Bush in the *Island of Scio*; beside other Uses: And as the *Lentisc*, so may the

OLIVE.

13. *Olive* be admitted, though it produce no other *Fruit* than the *Verdure* of the *Leaf*; nor will it kindly breath our *Air*, nor the less tender *Oleaster*, without the indulgent *Winter-house* take them in. But the

GRANATA.

14. *Granata* [*Malus Punica*] is nothing so nice. There are of this glorious *Shrub* three Sorts, easily enough educated under any warm Shelter, even to the raising *Hedges* of them, nor indeed affects it so much *Heat*, as plentiful *watering*. They supported a very severe *Winter* in my *Garden*, 1663, without any *Trouble* or *Artifice*; and if they present us their *blushing double Flowers* for the Pains of *Re-cision* and well *Pruning* (for they must diligently be purged of superfluous *Wood*) it is *Recompence* enough; though placed in a very benign *Aspect*, they have sometimes produced a pretty small *Pome*. It is a *Perdisolia* in *Winter*, and growing abroad, requires no extraordinary rich *Earth*, but that the *Mould* be loosened and eased about the *Root*, and hearty *Compost* applied in *Spring* and *Autumn*: Thus cultivated, it will rise to a pretty *Tree*, though of which there is in *Nature* none so adulterate a *Shrub*. 'Tis best increased by *Layers*, *Approch* and *Inarching* (as they term it) and is said to marry with *Laurels*, the *Damson*, *Ash*, *Almond*, *Mulberry*, *Citron*, too many I fear to hold. But after all, they do best being eased, the *Mould* well mixt with rotten *Hogs-dung*, its peculiar *Delight*, and kept to a single *Stem*, and treated like other *Plants* in the *Winter-shelter*; they open the *Bud* and *Flower*, and sometimes with a pretty small *Fruit*; the *Juice* whereof is *cooling*; the rest of an *astringent* Quality. The *Rind* may also supply the *Gall* for making *Ink*, and will tan *Leather*.

PIPE-TREE.

15. The *Syring* [*Lilac*] or *Pipe-tree*, so easily propagated by *Suckers* or *Layers*; the *Flower* of the *White* (emulating both Colour and Flavour of the *Orange*) I am told is made use of by the *Perfumers*; I should not else have named it among the *Ever-greens*; for it loses the *Leaf*, though not its *Life*, however exposed in the *Winter*: There are besides this the *Purple*, by our *Botanists* called the *Persian Julsamine*, which next leads me to the other *Jasmines*.

JASMINE.

16. The *Jasmine*, especially the *Spanish larger Flower*, far exceeding all the rest, for the agreeable *Odour* and Use of the *Perfumer*: The common *White* and *Yellow* would flower plentifully in our *Groves*, and climb about the *Trees*, being as hardy as any of our *Periclimena* and *Honey-suckles*.

How 'tis increased by *Submersion* and *Layers*, every *Gardener* skills; and were it as much employed for *Nose-gays*, &c. with us, as it is in *Italy* and *France*, they might make *Money* enough of the *Flowers*;

one

one sorry *Tree* in *Paris*, where they abound, has been worth to a poor Woman near a *Pistol* a Year. CHAP. VI.

There is no small Curiosity and Address in obtaining the *Oil*, or *Effence* (as we call it) of this delicate and *evanid Flower*, which I leave to the *Chymist* and the *Ladies*, who are worthy the Secrets.

CHAP. VI.

Of the Arbutus, Box, Yew, Holly, Pyracanth, Laurel, Bay, &c.

1. **T**HE *Arbutus* (by us called the *Strawberry-tree*) too much I think neglected by us; making that a Rarity, which grows so common and naturally in *Ireland*: It is indeed with some Difficulty raised by *Seeds*, but propagated by *Layers*; if skilfully *pruned*, grows to a goodly Tree, patient of our *Clime*, unless the Weather be very severe: It may be contrived into most beautiful *Palisades*, is ever *verdant*: I am told the Tree grows to a huge Bulk and Height in Mount *Athos* and other Countries: *Virgil* reports its *Inoculation* with the *Nut*; and I find *Bauhinus* commends the *Coal* for the *Goldsmiths* Works; and the *Poet*,

^a *Arbutus Harrows, and the mystick Van.*

2. *Buxus*, the *Box*, which we begin to *proscribe* our *Gardens* (and indeed *Bees* are no Friend to it) should not yet be banished from our Care; because the Excellency of the *Wood* does commute for the Unagreeableness of its Smell: Therefore let us furnish our cold and barren *Hills* and *Declivities* with this useful *Shrub*, I mean the taller Sort; for *Dwarf* and more *Tonsile* in due Place. It will increase abundantly of *Slips* set in *March*, and towards *Bartholomew-tide*, as also of the *Seeds* contained in the *Cells*. These Trees rise naturally at *Boxley* in *Kent* in abundance, and in the County of *Surrey*, giving name to that chalky Hill (near the famous *Mole* or *Swallow*) whither the *Ladies*, *Gentlemen* and other *Water-drinkers* from the neighbouring *Ebesham-Spaw*, often resort during the heat of Summer to *walk*, *collation* and *divert* themselves in those *antilex* natural Alleys, and shady Recesses, among the *Box-trees*; without taking any such Offence at the Smell, which has of late banished it from our *Groves* and *Gardens*; when after all, it is infinitely to be preferred for the bordering of *Flower-beds*, and flat *Embroideries*, to any sweeter less-lasting *Shrub* whatever, subject after a Year or two to grow *dry*, *sticky* and full of *Gaps*; which *Box* is so little obnoxious to, that, braving all Seasons, it needs not to be renewed for twenty Years together, nor kept in order with the *Garden-sheers*, above once or twice a Year; and immediately upon that, the casting *Water* on it, hinders all those offensive *Emissions*, which some complain of. But whilst I speak in Favour of this Sort of *Edging*, I only recommend the Use of the *Dutch-box* (rarely found growing in *England*) which is a *pumil* dwarf Kind, with a smaller Leaf, and flow of Growth, and which needs not be kept above two Inches high, and yet grows so close, that Beds bordered with *Boards*, keep not the Earth

^a *Arbutus crates, & mystica Vannus Iacchi.*

Georg. i.

BOOK II. in better Order; beside, the Pleasantness of the *Verdure* is incomparable. One Thing more I think fit to add; that it may be convenient once in four or five, or six Years, to cut off the *Strings* and *Roots* which straggle into the Borders, with a very sharp *Spade*, that they may not prejudice the *Flowers*, and what else one plants in them.

I need not speak much of the Uses of this *Tree* (growing in Time to considerable Stature) so continually sought after for many Utenfils, being so hard, close and ponderous as to sink like Lead in Water, and therefore of special Use for the *Turner*, *Engraver*, *Carver*, *Mathematical-Instrument*, *Comb* and *Pipe-makers* (*Si buxos inflare juvat*——*Virg.*) give great Prices for it by *Weight*, as well as Measure; and by the *seasoning*, and divers Manner of *cutting*, vigorous *Insolations*, *Politure* and *Grinding*, the *Roots* of this *Tree* (as of even our common and neglected *Thorn*) do furnish the *Inlayer* and *Cabinet-makers* with Pieces rarely *undulated*, and full of Variety. Also of *Box* are made *Wheels* or *Shivers* (as our *Ship-Carpenters* call them) and *Pins* for *Blocks* and *Pulleys*; *Pegs* for *Musical-Instruments*; *Nut-crackers*, *Weavers-shuttles*, *Hollar-sticks*, *Bump-sticks*, and *Dressers* for the *Shoe-maker*, *Rulers*, *Rolling-pins*, *Pestles*, *Mall-balls*, *Beetles*, *Tops*, *Tables*, *Chefs-men*, *Screws*, Male and Female, *Bobins* for *Bone-lace*, *Spoons*, nay the stoutest *Axle-trees*, but above all,

a ——— Box Combs bear no small Part
In the Militia of the Female Art;
They tie the Links which hold our Gallants fast,
And spread the Nets to which fond Lovers fast.

3. The *Chymical Oil* of this *Wood* has done the Feats of the best *Guaiacum* (though in greater Quantity) for the Cure of *Venereal* Diseases, as one of the most expert *Physicians* in *Europe* has confessed. The *Oil* asswages the *Tooth-ach*. But, says *Rhodoginus*, the *Honey* which is made at *Trevifond* in *Box-trees* (I suppose he means gathered among them; for there are few, I believe, if any, so large and hollow as to lodge and hive them) renders them distracted who eat of it. *Lib. xxiii. Cap. xxv.*

YEW.

4. Since the Use of *Bows* is laid aside amongst us, the Propagation of the *Yew-tree* (of which we have two Sorts, and other Places reckon more, as the *Arcadian* Black and Red; the Yellow of *Ida*, infinitely esteemed of old) is likewise quite forborn; but the Neglect of it is to be deplored; seeing that (besides the Rarity of it in *Italy* and *France*, where but little of it grows) the barrenest Grounds, and coldest of our Mountains (for

——— *Aquilonem & frigora taxi*)

might be profitably replenished with them: I say, profitably, for, besides the Use of the *Wood* for *Bows*,

——— *Ityraeos taxi torquentur in arcus.*

(For which the close and more deeply dyed is best) the forementioned *Artists* in *Box*, *Cabinet-makers*, *Inlayers*, and for the *Parquetè-floors*, most gladly employ it; and in *Germany* they use to *wainscot* their Stoves with Boards of this Material: Also for the *Cogs* of *Mills*, *Posts*

a ——— non ultima belli
Arma Puellaris; Laqueos hæc nectit Amantùm,
Et venatricis disponit retia Formæ.

COULEII, Pl. Lib. vi.

to be set in moist Grounds, and everlasting *Axle-trees*, there is none to be compared with it; likewise for the Bodies of *Lutes*, *Theorbo's*, *Bowls*, *Wheels*, and *Pins* for *Pullies*; yea, and for *Tankards* to drink out of: Whatever *Pliny* reports concerning its *Shade*, and the Stories of the Air about *Thasius*, the Fate of *Cativulcus*, mentioned by *Cesar*, and the ill Report which the *Fruit* has vulgarly obtained in *France*, *Spain* and *Arcadia*. But,

^b *How are poor Trees traduc'd?*

5. The *Toxic* Quality was certainly in the *Liquor*, which those good *Fellows* tipped out of those *Bottles*, not in the *Nature* of the *Wood*; which yet he affirms is cured of that *venenous* Quality, by driving a *Brazen-wedge* into the Body of it. This I have never tried, but that of the *Shade* and *Fruit* I have frequently, without any deadly or noxious Effects: So that I am of Opinion, that *Tree* which *Sestius* calls *Smilax*, and our *Historian* thinks to be our *Tew*, was some other *Wood*; and yet I acknowledge that it is esteemed noxious to *Cattle* when 'tis in the *Seeds*, or newly sprouting; though I marvel there appears no more such Effects of it, both *Horses* and other *Cattle* being free to brouse on it, where it naturally grows: But what is very odd (if true) is, that which the late Mr. *Aubrey* recounts (in his *Miscellanies*) of a *Gentlewoman* that had long been ill, without any Benefit from the *Physician*; who dreamed, that a Friend of hers deceased, told her Mother, that if she gave her Daughter a Drink of *Tew* pounded, she should recover: She accordingly gave it her, and she presently died. The *Mother* being almost distracted for the Loss of her *Daughter*, her *Chamber-maid*, to comfort her, said, Surely what she gave her was not the Occasion of her Death, and that she would adventure on it herself; she did so, and died also: Whether all this be but a *Dream*, I cannot tell, but it was haply from these *lugubrious* Effects, that *Garlands* of *Taxus* were usually carried at *Funerals*, as *Statius* implies in *Epicidium Vernæ*: However, to prevent all *funest Accidents*, I commend the *Tree* only for the Usefulness of the *Timber*, and *hortulan Ornament*. That we find it so universally planted in our *Church-yards*, was doubtless some *Symbol* of *Immortality*, the *Tree* being so lasting, and always green. Our *Bee-Masters* banish it from about their *Apiaries*.

One Thing more, whilst I am speaking of this *Tree*; it minds me of that very odd Story I find related by Mr. *Cambden*, of a certain amorous *Clergy-man*, that falling in Love with a pretty Maid who refused his *Addresses*, cut off her Head; which being hung upon a *Tew-tree* 'till it was rotten, the *Tree* was reputed so sacred, not only whilst the *Virgin's* Head hung on it, but as long as the *Tree* it self lasted; to which the People went in Pilgrimage, plucking and bearing away Branches of it, as an holy *Relick*, whilst there remained any of the Trunk left, persuading themselves, that those small fine *Veins* and *Filaments* (resembling *Hairs* between the Bark and the Body of the *Tree*) were the *Hairs* of the *Virgin*: But what is yet stranger, that the Resort to this Place (then called *Houton*) (from a despicable Village) occasioned the building of the now famous Town *Hallifax* in *Yorkshire*, which imports *Holy-hair*. By this, and the like, may we estimate what a World of *Impostures* have, through Craft and Superstition, gained the Repute of holy Places, abounding with rich Oblations (their *Devotas*).

a — Quam multa Arboribus tribuuntur crimina falsa?

Pliny speaks of an old *Lotus* Tree in a Grove near *Rome*, which they called *Capitate*, upon which the *Vestals* present (as our *Nuns*) were used to hang their *Hair* cut off at their *Profession*. *Plin. Lib. xvi. Cap. xliii.* But that is nothing to this.

I may not in the mean Time omit what has been said of the true *Taxus* of the *Antients*, for being a *mortiferous* Plant. *Dr. Belluccio*, *President* of the *Medical Garden* at *Pisa* in *Tuscany* (where they have this Curiosity) affirms, that when his *Gardeners* clip it (as sometimes they do) they are not able to work above half an Hour at a Time, it makes their Heads so ake: But the Leaves of this Tree are more like the *Fir*, and is very bushy, furnished with Leaves from the very Root, and seeming rather an *Hedge* than a *Tree*, though it grow very tall.

6. This *English Yew-tree* is easily produced of the *Seeds*, washed and cleansed from their *Mucilage*, then buried and dried in Sand a little moist, any Time in *December*, and so kept in some Vessel in the House all Winter, and in some cool shady Place Abroad all the Summer, sow them the Spring after: Some bury them in the Ground like *Haws*; it will commonly be the second Winter e'er they peep, and then they rise with their *Caps* on their *Heads*. Being three Years old, you may transplant them, and form them into *Standards*, *Knobs*, *Walks*, *Hedges*, &c. in all which Works they succeed marvellous well, and are worth our Patience for their *perennial Verdure* and *Durableness*. I do again name them for *Hedges*, preferable for Beauty, and a stiff Defence to any Plant I have ever seen, and may upon that Account (without Vanity) be said to have been the first which brought it into Fashion, as well for Defence, as for a *Succedaneum* to *Cypresses*, whether in *Hedges* or *Pyramids*, *Conic-spires*, *Bowls*, or what other Shapes, adorning the *Parks* or larger *Avenues* with their lofty Tops thirty Foot high, and braving all the Efforts of the most rigid Winter, which *Cypresses* cannot weather. I have said how long-lasting they are, and easily to be shaped and clipped; nay, cut down, revive: But those which are much superannuated, and perhaps of many hundred Years standing, perish if so used.

7. He that in *Winter* should behold some of our highest *Hills* in *Surrey*, clad with whole *Woods* of these two last Sort of *Trees*, for divers Miles in *Circuit* (as in those delicious *Groves* of them, belonging to the *Honourable*, my noble Friend, the late Sir *Adam Brown* of *Bechworth-Castle*, from *Box-hill*) might, without the least Violence to his *Imagination*, easily fancy himself transported into some new or enchanted *Country*; for, if any Spot of *England*,

a ————— 'tis here

Eternal Spring, and Summer all the Year.

Of which I have already spoken in the former *Section*.

HOLLY.

8. But above all the natural *Greens* which enrich our *home-born* Store, there is none certainly to be compared to the *Agrifolium* (or *Acuifolium* rather) our *Holly* so spontaneously growing here in this Part of *Surrey*, that the large *Vale* near my own Dwelling, was anciently called *Holmes-Dale*; famous for the Flight of the *Danes*. The Inhabitants of great *Antiquity* (in their *Manners*, *Habits*, *Speech*) have a Proverb, *Homes-Dale never won; ne, never shall*. It had once a *Fort*, called *Homes-Dale-Castle*: I know not whether it might

* Hic ver perpetuum, atque alienis mensibus æstas.

not be that of *Rygate*; but leaving this uncertain, and return to CHAP. VI.
 the Plant, I have often wondered at our *Curiosity* after foreign Plants,
 and expensive *Difficulties*, to the Neglect of the *Culture* of this vul-
 gar, but *incomparable* Tree; whether we will propagate it for *Use*
 and *Defence*, or for *Sight* and *Ornament*.

^a *A Hedge of Holly, Theeves that would invade,
 Repulses like a growing Palifade;
 Whose numerous Leaves such Orient Greens invest,
 As in deep Winter do the Spring arrest.*

Which makes me wonder why it should be reckoned among the *unfor-
 tunate* Trees, by *Macrobius*, *Sat. Lib. iii. Cap. xx.* Others among the
Lucky; for so it seems they used to send Branches of it, as well as of
Oak (the most *fortunate*, according to the *Gentile Theology*) with their
Strenæ (New-Years Gifts) begun (as *Symachus* tells us) by *K. Tatius*,
 almost as old as *Rome* her self.

But to say no more of these *superstitious Fopperies*, which are many
 other about this Tree, we still dress up both our *Churches* and *Houses*,
 on *Christmas* and other Festival Days, with this cheerful green and
rutilant Berries.

9. Is there under *Heaven* a more glorious and refreshing Object of
 the Kind, than an impregnable *Hedge* of about *four hundred Foot* in
Length, *nine Foot high*, and *five in Diameter*; which I can shew in
 my now ruined *Gardens* at *Say's-Court* (thanks to the *Czar of Mos-
 covy*) at any Time of the Year, glittering with its armed and varnished
Leaves? The taller *Standards* at orderly Distances, blushing with
 their natural *Coral*: It mocks at the rudest Assaults of the *Weather*,
Beasts, or *Hedge-breakers*,

Et illum nemo impune laceffit.

It is with us of *two* eminent Kinds, the *prickly*, and *smoother leaved*;
 or, as some term it, the *Free-Holly*, not unwelcome, when tender, to
Sheep and other *Cattle*: There is also of the *White-berried*, and a
Golden and *Silver*, variegated in six or seven Differences, which pro-
 ceeds from no Difference in the *Species*, but accidentally, and *Naturæ*
Lusu, as most such *Variegations* do; since we are taught how to effect
 it *artificially*, namely, by sowing the *Seeds*, and planting in *gravelly*
Soil, mixed with store of *Chalk*, and pressing it hard down; it being
 certain, that they return to their *native Colour* when sown in richer
Mould, and that all the *Fibres* of the *Roots* recover their natural Food.

10. I have already shewed how it is to be raised of the *Berries* (of
 which there is a Sort bears them *Yellow*, and propagate their *Colour*)
 when they are ready to drop, this only omitted, that they would first
 be freed from their tenacious and glutinous *Mucilage* by being washed,
 and a little bruised, then dried with a Cloth; or else bury them as you
 do the *Tew* and *Hips*; and let our *Forester* receive *this* for no com-
 mon Secret, and take notice of the Effect: If you will sow them in
 the *Berry*, keep them in dry *Sand* till *March*; remove them also af-
 ter three or four Years; but if you plant the *Sets* (which is likewise

^a — Mala furta hominum densis mucronibus arcens
 Securus defendit inexpugnabilis Hortum;
 Exornatque simul, toto spectabilis anno,
 Et numero, & viridi foliorum luce nitentum.

COULTRII, Pl. i. 6.

BOOK II. a commendable Way, and the *Woods* will furnish enough) place 'em *Northwards*, as they do *Quick*. Of *this*, might there living *Pales* and Enclosures be made (such as the Right Honourable my Lord *Darres*, somewhere in *Suffex*, has a *Park* almost environ'd with, able to keep in any *Game*, as I am credibly informed) and cut into *square Hedges*, it becomes impenetrable, and will thrive in *hottest*, as well as the *coldest* Places. I have seen *Hedges*, or if you will, stout *Walls* of *Holly* twenty Foot in height, kept upright, and the *gilded* Sort budded low, and in two or three Places one above another, shorn and fashioned into *Columns* and *Pilasters*, *architectonically* shap'd, and at due Distance; than which nothing can possibly be more pleasant, the *Berry* adorning the *Intercolumniations*, with the *scarlet Festoons* and *Encarpa*. Of this noble *Tree* one may take thousands of them four Inches long, out of the *Woods* (amongst the fall'n Leaves whereof they sow themselves) and so plant them; but this should be before the *Cattle* begin to crop them, especially *Sheep*, who are greedy of them when tender: Stick them into the Ground in a *moist* Season, *Spring*, or early *Autumn*, especially the *Spring*, shaded (if it prove too hot and scorching) till they begin to shoot of themselves, and in very sharp Weather, and during our *Eastern Etesians*, covered with dry *Straw* or *Haume*; and if any of them seem to perish, cut it close, and you shall soon see it revive. Of these Seedlings, and by this Culture, I have raised *Plants* and *Hedges* full four Foot high in four Years: The lustier and bigger the *Sets* are, the better, and if you can procure such as are a Thumbs-breadth thick, they will soon furnish into an *Hedge*. At *Dengeness* in *Kent*, they grow naturally amongst the very *Beech* and *Pebbles*; but if your Ground be stiff, loosen it with a little fine *Gravel*: This rare *Hedge* (the Boast of my *Villa*) was planted upon a *burning* Gravel, exposed to the *Meridian* Sun; for it refuses not almost any Sort of barren Ground, hot or cold, and often indicates where *Coals* are to be dug.

11. True it is, that *Time* must bring this *Tree* to Perfection; it does so to all Things else, & *posteritati* *pangimus*. But what if a little Culture about the *Roots* (not *dunging*, which it abhors) and frequent stirring of the *Mould*, double its Growth? We stay *seven Years* for a tolerable *Quick*, it is worth staying it *thrice*, for *this*, which has no *Competitor*.

12. And yet there is an Expedient to effect it more insensibly, by planting it with the *Quick*: Let every *fifth* or *sixth* be an *Holly-set*; they will grow up infallibly with your *Quick*; and as *they* begin to spread, make way for them by extirpating the *White-thorn*, till they quite domineer: Thus was my *Hedge* first planted, without the least Interruption to the *Fence*, by a most pleasant *Metamorphosis*. But there is also another, not less applauded, by laying along well-rooted *Sets* (a Yard or more in length) and stripping off the *Leaves* and *Branches*, letting only something of the *Tops* appear: These, cover'd with a competent Depth of Earth, will send forth innumerable *Suckers*, which will suddenly advance into an *Hedge*; and grows as well under the *Shade* as *Sun*, provided you keep them *weeded*, and now and then loosen the Earth; towards which, if through extream Neglect, or other Accident, it grow thin, being close cut down, it will fill and become stronger and thicker than ever.

Of this stately *Shrub* (as some reckon it) there is lately found an *Holly*, whose Leaves are as *thorny* and *bristly*, not only at the Edges, but all over, as an *Hedge-Hog*, which it may properly be called; and I think was first brought by Mr. *London* out of *France*. CHAP. VI.

13. The *Timber* of the *Holly* (besides that it is the *whitest* of all hard *Woods*, and therefore used by the *Inlayer*, especially under thin Plates of *Ivory*, to render it more conspicuous) is for all sturdy *Uses*; the *Mill-wright*, *Turner* and *Engraver* prefer it to any other: It makes the best *Handles* and *Stocks* for *Tools*, *Flails*, *Riding-rods* the best, and *Carters Whips*; *Bowles*, *Chivers*, and *Pins* for *Blocks*: Also it excels for *Door-bars* and *Bolts*; and as of the *Elm*, so of this especially, they made even *Hinges* and *Hooks* to serve instead of *Iron*, sinking in the *Water* like it; and of the *Bark* is composed our *Bird-lime* thus:

14. Peel a good Quantity of the *Bark* about *Midsummer*; fill a *Vessel* with it, and put to it *Spring-water*; then boil it, till the *gray* and *white Bark* rise from the *green*, which will require near twelve Hours boiling; then taking it off the *Fire*, separate the *Barks*, the *Water* first well drained from it: Then lay the *green Bark* on the *Earth*, in some cool *Vault* or *Cellar*, covering it with any Sort of green and rank *Weeds*, such as *Dock*, *Thistles*, *Hemlock*, &c. to a good Thickness: Thus let it continue near a *Fortnight*, by which Time 'twill become a perfect *Mucilage*: Then pound it all exceedingly in a *Stone Mortar*, till it be a tough *Paste*, and so very fine, as no Part of the *Bark* be discernable: This done, wash it accurately well in some running Stream of *Water*, as long as you perceive the least *Ordure* or *Motes* in it, and so reserve it in some *earthen Pot*, to purge and ferment, scumming it as often as any thing arises for four or five Days, and when no more *Filth* comes, change it into a *fresh Vessel* of *Earth*, and reserve it for Use, thus: Take what Quantity you please of it, and in an *earthen Pipkin*, add a *third Part* of *Capons* or *Goose-grease* to it, well clarified, or *Oil of Walnuts*, which is better; incorporate these on a gentle *Fire*, continually stirring it till it be cold, and thus your *Composition* is finished. But to prevent *Frosts* (which in severe Weather will sometimes invade it on the *Rods*) take a quarter of as much *Oil of Petroleum* as you do of *Grease*, and no cold whatever will congeal it. The *Italians* make their *Vischio* of the *Berries* of the *Mistletoe* of *Trees* (and indeed it is from this it is said of the *Thrush*, *Exitium suum cascet*, that *Bird* being so exceeding Devourers of them) treated much after the same manner; but then they mix it with *Nut-oil*, an *Ounce* to a *Pound* of *Lime*, and taking it from the *Fire*, add half an *Ounce* of *Turpentine*, which qualifies it also for the *Water*. Great Quantities of *Bird-lime* are brought to us out of *Turky*, and from *Damascus*, which some conceive to be made of *Sebestens*, finding sometimes the *Kernels*. This *Lime* is of a *greener Colour*, subject to *Frosts*, and impatient of *Wet*, nor will last above a *Year* or two good: Another Sort comes also out of *Syria*, of a *yellow Hue*; likewise from *Spain*, whiter than the rest, which will resist the *Water*, but is of an ill Scent. I have been told that the *Cortex* of our *Lantana*, or *wayfaring Shrub*, will make as good *Bird-lime* as the best. But let these suffice, being more than as yet any one has published. The superior *Leaves* of *Holly-trees*, dried to a fine *Powder*, and drunk in *White-wine*, are prevalent against the *Stone*,
S f and

BOOK II. and cure *Fluxes*; and a Dozen of the mature *Berries*, being swallowed, purge *Phlegm* without danger. To which the learned Mr. Ray (in *Append. Plant. Angl.*) adds a *Zythogalum*, or *Poffet*, made of *Milk* and *Beer*, in which is boiled some of the most pointed *Leaves*, for assuaging the Torment of the *Cholic*, when nothing else has prevailed. And now I might have here planted the

PYRACANTHA.

15. *Pyracantha*, both for its perpetual *Verdure*, if the *Fences* had not already challenged it, *Chap. xx. Lib. i.*

16. The *Lauro-Cerasus*, or *Cherry-Bay*, which by the Use we commonly put it to, seems as if it had been only destin'd for *Hedges*, and to cover bare *Walls*: Being planted upright, and kept to the *Standard*, by cutting away the collateral *Branches*, and maintaining one *Stem*, will rise to a very considerable *Tree*; and (for the first twenty Years) resembling the most beautiful-headed *Orange*, in *Shape* and *Verdure*, arrive in Time to emulate even some of our lusty *Timber-trees*; so as I dare pronounce the *Laurel* to be one of the most proper and ornamental *Trees* for *Walks* and *Avenues*, of any growing.

17. Pity it is they are so abused in the *Hedges*, where the lower *Branches* growing sticky and dry, by Reason of their frequent and unseasonable cutting (with the *Genius* of the *Tree*, which is to spend much in *Wood*) they never succeed after the first six or seven Years; but are to be new-planted again, or abated to the very *Roots* for a fresh *Shoot*, which is best, and soon would furnish the Places. In a Word; as to the pruning of *Evergreen-Hedges*, there is no small Skill and Address to be used, in forming and trimming them for *Beauty* and *Stability*; by leaving the lower Parts next the Ground broader (two Foot were sufficient for the Thickness of the tallest *Hedge*) than the Tops, gradually, so as not much to exceed a Foot breadth at the upmost Verge (as *Architects* diminish *Walls* of *Stone* and *Brick* from the Foundation) for they will else be apt to bend and swag, especially laden with *Winter Snows* or *Ice*; grow too thick, heat, wither, and foul within, dry and sticky especially; when it were more than Time they were cut close to the Earth, for a fresh and verdant Spring; and this Method is to be practised in all *Hedges* whatsoever.

18. But would you yet improve the *Standard*, which I celebrate, to greater and more speedy Exaltation? Bud your *Laurel* on the *Black-Cherry-Stock* to what height you please: This I had from an ocular Testimony, who was more than somewhat doubtful of such *Alliances*; though something like it in *Palladius*, speaks it not so impossible;

^a A *Cherry graft* on *Laurel-stock*, does stain
The *Virgin Fruit* in a deep double Grain.

19. They are raised of the *Seeds* or *Berries* with extraordinary Facility, or propagated by *Layers*, *Taleæ*, and *Cuttings*, set about the latter End of *August*, or earlier at *St. James-tide*, wherever there is Shade and Moisture. Besides that of the *Wood*, the *Leaves* of this *Laurel* boiled in *Milk*, impart a very grateful Taste of the *Almond*; and of the *Berry* (or *Cherries* rather, of which *Poultry* generally feed on) is made a *Wine*, to some not unpleasant. I find little concerning the Uses of this *Tree*; of the *Wood* are said to be made the best *Plow-handles*. Now that this rare *Tree* was first brought from

^a Inferitur lauro Cerasus, partuque coacto
Tingit adoptivus virginis ora pudor.

Civitta-Vecchia into *England*, by the Countess of *Arundel*, Wife to CHAP. VI. that illustrious Patron of Arts and Antiquities, *Thomas Earl of Arundel* and *Surrey*, Great-Great-Grandfather to his Grace the present Duke of *Norfolk*, whom I left sick at *Padoua*, where he died; highly displeased at his Grand-son *Philip's* putting on the *Friars-Frock*, though afterwards the *Purple*, when Cardinal of *Norfolk*: After all, I cannot easily assent to the Tradition, though I had it from a noble Hand: I rather think it might first be brought out of some more northerly Clime, the Nature of the Tree so delighting and flourishing in the shady and colder Exposures, and Abhorrence of Heat.

To crown this Chapter then, though in the last Place (for so *Finis Coronat Opus*) we reserve the *Bay-Tree*.

20. *Bays* [*Laurus Vulgaris*] the learned *Isaac Vossius*, and *Etymo-* BAYS. *logists*, are wonderfully curious in their Conjecture concerning its Derivation; (a *Laude*, says *Issidore*) and from the ingenious *Poet*, we Met. i. learn how it became sacred to *Apollo*, the Patron of the *Wits*, and ever since the Meed of Conquerors and heroic Persons. But leaving *Fiction*, we pass to the Culture of this noble and fragrant Tree, propagated both by their Seeds, Roots, Suckers or Layers: They (namely the Berries) should be gathered dropping ripe. *Pliny* has a particular Process for the ordering of them, not to be rejected, which is to gather them in *January*, and spreading them till their Sweat be over; then he puts them in *Dung*, and sows them: As for the steeping in *Wine*, *Water* does altogether as well, others wash the Seeds from their Mucilage, by breaking and bruising the glutinous Berries; then sow them in rich Ground in *March*, by Scores in a Heap; and indeed so they will come up in Clusters, but nothing so well, nor fit for Transplantation, as where they are interred with a competent Scattering, so as you would furrow Pease. Both this Way, and by setting them apart (which I most commend) I have raised Multitudes, and that in the Berries, kept in *Sand* till the *Spring*, without any farther Preparation; only for the first two Years, they would be defended from the piercing Winds, which frequently destroy them; and yet the scorching of their tender Leaves ought not to make you despair, for many of them will recover beyond Expectation; nay, though quite cut down, they repullulate and produce young Suckers. Such as are raised of Berries, may at three Years growth be transplanted; which let alone too long, are difficult to take.

21. This Aromatic Tree greatly loves the Mother's Shade (under which nothing else will prosper) yet thrives best in our hottest Gravel, having once passed those first Difficulties: Age and Culture about the Roots, wonderfully augment its Growth; so as I have seen Trees near thirty Foot high of them, and almost two Foot Diameter. They make Walking-staves, strait, strong and light, for old Gentlemen; and are fit also both for Arbour and Palisade-work, so the Gardener understand when to prune and keep it from growing too woody. And here I cannot but take notice of those beautiful Case-standards, which of late you have had out of *Flanders*, &c. with Stems so even and upright; Heads so round, full and flourishing, as seem to exceed all the topiary Ornaments of the Garden; that one Tree of them has been sold for more than twenty Pounds; though now the Mystery revealed, the Price be much abated: And doubtless as good might be raised here (without sending beyond Sea for them) were our Gardeners as industrious

BOOK II. *strious to cultivate and shape them. Some there are, who imagine them of another Species than our ordinary Bay, but erroneously. I wonder we plant not whole Groves of them and abroad; they being hardy enough, grow upright, and would make a noble Daphneon. The Berries are emollient, soveraign in Affections of the Nerves, Cholicks, Gargarisms, Baths, Salves and Perfumes: Bay-leaves dried in a Fire-pan, and reduced to a fine Powder, as much as will cover half a Crown, being drank in Wine, seldom fail of curing an Ague. And some have used the Leaves instead of Cloves, imparting its Relish in Sauce, especially of Fish; and the very dry Sticks of the Tree, strew'd over with a little Powder or Dust of Sulphur, and vehemently rubb'd against one another, will immediately take Fire; as will likewise the Wood of an old Ivy; nay, without any intente Addition, by Friction only.*

22. Amongst other Things, it has of old been observed that the Bay is ominous of some funest Accident, if that be so accounted which Suetonius (in Galba) affirms to have happened before the Death of the Monster Nero, when these Trees generally wither'd to the very Roots in a very mild Winter: And much later, that in the Year 1629, when at Padoua, preceding a great Pestilence, almost all the Bay-trees about that famous University grew sick and perished: *Certo quasi presagio* (says my Author) *Apollinem Musasq; subsequenti anno urbe illa bonarum literarum domicilio excessuras.*— But that this was extraordinary, we are told the Emperor Claudius, upon occasion of a raging Pestilence, was, by his Physicians, advised to remove his Court to Laurentium, the aromatick Emissions of that Tree being in such Reputation for clearing the Air, and resisting Contagion; upon which Account I question not but Pliny (the Nephew) was so frequently at his beloved Laurentium, so near the City. Besides, for their Virtue against Lightning, which Tiberius so exceedingly dreaded, that when it came with Thunder, he would creep under his Bed to avoid it, and shaded his Head with the Boughs. The Story of the Branch in the Bill of the white Hen, let fall into the Lap of Livia Drusilla, being planted, prosper'd so floridly, as made it reputed so sacred, as to use it for impaling the Heads of the triumphing Emperors, and to adorn the Limina of the Temples and Royal Palace of the great Pontiff; and thence called Janitrices Cesarum.

*Cum tandem apposita valantur limina lauro,
Cingit & Augustus arbor opaca fores!
Num quia perpetuos meruerunt ista triumphos?*

As still at present in Rome and other Cities, they use to trim up their Churches and Monasteries on solemn Festivals, when there is Station and Indulgences granted in Honour of the Saint or Patron; as also on Occasion of signal Victories, and other joyful Tidings; and those Garlands made up with Hobby-horse Tinsel, make a glittering Show, and rattling Noise when the Air moves them.

With the Leaves of Laurel, they made up their Dispatches and Letters, *Laurcis involuta*, wrapt in Bay-leaves, which they sent to the Senate from the victorious General: The Spears, Lances and, Fasces, nay Tents and Ships, &c. were all dress'd up with Laurels; and in Triumph every Common Soldier carried a Sprig in their Hand,

as we may see in the antient and best *Bass-relievo* of the *Antients*, CHAP. VII.
 as of Virtue to purge them from Blood and Slaughter. And now after
 all this, might one conjecture by a mere Inspection of those several
Sculps, Statues and Medals yet extant, representing the *Heads* of
Emperors, Poets, &c. the *Wreaths* and *Coronets* seem to be com-
 posed of a more *flexible* and compliant *Species* than the common *Bay*,
 and more applicable to the *Brows*, except where the *Ends* and *Stalks*
 of the tender Branch were tied together with a *Lemnisc* or *Ribbon*.
 And there be yet * who contend for the *Alexandrian Laurel*, and
 the *Tinus* as more *ductile*; but without any good Evidence. *Pliny*
 I find says nothing of this *Question*, naming only the *Cyprian* and
Delphic; besides, the *Figure, Colour* of the *Rind* and *Leaf*, Crackling
 in the *Fire*, which it impugns (as 'tis said it does *Lightning*) gives
 plainly the *Honour* of it to the common *Bay*. We say nothing of its
sacred Use in the *Gentile Lustration, Purgation*, and several other
Attributes. To conclude;

^a From Laurel * chew'd the Pythian Priestess rose,
 Events of future Actions to disclose.
 Laurel triumphant Generals did wear,
 And Laurel Heralds in their Hands did bear.
 Poets ambitious of unfading Praise,
 Phœbus, the Muses all are crown'd with Bays.
 And Virtue to her Sons the Prize does name,
 Symbol of Glory, and immortal Fame.

* Daphne-
 phagi were
 such as after
 eating the
 Leaves of the
 Bay, became
 inspir'd.

I have now finished my *Planting*: A Word or two concerning
 their *Preservation*, and the *Care* of their *Infirmities*, expect in the
 following *Chapter*.

^a Tu sacros Phœbi tripodas, tu Sidera fentis,
 Et casus aperis rerum præsaga futuros.
 Te juvat armorum strepitus, clangorque Tubarum;
 Perque acies medias, sævique pericula belli,
 Accendis bellantium animos; te Cynthius ipse,
 Te Musæ, Vatesque sacri optavere Coronam:
 Ipsa suis Virtus te spem proponit alumnis,
 Tantùm servatus valuit pudor, & bona fama.

RAPINUS.

CHAP. VII.

Of the Infirmities of Trees, &c.

SO many are the *Infirmities* and *Sicknesses* of *Trees*, and indeed
Infirmities of the whole Family of *Vegetables*, that it were almost im-
 possible to enumerate and make a just Catalogue of them; and as difficult
 to such infallible *Cures* and *Remedies* as could be desired; the *Effects*
 arising from so many, and such different *Causes*. Whenever therefore
 our *Trees* and *Plants* fail and come short of the *Fruit* and *Producti-*
ons we expect of them (if the Fault be not in our want of Care) it is
 certainly to be attributed to those *Infirmities*, to which all *elementary*
Things are obnoxious, either from the Nature of the *Things* them-
 selves, and in themselves, or from some *outward* Injury, not only
 through their being unskillfully cultivated by *Men*, and exposed to hurt-

BOOK II. ful *Beasts*, but subject to be prey'd upon and ruin'd by the most minute and despicable *Insect*, besides other Casualties and Accidents innumerable, according to the rustick Rhime,

*The Calf, the Wind-shock and the Knot,
The Canker, Scab, Scurf, Sap and Rot,*

affecting the several Parts: These invade the Roots; *stony* and *rocky* Grounds, *Ivy*, and all *Climbers*, *Weeds*, *Suckers*, *Fern*, *Wet*, *Mice*, *Moles*, *Winds*, &c. to these may be added *Siderations*, *pestiferous Air*, *Fogs*, excessive *Heat*, *sulphurous* and *arsenic Smoak*, and *Vapours*, and other *Plagues*, *Tumours*, *Distortions*, *Lacrymations*, *Tophi*, *Gouts*, *Carbuncles*, *Ulcers*, *Crudities*, *Fungosities*, *Gangreens*, and an *Army* more, whereof some are hardly discernable, yet *Enemies*, which not foreseen, makes many a Bargain of *standing Wood* (though seemingly *fair*) very costly *Ware*: In a Word, whatsoever is *exitial* to *Men*, is so to *Trees*; for the *Aversion* of which, they had of Old recourse to the *Robigalia* and other *Gentile Ceremonies*: But no longer abused by *Charmers* and superstitious *Fopperies*, we have in this *Chapter* endeavour'd to set down and prescribe the *best* and most approved *Remedies* hitherto found out, as well natural as artificial.

And first, *Weeds* are to be diligently pulled up by Hand after *Rain*, whiles your *Seedlings* are very young, and till they come to be able to kill them with *Shade* and *Over-dripping*; and then are you for the *obstinate*, to use the *Haw*, *Fork* and *Spade*, to extirpate *Dog-grass*, *Bear-bind*, &c.

And here mentioning *Shade* and *Dripping*, though I cannot properly speak of them as *Infirmities* of *Trees*, they are certainly the *Causes* of their unthriving till removed; such as that of the *Oak* and *Mast-holme*, *Wall-nut*, *Pine* and *Fir*, &c. the *Thickness* of the *Leaves* intercepting the *Sun* and *Rain*; whilst that of other *Trees* good, as the *Elm*, and several other.

2. *Suckers* shall be duly *eradicated*, and with a sharp *Spade* dexterously separated from the *Mother-roots*, and transplanted in convenient Places for *Propagation*, as the *Season* requires.

Here *Note*, That *Fruit* grafted upon *Suckers*, are more disposed to produce *Suckers*, than such as are propagated upon good *Stocks*.

3. *Fern* is best destroyed by striking off the *Tops*, as *Tarquin* did the *Heads* of the *Poppies*: This done with a good *Wand* or *Cudgel*, at the *Decrease* in the *Spring*, and now and then in *Summer*, kills it (as also it does *Nettles*) in a *Year* or *two* (but most infallibly, by being eaten down, at its *Spring*, by *Scotch-sheep*) beyond the vulgar way of *mowing* or *burning*, which rather increases than diminishes it.

4. Over-much *Wet* is to be drained by *Trenches*, where it infects the *Roots* of such *Kinds* as require drier *Ground*: But if a *Drip* do fret into the *Body* of a *Tree* by the *Head* (which will certainly decay it) cutting first the *Place* smooth, *stop* and cover it with *Loam* and *Hay*, or a *Cerecloth*, till a new *Bark* succeed. But not only the *Wet*, which is to be diverted by *trenching* the *Ground*, is *exitial* to many *Trees*, but their *Repletion* of too abundant *Nourishment*; and therefore sometimes there may be as much occasion to use the *Lancet* as *Phlebotomy* and *Venaesection* to *Animals*; especially if the *Hypothesis* hold, of superfluous *Moisture's* descent into the *Roots*, to be re-concocted; but where, in *Case* it be more copious than can be there elaborated, it turns

to Corruption, and sends up a tainted *Juice*, which perverts the whole *Habit of the Tree*: In this Exigence therefore, it were perhaps more advisable, to draw it out by a deep *Incision*, and to depend upon a new Supply, than upon Confidence of correcting this evil Quality, by other *Medications*, to let it perish. Other *Causes* of their *Sickness* (not always taken notice of) proceed from too liberal Refreshments and *Over-watering* in dry and scorching Seasons, especially in *Nurseries*: The Water should therefore be fitly qualified, neither brackish, bitter, stagnant, or putrid, fowre, *acrimonious*, *vitriolic*, arenous and gravelly, churlish, harsh and lean (I mention them promiscuously) and whatever vicious Quality they are *perceptibly* tinged and *impregnate* with, being by no means proper *Drink* for *Plants*: Wherefore a very *critical Examen* of this so necessary an *Element* (the very *Principle*, as some think, and only Nutriment of *Vegetables*) is highly to be regarded, together with more than ordinary Skill how to apply it: In order to which, the *Constitution* and *Texture* of *Plants* and *Trees* are *philosophically* to be considered; some affecting Macerations with *Dung* and other Mixtures (which I should not much commend) others quite contrary, the quick and running Spring, dangerous enough, and worse than *Snow-water*, which is not in some Cases to be rejected: Generally therefore that were to be chosen, which passing silently through *Ponds* and other *Receptacles*, exposed to the *Sun* and *Air*, nearest approaching to that of *Rain*, dropping from the *uberous Cloud*, is certainly the most natural and nursing: As to the Quantity, some *Plants* require plentiful watering, others rather often, than all at once; all of them sucking it in by the *Root* for the most Part, which are their *Mouths*, and carry it thence through all the Canales, Organs and Members of the whole vegetable Body, digested and qualified so as to maintain and supply their Beings and Growth, for the producing of whatever they afford for the Use of Man, and other living Creatures.

See Chap. ii.
Book i.

5. The *Bark-bound* are to be released by drawing your *Knife* Rind-deep from the *Root*, as far as you can conveniently, drawing your *Knife* from the *Top* downwards half-way, and at a small Distance, from the Bottom *upwards*, the other half; this, in more Places, as the Bulk of the *Stem* requires; and if crooked, cut deep and frequent in the *Ham*; and if the gaping be much, filling the *Rift* with a little *Cow-dung*; do this on each Side, and at Spring, *February* or *March*: Also cutting off some *Branches* is profitable, especially such as are *blast-ed*, or *Lightning-struck*: If (as sometimes also) it proceed from the *baking* of the *Earth* about the *Stem*, lighten and stir it.

6. The *Teredo*, *Cossi*, and other *Worms*, lying between the *Body* and the *Bark* (which it separates) poison that Passage to the great Prejudice of some *Trees*; but the *Holes* being once found, they are to be taken out with a light *Incision*, the Wound covered with *Loam*; or let the dry Part of the Wood (*Bark* and all) be cut; applying only a *Wash* of *Piss* and *Vinegar* twice or thrice a Week during a Month: The best Means to find out their Quarters, is to follow the *Wood-pecker* and other *Birds*, often pitching upon the *Stem* (as you may observe them) and knocking with their *Bills*, give Notice that the *Tree* is infected, at least between the *Bark*. But there are divers Kinds of these *ζυλόφαγοι*, of which the *τερηδόων* or *Tarmes* we have mentioned, will sometimes make such a Noise in a *Tree*, as to awaken a sleeping Man: the more *rugous* are the *Cossi*, of Old had *in deliciis* amongst the *Epicures*,

Book II. *cures*, who used to fatten them in *Flower*; and this (as *Tertullian* and *S. Hierom* tells us) was the chief Food of the *Hierophanta Cere- ris*; as they are this Day a great *Regalo* in *Japan*: In the mean Time, Experience has taught us, that *Millipedes* Wood-lice (to be plentifully found under old *Timber-logs*, being dried and reduced to *Powder*, and taken in Drink) are an admirable *Specifick* against the *Jaundice*, *Scorbut*, &c. to purify the *Blood*, and clarify the *Sight*.

There is a pestilent *green Worm* which hides itself in the Earth, and gets into *Pots* and *Cases*, eating our *Seedlings*, and gnawing the very *Roots*, which should be searched out: And now we mention *Roots*, over-grown *Toads* will sometimes nestle at the *Roots* of *Trees*, when they make a *Cavern*, which they infect with a poisonous , of which the *Leaves* famished and flagging give Notice, and the Enemy dug out with the Spade: But this chiefly concerns the *Gardeners mural Fruit-trees*; though I question not but that even our *Forest-trees* suffer by such pernicious Vapours, *Rats*, and other stinking *Vermin* making their Nests with them. But of all these, let our industrious *Planter* (especially the learned Favourers of the most refined Parts of *Horticulture*) consult the Discourses and Experiments of *Sign. Fran. Redi*, *Malpighius*, *Leuenhoek*, *Swamerdam*, &c. with our own learned Doctors, *Lyster*, *Sloane*, *Hook* (and other sagacious *Naturalists*) to shew, that none of these *Diseases* and *Infirmities* in *Plants* proceed from any pure *accidental*, but *real Cause*; *Flatus*, *venemous Liquor*, and *Infections*; which some, even of the minutest *Animals*, are provided with Instruments to pierce the very solid Substances of *Trees* and *Plants*, and infuse their *pestiferous Taint*; where likewise they leave their *Eggs*, boring those nestling Places with a certain *Terebra*, where we find those innumerable *Perforations* which we call *Worm-eaten*; the wider *Latebrae* are made by *Erucae*, *Caterpillers*, *Ants*, and bigger *Insects*, raising *morbid Tumors* and *Excrescences*, and preying upon the *Fruit* as well as on the *Leaves*, *Buds* and *Flowers*, so soon as their *Eggs* are hatch'd, when they creep out of their little Caverns in *Armies*, like the *Egyptian Locusts*, invading all that's green, and tender Rudiments first, and then attacking the tougher and solid Parts of *Vegetables*. To those learned Persons above, we may not forget the late worthy and pious Mr. *Ray*, where in the Second Part of his *Treatise of the Wisdom of God in the Creation*, we have a brief, but ingenious Account of what concerns this Subject, together with what is added about *spontaneous Productions* of these despicable little Animals, to which I refer the Curious.

Trees (especially *Fruit-bearers*) are infested with the *Measels*, by being burned and scorched with the Sun in great Droughts: To this commonly succeeds *Lousiness*, which is cured by boring an *Hole* into the principal *Root*, and pouring in a Quantity of *Brandy*, stopping the *Orifice* up with a *Pin* of the same *Wood*.

Crooked Trees are reformed by taking off or topping the *Preponderers*, whilst charged with *Leaves*, or *woody* and hanging *Counterpoises*.

Excorticated and *Bark-bared Trees*, may be preserved by nourishing up a *Shoot* from the Foot, or below the *stripped Place*, and inserting it into a *Slit* above the *wounded Part*; to be done in the Spring, and secured from *Air*, as you treat a *Graff*: This I have out of the very industrious Mr. *Cook*, p. 48. But Dr. *Merret* brought us in this

Relation

Relation to the *Royal Society*, that making a square *Section* of the *Rinds* of *Ash* and *Sycamore* (*March* 1664.) whereof three *Sides* were cut, and one not, the Success was, that the whole *Bark* did unite, being bound with *Pack-thread*, leaving only a *Scar* : But being separated intirely from the *Tree*, namely several *Parts* of the *Bark*, and at various *Depths*, leaving on some *Part* of the *Bark*, other cut to the very *Wood* itself, being tied on as the former, a new *Rind* succeeded in their *Place* ; but what was covered over beyond the *Places* of *Incision* with *Diachylon Plaister*, and also bound as the rest, did, within the *Space* of three *Weeks*, unite to the *Tree*, though with some *Shriveling* and *Scar* : The same *Experiment* tried about *Michaelmas*, and in the *Winter*, came to nothing : Where some *Branches* were decorticated quite round, without any *Union*, a *Withering* of the *Branch* beyond the *Incision*, ensued : Also a *Twig* separated from a *Branch*, with a sloping *Cut*, and fastened to it again in the same *Posture*, bound and covered with the former *Plaister*, withered in three *Days* *Time* : Among other easy *Remedies*, a *Cere-cloth* of *Fresh-butter* and *Honey*, applied whilst the *Wound* is green (especially in *Summer*) and bound about with a *Thrum-rope* of moist *Hay*, and rubbed with *Cow-dung*, has healed many : But for rare and more tender *Trees*, after *pruning*, take purely refined *Tallow*, mingled and well hardened with a little *loamy* *Earth* and *Horse-dung* newly made.

Dr. Plot speaks of an *Elm* growing near the *Bowling-green* at *Magdalen-College*, quite round disbark'd, almost for a *Yard* near the *Ground*, which yet flourishes exceedingly ; upon which he dilates into an accurate *Discourse* how it should possibly be ; all *Trees* being held to receive their *Nutrition* between the *Wood* and the *Bark*, and to perish upon their *Separation* ; this *Tree* being likewise hollow as a *Drum*, and its utmost *Surface* (where decorticated) dry and dead. The *Solution* of this *Phenomenon* (and to all *Appearance*, from the verdant *Head*) could not have been more philosophically resolved, than by the *Hypothesis* there produced by the *Doctor*, who assures me, he was yet deliberating whether the *Tree* being hollow, it might not possibly proceed from some other latent *Cause*, as afterwards he discovered ; when having obtained *Permission* to open the *Body* of it, he found another *Elm* letting down its *Stem* all the *Length* of this empty *Cave*, and striking *Root* when it came to the *Earth*, from whence it derived *Nourishment*, maintains a flourishing *Top*, and has (till now) passed for a little *Miracle*, as it still may do for a *Thing extraordinary*, and rare enough ; considering not only its *Passage*, and how it should come there, unless haply some of the *Samera*, or *Seed*, of the old *Tree* (when pregnant) should have luckily fallen down within the hollow *Pipe*, or (as might be conjectured) from some *Sucker* springing of a juicy *Root* : But the strange incorporating of the superior *Part* of the *Bole*, with the old hollow *Tree* which embraces it, not by any perceptible *Roots*, but as if it were but one *Body* with it, whilst the rest of the *vaginated* *Stem* touches no other *Part* of the whole *Cavity*, till it comes to the *Ground*, is surprizing. This being besides very extraordinary, that a *Tree*, which naturally grows taper as it approaches the *Top*, should swell, and become bigger there than it is below. But this the *Doctor* will himself render a more minute *Account* of in the next *Impression* of that excellent *Piece* of his ; nor had I anticipated it on this *Occasion*, but to let the *World* know (in the mean *Time*) how ingenuously

BOOK II. ready he is to acknowledge the *Mistake*, as he has been successful in discovering it.

Deer, Conies and Hares, by barking the *Trees* in hard *Winters*, spoil very many tender *Plantations*: Next to the utter destroying them, there is nothing better than to anoint that Part which is within their Reach, with *Stercus Humanum*, tempered with a little *Water*, or *Urine*, and lightly brushed on; this renewed after every great *Rain*: But a *cleanlier* than this, and yet which *Conies* and even *Cattle* most abhor, is to water or sprinkle them with *Tanners Liquor*, viz. That which they use for dressing their *Hides*; or to wash with slak'd *Lime* and *Water*, altogether as expedient: Also to tie *Thumb-bands* of *Hay* and *Straw* round them as far as they can reach.

8. *Moss* (which is an *adnascent Plant*) is to be rubb'd and scrap'd off with some fit Instrument of *Wood*, which may not *excorticate* the *Tree*, or with a Piece of *Hair-cloth* after a sobbing *Rain*; or by setting it on Fire with a Wisp of *Straw*, about the End of *December*, if the Season be dry, as they practise it in *Staffordshire*; but the most infallible Art of *Emuscation*, is taking away the Cause (which is superfluous *Moisture* in *clayie* and spewing Grounds) by dressing with *Lime*.

9. *Ivy* is destroyed by digging up the *Roots*, and loosening its Hold: And yet even *Ivy* itself (the Destruction of many fair *Trees*) if very old, and where it has long invested its Support, if taken off, does frequently kill the *Tree*, by a too sudden Exposure to the unaccustomed Cold: Of the *Roots* of *Ivy* (which with small Industry may be made a beautiful Standard) are made curiously polish'd and fleck'd *Cups* and *Boxes*, and even *Tables* of great Value: *Mistletoe*, and other *Excrescences* to be cut and broken off. But the *Fungi* (which prognosticate a Fault in the *Liver* and *Entrails* of *Trees*, as we may call it) is remedied by *Abrasion*, *Friktion*, *Interlucation*, and Exposure to the Sun.

10. The *Bodies* of *Trees* are visited with *Canker*, *Hollowness*, *Hornets*, *Earwigs*, *Snails*, &c.

11. The *Wind-shock* is a *Bruise* and *Shiver* throughout the *Tree*, though not constantly visible, yet leading the *Warp* from smooth renting, caused by over-powerful *Winds*, when young, and perhaps by subtil *Lightnings*, by which the strongest *Oaks* (and other the most robust *Trees*) are fain to submit, and will be twisted like a *Rope* of *Hemp*, and therefore of Old not used to kindle the *Sacrifice*. The same Injury *Trees* likewise often suffer by rigorous and piercing Colds and Frosts; such as in the Year 1683, rived many stately *Timber-trees* from Head to Foot; which, as the Weather grew milder, closed again, so as hardly to be discerned; but were found at the *Felling* miserably shatter'd, and good for little: The best Prevention is *Shelter*, Choice of Place for the *Plantation*, frequent *Shreading*, whilst they are yet in their Youth. *Wind-shaken* is also discovered by certain *Ribs*, *Boils* and *Swellings* on the *Bark*, beginning at the Foot of the Stem, and Body of the *Tree*, to the Boughs. But against such *Frosts* and *Fire* from Heaven there is no *Charm*.

12. *Cankers*, of all other Diseases the most pernicious, corroding and eating to the Heart, and difficult to cure, whether (caused by some *Stroak*, or *Galling*, or by hot and burning Land) are to be cut out to the *Quick*, the Scars emplastr'd with *Tar* mingled with *Oil*, and over that

a thin Spreading of *Loam*; or else with *Clay* and *Horse-dung*; but best with *Hogs-dung* alone, bound to it in a Rag; or by laying *Wood-ashes*, *Nettles*, or *Fern* to the *Roots*, &c. You will know if the Cure be effected, by the Colour of the Wounds growing fresh and green, and not reddish: But if the *Gangreen* be within, it must be cured by *nitrous*, *sulphureous* and drying Applications, and by no Means by any Thing of an *unctious* Nature, which is exitial to *Trees*: *Tar*, as was said, only excepted, which I have experimentally known to preserve *Trees* from the envenom'd Teeth of *Goats*, and other Injuries; the entire Stem smeared over, without the least Prejudice, to my no small Admiration: But for over-hot and torrid Land, you must sadden the Mould about the Root with *Pond-mud*, and *Neats-dung*; and by grafting *Fruit-trees* on Stocks raised in the same Mould, as being more homogeneous.

13. *Hollowness* is contracted, when by Reason of the ignorant, or careless Lopping of a Tree, the Wet is suffered to fall *perpendicularly* upon a Part, especially the *Head*, or any other Part or *Arms*, in which the *Rain* getting in, is conducted to the very Heart of the Stem and Body of the Tree, which it soon rots: In this Case, if there be sufficient sound *Wood*, cut it to the *Quick*, and close to the Body, and cap the hollow Part with a *Tarpaulin*, or fill it with good stiff *Loam*, *Horse-dung* and fine *Hay* mingled, or with well tempered *Mortar*, covering it with a Piece of *Tarpaulin*. This is one of the worst of Evils, and to which the *Elm* is most obnoxious. Old broken Boughs, if very great, are to be cut off at some Distance from the *Body*, but the smaller close.

14. *Hornets* and *Wasps*, &c. by breeding in the Hollowness of Trees, not only infect them, but will peel them round to the very *Timber*, as if *Cattle* had unbark'd them, as I observed in some goodly *Ashes* at *Cassibury* (near the Garden of that late noble Lord, and Lover of Planting, the Earl of *Essex*) and are therefore to be destroyed, by stopping up their Entrances with *Tar* and *Goose-dung*, or by conveying the *Fumes* of *Brimstone* into their *Cells*: *Cantharides* attack the *Ash* above all other *Bobs* of the *Beetle* Kind: *Chafers*, &c. are to be shaken down and crushed, and when they come in Armies, (as sometimes in extraordinary Droughts) they are to be driven away or destroyed with *Smoaks*; which also kills *Gnats* and *Flies* of all Sorts: Note, that the *Rose-bug* never, or very seldom, attacks any other Tree whilst that sweet Bush is in *Flower*. Whole Fields have been freed from *Worms* by the Reek and Smoak of *Ox-dung* wrapt in mungy Straw, well soak'd with strong *Lie*.

15. *Earwigs* and *Snails* do seldom infect *Forest-trees*, but those which are *Fruit-bearers*; and are destroyed by setting *Boards* or *Tiles* against the *Walls*, or the placing of *Neat-hoofs*, or any hollow Thing upon small *Stakes*; also by enticing them into sweet Waters, and by picking the *Snails* off betimes in the *Morning*, and rainy *Evenings*. I advise you to visit your *Cypress-trees* on the first *Rains* in *April*; you shall sometimes find them covered with young *Snails* no bigger than small *Pease*. Lastly, *Branches*, *Buds* and *Leaves* extremely suffer from the *Blasts*, *Jaundice* and *Caterpillars*, *Locusts*, *Rooks*, &c. Note, that you should visit the *Boards*, *Tiles* and *Hoofs* which you set for the Retreat of those *Insects*, &c. in the *Heat* of the Day, to shake them out, and kill them.

16. The *blasted* Parts of Trees (and so should Gum) be cut away to the *Quick*; and to prevent it, *smoak* them in suspicious *Weather*, by burning moist *Straw* with the *Wind*, or rather the dry and superfluous *Cuttings* of aromatic Plants, such as *Rosemary*, *Lavender*, *Juniper*, *Bays*, &c. I use to whip and chastise my *Cypresses* with a *Wand*, after their *Winter-burnings*, till all the *mortified* and *scorched* Parts fly off in *Dust*, as long almost as any will fall, and observe that they recover and spring the better. *Mice*, *Moles* and *Pismires* cause the *Jaundice* in Trees, known by the *Discolour* of the *Leaves* and *Buds*.

17. The *Moles* do much hurt, by making hollow *Passages*, which grow *musty*; but they may be taken in *Traps*, and kill'd, as every *Woodman* knows: It is certain that they are driven from their *Haunts* by *Garlic* for a Time, and other heady *Smells*, buried in their *Passages*.

18. *Mice*, *Rats*, with *Traps*, or by sinking some *Vessel* almost level with the *Surface* of the *Ground*, the *Vessel* half full of *Water*, upon which let there be strew'd some *Hulls* or *Chaff* of *Oats*; also with *Bane*, *Powder* of *Orpiment* in *Milk*, and *Aconites* mixed with *Butter*: *Coperas* or *green Glass* broken with *Honey*: *Morsels* of *Sponge* chopped small and fried in *Lard*, &c. are very fit *Baits* to destroy these nimble *Creatures*, which else soon will ruin a *Semination* of *Nuts*, *Acorns* and other *Kernels* in a *Night* or two, and rob the largest *Beds* of a *Nursery*, carrying them away by *Thousands* to their cavernous *Magazines*, to serve them all the *Winter*: I have been told that *Hop-branches* stuck about *Trees*, preserve them from these *thievish Creatures*.

19. Destroy *Pismires* with scalding *Water*, and disturbing their *Hills*, or rubbing the *Stem* with *Cow-dung*, or a *Decoction* of *Tithymale*, washing the infested *Parts*; and this will insinuate, and chase them quite out of the *Chinks* and *Crevices*, without *Prejudice* to the *Tree*, and is a good *Prevention* of other *Infirmities*; also by laying *Soot*, *Sea-coal*, *Saw-dust*, or *Refuse-Tobacco* where they haunt, often renewed, especially after *Rain*; for becoming moist, the *Dust* and *Powder* harden, and then they march over it.

20. *Caterpillars*, by cutting off their *Webs* from the *Twigs* before the *End* of *February*, and burning them; the sooner the better: If they be already *batched*, wash them off with *Water*, in which some of the *Caterpillars* themselves, and *Garlick* have been bruised, or the *Juice* of *Rue*, *Decoctions* of *Colloquintida*, *Hemp-seed*, *Wormwood*, *Tobacco*, *Walnut-shells* when green, with the *Leaves* of *Sage*, *Urine* and *Ashes*, and the like *Aspersions*. Take of two or three of the *Ingredients*, of each an *Handful* in two *Pails* of *Water*; make them boil in it half an *Hour*, then strain the *Liquor*, and sprinkle it on the *Trees* infected with *Caterpillars*, the *black Flea*, &c. in two or three *Times* it will clear them, and should be used about the *Time* of *Blossoming*. Another, is to choak and dry them with *Smoak* of *Galbanum*, *Shoe-soals*, *Hair*; and some affirm, that planting of *Piony* near them, is a certain *Remedy*; but there is no *Remedy* so facile, as the burning them off with small *Wisps* of dry *Straw*, which in a *Moment* rids you.

21. *Rooks* do in *Time*, by pinching off the *Buds* and *Tops* of *Trees* for their *Nests*, cause many *Trees* and *Groves* to decay: Their *Dung* propagates *Nettles* and *Weeds*, and choaks young *Seedlings*: They are to be shot, and their *Nests* demolished. The *Bullfinch* and *Tit-mouse*

mouse also eat off and spoil the *Buds* of *Fruit-trees*; prevented by *CHAP. VII.* *Clappers*, or caught in the *Wyre Mouse-trap* with *Teeth*, and baited with a *Piece* of rusty *Bacon*, also with *Lime-twigs*. But if *Cattle* break in before the *Time*, *conclamatum est*, especially *Goats*, whose *Mouths* and *Breath* is *Poison* to *Trees*, they never thrive well after; and *Varro* affirms, if they but lick the *Olive-tree*, they become immediately *Barren*. And now we have mentioned *Barrenness*, we do not reckon *Trees* to be *sterile*, which do not yield a fruitful *Burden* constantly every *Year* (as *Juniper* and some *Annotines* do) no more than of *pregnant Women*: Whilst that is to be accounted a *fruitful Tree* which yields its *Product* every *second* or *third Year*, as the *Oak* and most *Foresters* do; no more may we conclude that any *Tree* or *Vegetable* are destitute of *Seeds*, because we see them not so perspicuously with our *naked Eyes*, by reason of their *Exility*, as with the nicest *Examination* of the *Microscope*.

22. Another *Touch* at the *Winds*; for though they cannot properly be said to be *Infirmities* of *Trees*; yet they are amongst the principal *Causes* that render *Trees* infirm. I know no surer *Protection* against them, than (as we said) to *shelter* and *stake* them whilst they are *young*, till they have well established *Roots*; and with this *Caution*, that in case any goodly *Trees* (which you would desire especially to preserve and redress) chance to be prostrated by some impetuous and extraordinary *Storm*; you be not over-hasty to carry him away, or despair of him; (nor is it of any *ominous* Concern at all, but the contrary) *fausti ominis*, as *Pliny* says; and gives many *illustrious* Instances: And as to other strange and unusual *Events* following the accidental *Subversion* of *Trees*; concerning *Omens*; and that some are *portentous*, others *fortunate*, of which see * *Pierius*, speaking of a * *Hierog. l. 50.* *Garden* of the *Duke of Tuscany*, belonging to a *Palace* of his at *Rome*, a little before the *Death* of *Pope Leo*; and before this, about the *Time* of our *Country-man*, *Pope Adrian* the *IVth*. First then, let me persuade you to *poll* him close, and so let him lie some *Time*; for by this *Means*, many vast *Trees* have raised themselves by the *Vigour* only of the remaining *Roots*, without any other *Assistance*; so as *People* have pronounced it *miraculous*, as I could tell you by several Instances, besides what *Theophrastus* relates, *Lib. v. Cap. xix.* of that huge *Platanus*, which rose in one *Night* in his *Observation*; which puts me in *Mind* of what I remember the very learned *Critic Palmerius* affirms of an *Oak*, subverted by a late *Tempest* near *Breda* (where this old *Soldier* militated under *Prince Maurice*, at the *Town* when besieged by the famous *Marq. Spinola*) which *Tree*, after it had lain prostrate about two *Months* (the *Side-Branches* pared off) rose up of itself, and flourished as well as ever. Which *Event* was thought so extraordinary, that the *People* reserved *Sprigs* and *Boughs* of it, as sacred *Reliques*; and this he affirms to have seen himself. I take the more *Notice* of these *Accidents*, that none who have *Trees* blown down, where it may cause a deformed *Gap* in some *Avenue* near their *Seats*, may not altogether despair of their *Resurrection*, with *Patience* and timely freeing them. And the like to this I find happened in more than one *Tree* near *Bononia* in *Italy*, *Anno 1657.* when of late a turbulent *Gust* had almost quite eradicated a very large *Traët* of huge *Poplars*, belonging to the *Marchioness Elephantucca Spada*, that universally erected themselves again, after they were beheaded, as they

lay even prostrate. * What says the *Naturalist*? *Prostratas restitui plerunque, & quadam terræ cicatrice reviviscere, vulgare est*: 'Tis familiar (says *Pliny*) in the *Platanus*, which are very obnoxious to the *Winds*, by reason of the Thickness of their Branches, which being cut off and discharged, restore themselves. This also frequently happens in *Walnuts*, *Olive-trees*, and several others, as he affirms, *Lib. xvi. Cap. xxxi.* But we have farther Instances than these, and so very lately as that dreadful *Storm* happening 26 Nov. 1703. when after so many *thousand Oaks*, and other *Timber-trees* were quite subverted, a most famous and monstrous *Oak*, growing at *Epping* in *Essex* (blown down) raised itself, and withstood that *Hurricane*. These (amongst many others) are the *Infirmities* to which *Forest-trees* are subject, whilst they are standing; and when they are *fell'd*, to the *Worm*; especially if cut before the *Sap* be perfectly at rest: But to prevent or cure it in the *Timber*, I commend this *Secret* as the most approv'd.

* See Cap. iv.
Lib. ii. of a
Cypress.

23. Let common yellow *Sulphur* be put into a *Cucurbit-Glass*, upon which pour so much of the strongest *Aqua-fortis*, as may cover it three Fingers deep: *Distil* this to Dryness, which is done by two or three *Rectifications*: Let the *Sulphur* remaining in the Bottom (being of a blackish or sad-red Colour) be laid on a *Marble*, or put into a *Glass*, where it will easily dissolve into *Oil*: With this *anoint* what is either *infected*, or to be preserved of *Timber*. It is a great and excellent *Arcanum* for tinging the *Wood* with no unpleasant Colour, by no Art to be washed out; and such a Preservative of all manner of *Woods*, nay, of many other Things, as *Ropes*, *Cables*, *Fishing-nets*, *Masts of Ships*, &c. that it defends them from *Putrefaction*, either in *Waters* under or above the Earth, in the *Snow*, *Ice*, *Air*, *Winter* or *Summer*, &c. It were superfluous to describe the *Process* of the *Aqua-fortis*; it shall be sufficient to let you know, that our common *Coperas* makes this *Aqua-fortis* well enough for our Purpose, being drawn over by a *Retort*: And for *Sulphur*, the *Island of St. Christophers* yields enough (which hardly needs any *refining*) to furnish the whole *World*. This *Secret* (for the *Curious*) I thought fit not to omit; though a more compendious, three or four *Anointings* with *Linseed-oil*, has proved very effectual: It was experimented in a *Walnut-Table*, where it destroyed Millions of *Worms* immediately, and is to be practised for *Tables*, *Tubes*, *Mathematical-Instruments*, *Boxes*, *Bedsteads*, *Chairs*, *Rarities*, &c. *Oil of Walnuts* will doubtless do the same, is sweeter, and a better *Varnish*; but above all is commended *Oil of Cedar*, or that of *Juniper*; whilst *Oil of Spike* does the Cure as effectual as any.

But after all these sweeping *Plagues* and *Destructions* inflicted on *Trees* (braving all *human Remedies*) such *Frosts* as not many Years
 * 1683. * since happened, left such *Marks* of their *deadly Effects*, not sparing the goodliest and most flourishing *Trees*, *Timber*, and other of the stoutest Kind, as some *Ages* will hardly repair: Nay, 'twas observed, that the *Oak* in particular (counted the most Valiant and Sturdy of the whole *Forest*) was more prejudiced with this excessive *Cold*, and the *Drowth* of the Year ensuing, than any of the most nice and tender *Constitution*: Always here *excepting* (as to a *universal Strages*) the *Hurricane* of *Sept. 1703.* which begins the *Epocha* of the *Calamities*
 1715. which have since followed, not only by the late *Tempest* about *August* last,

last, but by that surprizing *Blast*, accompanied doubtless with a *fiery Spirit*, which smote the most flourishing *Foresters* and *Fruit-trees*, burning their *Buds* and *Leaves* to Dust and Powder, not sparing the very *Fruit*. This being done in a Moment, must be looked upon as a *Plague* not to be prevented: In the mean Time, that the Malignity proceed no farther, it may be advisable to cut, and top the *Summities* of such tender *mural* Trees, rare *Shrubs*, &c. as have most suffered, and are within Reach, rubbing off the Scorchings in order to new *Spring*.

There was in my Remembrance, certain *Prayers*, *Litanies* and *Col-lects*, solemnly used by the *Parish-Minister* in the *Field*, at the *Limits* of their *Perambulations* on the *Rogation-days*, from an antient and laudable *Custom* of above one thousand Years, introduced by *Avitus*, the pious *Bishop* of *Vienna*, in a great *Dearth*, unseasonable Weather, and other Calamities (however in Tract of Time abused by many gross *Superstitions* and insignificant *Rites*, in Imitation of the Pagan *Robigalia*) upon which Days (about the *Ascension* and beginning of *Spring* especially) *Prayers* were made, as well *deprecatory* of *epidemical Evils* (amongst which *Blasts* and *Smut* of *Corn* were none of the least) as *Supplications* for propitious Seasons, and *Blessings* on the *Fruits* of the Earth. Whether there was any peculiar *Office* (besides those for *Ember-Weeks*) appointed, I do not know: But the pious and learned *Bishop* of *Winchester* [*Andrews*] has, in his *Devotions*, left us a *Prayer* so apposite and comprehensive for these *Emergencies*, that I cannot forbear the Recital.

REMEMBER, O Lord, to renew the Year with thy Goodness, and the Season with a promising Temper: For the Eyes of all wait upon thee, O Lord: Thou givest them Meat; thou openest thy Hand, and fillest all things living with thy Bounty. Vouchsafe therefore, O Lord, the Blessings of the Heavens, and the Dew from Above: The Blessings of the Springs, and the Deep from Beneath: The Returns of the Sun, the Conjunctions of the Moon: The Benefit of the rising Mountains, and the lasting Hills: The Fullness of the Earth, and all that breed therein.

A Fruitful Season,
Temperate Air,
Plenty of Corn,
Abundance of Fruits,
Health of Body, and
Peaceable Times,
Good, and wise Govern-
ment,
Prudent Counsels,

Just Laws,
Righteous Judgments,
Loyal Obedience,
Due Execution of Justice,
Sufficient Store for Life,
Happy Births,
Good, and Fair Plenty,
Breeding and Institution of Chil-
dren:

That our Sons may grow up as the young Plants, and our Daughters may be as the polished Corners of the Temple: That our Garners may be full and plenteous with all manner of Store: That our Sheep may bring forth Thousands: That our Oxen may be strong to labour: That there be no Decay; no leading into Captivity; no complaining in our Streets: But that every Man may sit under his own Vine, and under his own Fig-tree, in Thankfulness to Thee; Sobriety and Charity to his Neighbour; and in whatsoever other Estate thou wilt have

BOOK III. have him, therewith to be contented: And this for JESUS CHRIST his sake, to whom be Glory for ever, AMEN.

24. Thus hitherto I have spoken of *Trees*, their *Kinds*, and *Propagation* in particular; with such *Prescriptions* for the *Cure* and *Healing* their *Infirmities*, as from long and late *Experience* have been found most effectual. Now a *Word* or two concerning the *Laws* relating to *Forest-trees*, casting such other accidental *Lessons* into a few *Aphorisms*, as could not well be more regularly inserted.

Lastly, I shall conclude with some more serious *Observations*, in reference to the main *Design* and *Project* of this *Discourse*, as it concerns the *Improvement* of the *Royal Forests*, and other *Timber-trees*, for the *Honour*, *Security*, and *Benefit* of the whole *Kingdom*; with an *Historical Account* of *Standing-Groves*, which will be the *Subject* of the next *Books*.



DENDROLOGIA.

BOOK III.

CHAP. I.

Of Coppices.

1. *Sylva Cedua* is (as *Varro* defines it) as well *COPPICE* to cut for *Fuel* as for use of *Timber*; and we have already shewed how it is to be raised, both by *sowing* and *planting*. I shall only here add, that if in their first *Designation*, they be so laid out, as to grow for several *Falls*; they will both prove more *profitable* and more *delightful*: More *profitable*, because of their annual *Succession*; and more *pleasant*, because there will always remain some of them *standing*; and if they be so cast out, as that you leave straight and even *Intervals*, of eighteen or twenty *Foot* for *Grass*, between *Spring-wood* and *Spring-wood*, securely *fenced* and preserved; the *Pastures* will lie both *warm*, and prove of exceeding *Delight* to the *Owner*. These *Spaces* are likewise useful, and necessary for *Cart-way*, to fetch out the *Wood* at every *Fall*. There is not a more noble and worthy *Husbandry*, than is this, which rejects no sort of *Ground* nor *Situation* (though facing the *East* is esteemed best for both *Timber* and *Under-wood*) as we have abundantly shewed; since even the most *boggy* Places, may so be *drain'd* and cast, as to yield their Increase by planting the *drier* Sorts upon the *Ridges* and *Banks* which you cast up, where they will *thrive* exceedingly: And then *Willow*, *Sallow*, *Alder*, *Poplar*, *Sycamore*, *Black-Cherry*, &c. will shoot tolerably well on the lower and more *uliginous*; with this *Caution*, that for the *first two Years* they be kept diligently *weeded* and *cleansed*, which is as necessary as *fencing* and guarding from *Cattle*. Our ordinary *Coppices* are chiefly upon *Hassle*, or the *Birch*; but if amongst the other *Kinds*, store of *Ash* (which I most prefer, a speedy and erect Growth)

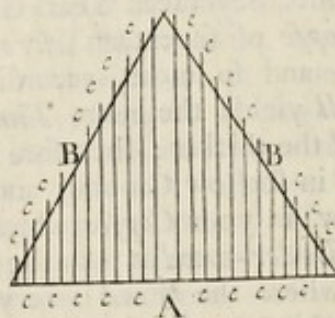
Growth) *Chestnut*, *Sallow*, and *Sycamore*, (at least *one* in *four*) were sprinkled in the *Planting*, the *Profit* would soon discover a Difference, and will recompence the Industry. Others advise us to plant Shoots of *Sallow*, *Willow*, *Alder*, and all the *swift* growing Trees, being of seven Years Growth, *sloping* off both the Ends towards the Ground, to the Length of a *Billet*, and burying them a reasonable Depth in the Earth. This will cause them to put forth seven or eight *Branches*, each of which will become a *Tree* in a short Time, especially if the Soil be moist. The nearest *Distance* for these *Plantations* ought never to be less than *five* Foot at first, since every *Felling* renders them wider for the Benefit of the *Timber*, even to *thirty* and *forty* Foot, in five or six *Fellings*.

2. Though it be almost impossible for us to prescribe at what *Age* it were best *Husbandry* to fell *Copses* (as we at least call *best Husbandry*) that is, for most and greatest Gain; since the *Markets*, and the *Kinds* of *Wood*, and emergent *Uses* do so much govern; yet *Copses* are sometimes of a competent Stature after *eight* or *nine* Years from the *Acorn*; and so every *eight* or *ten* Years successively, will rise better and better: But this had need be an extraordinary Ground, otherwise you may do well to allow them *twelve* or *fifteen* to fit them for the *Ax*; but those of *twenty* Years standing are better, and far advance the Price, especially if *Oak*, and *Ash*, and *Chestnut* be the chief Furniture; and be sure you shall lose nothing by this Patience; since all Accidents considered, the Profit arising from *Copses* so managed (be the Ground almost never so poor) shall equal, if not exceed, what is usually made by the *Plough* or *Grazing*. Some of our old *Clergy* Spring-Woods heretofore have been let rest till twenty-five or thirty Years, and have prov'd highly worth the Attendance; for by that Time, even a *Seminary* of *Acorns*, will render a considerable Advance, as I have already exemplified in the *Northamptonshire* Lady. And if *Copses* were so divided, as that every Year there might be some *fell'd*, it were a continual, and a present Profit: Seventeen Years Growth affords a tolerable *Fell*; supposing the *Copse* of seventeen *Acres*, one *Acre* might be yearly *fell'd* for ever; and so more, according to Proportion: but though the seldom *Fall* yields the more *Timber*, yet the frequent makes the *Under-wood* the thicker; therefore at ten or twelve Years Growth (says Mr. Cook) in shallow Ground, and fourteen in deeper. If many *Timber-trees* grow in your *Copses* which are to be cut down, fell both *them*, and the *Under-wood* as near the Ground as may be; but this is to be understood where the *Wood* is very thick; otherwise, 'tis advisable to stock up the thinner, especially in great *Timber*, and to set in the Holes, *Elm*, *Cherry*, *Poplar*, *Sallow*, *Service*; and so these Trees, which are apt to grow from the Running-root, thicken the *Wood* exceedingly; whilst the very *Roots* will pay for the Grubbing, and yield you some Feet of the best *Timber*; whereas being let stand, nothing would have grown. If the Ground be a shallow Soil, forbear filling the *Holes* quite, but set some Running-wood in the loosened Earth, and the Ends of the old Roots being cut, will furnish the Sides of the Holes speedily. In thin *Copses* 'tis profitable to lay some Boughs athwart, which will be rooted to Advantage against next Fall. All rotten *Stubs* among our Under-woods should be extirpated, as making way for *Seedlings*, and young Roots to spring and run: The cutting, flanting, smooth and close, is of great Importance; and frequent Fel-

BOOK III. ling gives *Way* and *Air* to the subnascent *Seedlings*, and the rest will make lusty *Shoots*.

3. As to what *Numbers* and *Scantlings* you are to leave on every *Acre*, the *Statutes* are our general *Guides*, at least the *legal*. It is a very ordinary *Copse*, which will not afford three or four *Firsts*, that is, *Bests*; fourteen *Seconds*, twelve *Thirds*, eight *Wavers*, &c. according to which *Proportions*, the *Sizes* of young *Trees* in *Coppling*, are to succeed one another. By the *Statute* of 35 *Hen. VIII.* in *Copses*, or *Under-woods* felled at twenty-four *Years* Growth, there were to be left twelve *Standils*, or *Stores* of *Oak*, upon each *Acre*; in Defect of so many *Oaks*, the same Number of *Elms*, *Ash*, *Asp* or *Beech*; and they to be such, as are of likely *Trees* for *Timber*, and of such as have been spared at some former *Felling*, unless there were none; in which Case, they are to be *then* left, and so to continue without *Felling*, till they are *ten Inch Square* within a *Tard* of Ground. *Copses* above this Growth *felled*, to leave twelve great *Oaks*; or in Defect of them, other *Timber-trees* (as above) and so to be left for twenty *Years* longer, and to be enclosed seven *Years*.

4. In Sum, you are to spare as many likely *Trees* for *Timber* as with Discretion you can. In the mean Time, there are some who find it not so profitable, to permit so many *Timber-trees* to stand in the Heart of *Copses*, but on the *Skirts*, and near the *Edges*, where their Branches may freely spread, and have *Air*, without dripping and annoying the *subnascent* Crop: Nor should they be shread, which commonly makes them grow *knotty*. This is a *Note* of the ingenious Mr. *Nourse*, as well as what he reports of a worthy Gentleman in *Gloucestershire*, to demonstrate how *one Acre* of *Copse-wood* on a *Plain*, may contain as much *Wood* as *two Acres* on the Side of an *Hill*; though that of the *Plain*, as also the Ground on the Side of the *Hill*, might seem both alike planted, and as thick in Appearance.



A, Is the Plain of the Basis, B B the two Sides of the Triangle, representing the Sides of the Mount, c c c c the Tops of the Trees, shooting from the Plain and the Sides.

For comparing the Order in which *Trees* usually grow on a *Plain*, with those on a *Surface*, they will appear standing exactly in such a Figure: So that if the Mountain be high and steep, *one Acre* at the Bottom may contain four Times the Quantity of *Wood* as an *Acre* on the Side of an *Hill*, which is worth the Consideration.

Now as to the *Felling* (beginning at one Side, that the *Carts* may enter without Detriment to what you leave standing) the *Under-wood* may

may be cut from *January*, at the latest, till *Mid-March* or *April*; or from *Mid-September*, till near the End of *November*; so as all be avoided by *Midsummer* at the latest, and then fenced (where the *Rows* and *Brush* lie longer unbound or made up, you endanger the Loss of a *second Spring*) and not to stay so long as usually they are a clearing, that the *Young*, and the *Seedlings* may not suffer the least Interruption; and if the *Winter* previous to your felling *Copses*, you preserve them well from *Cattle*, it will recompence your Care.

5. It is advised not to cut off the *Browse-wood* of *Oaks* in *Copses*, but to suffer it to fall off, as where *Trees* stand very close, it usually does: I do not well comprehend why yet it should be spared so long.

6. When you espy a *Cluster* of *Plants* growing as it were all in a *Bunch*, it shall suffice that you preserve the fairest *Sapling*, cutting all the rest away. And if it chance to be a *Chestnut*, *Service*, or like profitable *Tree*, clear it from the *Droppings* and *Incumbrances* of other *Trees*, that it may thrive the better: Then, as you pass along, *prune* and *trim* up all the young *Wavers*, covering such *Roots* as lie bare and exposed, with fresh *Mould*. There are some who direct the lopping of young *Oaks* at a competent Distance from the *Stem*, and that while the *Wounds* are healing, this would advantage the *Under-wood*; but I cannot say it would be without Prejudice to the *Timber*.

7. Cut not above half a *Foot* from the *Ground*, nay the closer the better, and that to the *South*, slope-wise; stripping up such as you spare from their extravagant *Branches*, *Water-boughs*, &c. that hinder the Growth of others: Always remembering (before you so much as enter upon this Work) to preserve sufficient *Plash-pole* about the *Verge* and Bounds of the *Copse* for *Fence* and *Security* of what you leave; and for this, something less than a *Rod* may suffice: Then raking your *Wood* clear of *Spray*, *Chips* and all *Incumbrances*, shut it up from the *Cattle*, the longer the better.

8. By the *Statute*, Men were bound to enclose *Copses* after *Felling*, of or under fourteen Years Growth, for four Years: Those above fourteen Years Growth, to be sixteen Years enclosed; and for *Woods* in *Common*, a fourth Part to be shut up; and at *Felling*, the like Proportion of great *Trees* to be left, and seven Years enclosed: This was enlarged by 13 *Eliz.* Your *Elder Under-woods* may be grazed about *July*: But for a general Rule, newly-weaned *Calves* are the least noxious to newly cut *Spring-woods*, where there is abundance of *Grass*; and some say, *Colts* of a Year old; but then the *Calves* must be driven out at *May* at farthest, though the *Colts* be permitted to stay a while longer: But of this, every Man's Experience will direct him; and surely, the later you admit *Beasts* to graze, the better. For the *Measure* of *Fuel*, these *Proportions* were to be observed.

9. Statutable *Billet* should hold three *Foot* in *Length*, and seven Inch and half *Compass*; ten or fourteen, as they are counted for one, two or three, &c. A *Stack* of *Wood* (which is the *Boughs* and *Offal* of the *Trees* to be converted to *Char-coal*) is four *Tards* long, three *Foot* and half high (in some Places but a *Yard*) and as much over: In other Places, the *Cord* is four *Foot* in *Height*, and four *Foot* over; or (to speak more geometrically) a *Solid* made up of three *Dimensions*, four *Foot* high, four *Foot* broad, and eight *Foot* long; the *Content* one hundred and twenty-eight cubick Feet. *Faggots*, ought to be a full

Yard

BOOK III. *Yard in Length, and two Foot in Circumference, made round, and not flat; for so they contain less Fuel, though equal in the Bulk appearing. But of these Particulars, when we come to speak expressly of Fuel.*

10. In the mean Time it were to be wished, that some approved *Experiments* were sedulously tried (with the Advice of skilful and ingenious *Physicians*) for the making of *Beer* without *Hops*; as possibly with the white *Marrubium* (a Plant of singular Virtue) or with dried *Heath-tops* (*viz.* that sort which bears no Berries) or the like, far more wholesome, and less bitter than either *Tamarisk*, *Carduus* or *Broom*, which divers have essay'd; it might prove a Means to save a world of *Fuel*, and in divers Places young *Timber* and *Copse-wood*, which is yearly spent for *Poles*, especially in Countries where Wood is very precious.

Note, That the *Wood-land* Measure, by *Statute*, is computed after eighteen Foot the *Perch*.

CHAP. II.

Of Pruning.

THERE could nothing certainly be more necessary, in order to *Pruning*, than the Knowledge of the *Course* and *Nature* of the *Sap*; which not being as yet so universally agreed on (after innumerable Trials and Experiments) leads our *Arborators* into many Errors and Mistakes: I have in this *Forest Work* occasionally recited the various *Opinions* of several, leaving them to the Determination of the Learned and Judicious, as a considerable Part of *Natural Philosophy*; Dr. *Grew*, *Malpighius*, *De la Quinteny*, and what is found dispersed in the *Philosophical Transactions* by our *Plant Anatomists*, without charging this Chapter with Repetitions: And the same I have done likewise as to *Astrological Observations*, *Positions* of the *Stars* and *Planetary Configurations*, *Exhalations* and *Dominant Power*; though, in Compliance to Custom, I now and then forbear to abdicate our Country Planter's *Goddeſs*; contenting my self with the wholesomeness of the *Air* we breath in, and the Goodness of the *Soil*: I shall therefore in the first Place speak of the *Manual Operation* of *Pruning*, and other Instructions as they afterwards occur.

1. *Putatio*; *Pruning* I call all Purgation of *Trees* in general, from what is superfluous: The *Antients* found such Benefit in *Pruning*, that they feigned a *Goddeſs* presided over it, as *Arnobius* tells us: And in Truth, it is in the discreet Performance of this *Work*, that the Improvement of our *Timber* and *Woods* does as much consist as in any Thing whatsoever. A skilful *Planter* should therefore be early at this *Work*: Shall old *Gratius* give you *Reason* and *Direction*? And his *Interpreter* thus in *English*?

** Twigs of themselves never rise straight and high,
And Under-woods are bow'd as first they shoot.
Then prune the Boughs, and Suckers from the Root
Discharge. The leavy Wood fond Pity tires.
After, when with tall Rods the Tree aspires,
And the round Staves to Heaven advance their Twigs.
Pluck all the Buds, and strip off all the Sprigs:
These Issues vent what Moisture still abound,
And the Veins unemploy'd grow hard and sound.* WASE.

2. For 'tis a Misery to see how our fairest *Trees* are defaced and mangled by unskilful *Wood-men*, and mischievous *Bordurers*, who go always armed with short *Hand-bills*, hacking and chopping off all that comes in their Way; by which our *Trees* are made full of *Knots*, *Stubs*, *Boils*, *Cankers*, and deformed Bunches, to their utter Destruction: *Good Husbands* should be ashamed of it; though I would have no *Wood-man* pretend to be without all his necessary *Furniture*, when he goes about this *Work*; which I (once for all) reckon to be the *Hand-bill*, *Hatchet*, *Hook*, *Hand-saw*, an excellent *Pruning-knife*, broad *Chisel* and *Mallet*, all made of the best *Steel* and kept sharp; and thus he is provided for greater, or more gentle *Executions*, *Purgations*, *Recisions* and *Coercions*; and it is of main Concern, that the proper and effectual *Tool* be applied to every *Work*, since heavy and rude *Instruments* do but mangle and bruise tender *Plants*; and if they be too small, they cannot make clear and even *Work* upon great *Arms* and *Branches*: The *Knife* is for *Twigs* and *Spray*; the *Chisel* for larger *Arms*, and such *Amputations* as the *Ax* and *Bill* cannot well operate upon. As much to be reprehended are those who either begin this *Work* at unseasonable Times, or so maim the poor *Branches*, that either out of Laziness, or want of Skill, they leave most of them *Stubs*, and instead of cutting the *Arms* and *Branches* close to the *Bole*, hack them off a Foot or two from the Body of the *Tree*, by which Means they become hollow and rotten, and are as so many *Conduits* to receive the *Rain* and the *Weather*, which conveys the Wet to the very *Matrix* and *Heart*, deforming the whole *Tree* with many ugly *Botches*, which shorten its Life, and utterly mars the *Timber*: I know Sir *H. Platt* tells us, the *Elm* should be so lopped, but he says it not of his own *Experience* as I do. And here it is that I am (once for all) to warn our disorderly *Husband-men* from coveting to let their *Lops* grow to an extraordinary Size before they take them off, as conceiving it furnishes them with the more *Wood* for the Fire; not considering how such gashly Wounds mortally affect the whole Body of the *Tree*, or at least does so decay their Vigour, that they hereby lose more in one Year than the *Lop* amounts to, should they pare them off sooner, and when the *Scars* might be covered: In the mean while, that young *Oaks* prosper much in Growth, by timely *Pruning*, the industrious Mr. *Cooke* observes;

** Nunquam sponte sua procerus ad aera termes
Exiit, inque ipsa curvantur stirpe genistæ.
Ergo age luxuriam primo foetusque nocenteis
Detrahe. Frondosas gravat indulgentia silvas.
Post ubi proceris generosa stirpibus arbor
Se dederit, teretisque ferent ad sidera virgæ,
Stringe notas circum, & gemmantis exige versus.
His, si quis vitium nociturus sufficit humor,
Visceribus fluit, & venas durabit inertes.*

Gra. Fal. Cynager.

Z z

whereas

BOOK III. whereas some other Trees, as the *Horn-beam*, &c. though they will bear considerable *Lops*, when there's only the *Shell* of the Tree standing, yet it is much to its Detriment; especially to the *Ash*, which if once it comes to take Wet by this Means, rarely produces more *Lop* to any Purpose; above all, if it decay in the Middle, when 'tis fitter for the *Chimney*, than to stand and cumber the Ground: The same may be pronounced of most *Trees*, which would not perhaps become *Dotards* in many Ages, but for this covetous Barbarity and unskilful handling.

3. By this *Animadversion* alone it were easy for an ingenious Man to understand how *Trees* are to be governed; which is in a Word, by sparing great *Lops*, cutting *clean*, *smooth* and *close*, making the Stroke *upward*, and with a sharp *Bill*, so as the Weight of an untractable *Bough* do not *splice* and carry the *Bark* with it, which is both dangerous and unsightly. The *Oak* will suffer it self to be made a *Pollard*, that is, to have its *Head* quite cut off, and it may be good for *Mast*, if not too much pruned, but not for *Timber*: But the *Elm* so treated, will perish to the *Foot*, and certainly become hollow at last, if it escape with *Life*.

4. The proper Season for this Work, is for old *Trees* earlier, for young later, as a little after the Change in *January* or *February*, some say in *December*, the *Wind* in a gentle Quarter:

*Then shave their Locks, and cut their branchy Tress,
Severely now, luxuriant Boughs repress.*

But this ought not to be too much in young *Fruit-trees*, after they once come to form a handsome *Head*; in which Period you should but once pare them over about *March*, to cover the *Stock* the sooner, if the *Tree* be very choice: To the *aged*, this is plainly a renewing of their *Youth*, and an extraordinary Refreshment, if taken in Time, and that their *Arms* be not suffered to grow too great and large; in which Case, the Member must not be amputated too near the Body, but at some Distance — *ne pars sincera trahatur*: And remember to cut smooth, and sloping upwards if upright Boughs, otherwise downwards; and be sure to *emplaster* great Wounds to keep out the Wet, and hasten the covering of the *Bark*: Besides, for *Interlucation*, exuberant *Branches*, & *spissa nemorum comæ*, where the *Boughs* grow too thick, and are cumbersome, to let in the *Sun* and *Air*; this is of great Importance, and so is the sedulous taking away of *Suckers*, *Water-boughs*, *Fretters*, &c. And for the Benefit of tall *Timber*, the due stripping up the *Branches*, and rubbing off the *Buds* to the Heights you require: Yet some do totally forbear the *Oak*, especially if aged, observing that they much exceed in Growth such as are pruned; and in Truth, such *Trees* as we would leave for *Shade* and Ornament, should be seldom cut; but the *Browse-wood* cherished and preserved as low towards the Ground as may be, for a more venerable and solemn *Shade*; and therefore I did much prefer the *Walk* of *Elms* at *St. James's Park*, as it lately grew *branchy*, intermingling their reverend *Tresses*, before the present trimming them up so high; especially, since I fear the *Remedy* comes too late to save their Decay (could it have been avoided) if the Amputati-

^a ——— Tunc stringe comas, tunc brachia tonde:

————— Tunc denique dura
Exerce imperia, & ramos compesce fluentes.

Georg. ii.

ons of such over-grown Parts as have been cut off, should not rather accelerate it, by exposing their large and many *Wounds* to the Injuries of the *Weather*, which will endanger the *rotting* of them, beyond all that can be applied by *Tar*, or otherwise, to protect them: I do rather conceive their Infirmities to proceed from what has not long since been abated of their large spreading *Branches*, to accommodate with the *Mall*; as any one may conjecture by the great Impression which the Wet has already made in those incurable Scars, that being now multiplied, must needs the sooner impair them; the *Roots* having likewise infinitely suffered by many Disturbances about them. In all Events this *Walk* might have enjoyed its goodly Canopy, with all their branchy Furniture for some *Ages* to come, since 'tis hardly one that first they were planted: But this Defect is providently and nobly supplied by their Successors of the *Lime-trees*, which will sooner accomplish their Perfection, by taking away the *Chestnut-trees*, which will else do them Prejudice.

But it is now (and never till now) that those *Walks* and *Ranks* of *Trees*, and other Royal Amenities, are sure to prosper, whilst they are entirely under the Care and Culture of the most industrious and knowing Mr. *Wise*, to whom, and to his Partner Mr. *London*, I not only acknowledge my self particularly obliged, but the whole Nation, for what they have contributed to the sweetest, useful, and most innocent Diversions of Life, *Gardens* and *Plantations*.

One should be cautious in heading *Timber-trees*, especially the *pi-thy*; unless where they grow very crooked, in which Case abate the *Head* with an upward Sloop, and cherish a leading Shoot: The *Beech* is very tender of its Head.

It is by the Discreet leaving the *Side-boughs* in convenient Places, sparing the smaller, and taking away the bigger, that you may advance a *Tree* to what determined Height you desire: Thus, bring up the *Leader*, and when you would have that spread and break out, cut off all the *Side-boughs*, and especially at *Midsummer*, if you espy them breaking out. Young *Trees* may every Year be pruned, and as they grow older at longer Intervals, as at three, five, seven or sooner, that the *Wounds* may recover, and nothing be deformed.

Ever-greens do not well support to be *decapitated*; Side-boughs they freely spare in *April*, and during the *Spring*; and if you cut at first *two or three Inches* from the Body, and the next *Spring* after close to the *Stem*, covering it with *Wax*, or well tempered *Clay*, the most tender may suffer such Amputations without Prejudice.

Note, that the side and collateral Branches of the *Fir* cut, or broken off, spring no more; and though the *Tops* sometimes do, yet they never prosper to beautiful and erect *Heads*, in which consists the Grace of that beautiful *Tree*.

Another Caution is, that you be sure to cut off such tender Branches to the Quick, which you find have been cropt by *Goats*, or any other *Cattle*, who leave a Drivel where they bite; which not only infects the *Branches*, but sometimes endanger the whole; the Reason is, for that the natural Sap's Recourse to the *Stem*, communicates the *Venom* to all the rest, as the whole Mass and Habit of animal *Blood* is by a *Gangreen*, or *venereal Taint*.

5. Divers other Precepts of this Nature I could here enumerate, had not the great *Experience*, faithful and accurate *Description* how this necessary

BOOK III. necessary *Work* is to be performed, set down by our Country-man honest *Lawson* (*Orchards, Cap. xi.*) prevented all that the most *Inquisitive* can suggest: The Particulars are so ingenious, and highly material, that you will not be displeased to read them in his own *Stile* and *Character*.

All Ages (saith he) by Rules and Experience do consent to a Pruning and Lopping of Trees; yet have not any that I know described unto us (except in dark and general Words) what, or which are those superfluous Boughs which we must take away; and that is the most chief and most needful Point to be known in Lopping: And we may well assure our selves (as in all other Arts, so in this) there is a Advantage and Dexterity by Skill; an Habit by Practice out of Experience, in the Performance hereof, for the Profit of Mankind: Yet do I not know (let me speak it with Patience of our cunning Arborists) any Thing within the Compass of human Affairs so necessary, and so little regarded; not only in Orchards, but also in all other Timber-trees, where or whatsoever.

Now to our Purpose:

How many Forests and Woods, wherein you shall have for one lively thriving Tree, four (nay sometimes twenty-four) evil-thriving, rotten and dying Trees, even whilst they live; and instead of Trees, Thousands of Bushes and Shrubs! what Rottenness! what Hollowness! what dead Arms! withered Tops! curtail'd Trunks! what Loads of Moss! drooping Boughs and dying Branches shall you see every where! and those that in this sort are in a manner all unprofitable Boughs, cankered Arms, crooked, little and short Boals. What an infinite Number of Bushes, Shrubs and Scrags of Hasels, Thorns, and other unprofitable Wood, which might be brought by dressing to become great and goodly Trees! Consider now the Cause.

The lesser Wood hath been spoiled with careless, unskillful and untimely felling; and much also of the great Wood. The greater Trees at the first rising have filled and overladen themselves with a Number of wasteful Boughs and Suckers, which have not only drawn the Sap from the Boal, but also have made it knotty, and themselves, and the Boal mossy, for want of dressing; whereas, if in the Prime of Growth, they had been taken away close, all but one Top, and clean by the Bulk, the Strength of all the Sap should have gone to the Bulk, and so he would have recovered and covered his Knots, and have put forth a fair, long and straight Body, for Timber profitable, huge great of Bulk, and of infinite Use.

If all Timber-trees were such (will some say) how should we have crooked Wood for Wheels, Coorbs, &c.

Ans. Dress all you can, and there will be enough crooked for those Uses.

More than this, in most Places they grow so thick, that neither themselves, nor Earth, nor any Thing under or near them can thrive; nor Sun, nor Rain, nor Air can do them, nor any Thing near, or under them, any Profit or Comfort.

I see a Number of Hags, where out of one Root you shall see three or four (nay more, such is Mens unskillful Greediness, who desiring many, have none good) pretty Oaks, or Ashes straight and tall; because the Root at the first Shoot gives Sap amain: But if one only of them

might

might be suffered to grow, and that well and cleanly pruned, all to his very Top, what a Tree should we have in Time? And we see by those Roots continually and plentifully springing, notwithstanding so deadly wounded, what a Commodity should arise to the Owner, and the Commonwealth, if Wood were cherished and orderly dressed. The waste Boughs closely and skillfully taken away, would give us store of Fences and Fuel; and the Bulk of the Tree in Time would grow of huge Length and Bigness: But here (methinks) I hear an unskilful Arborist say, that Trees have their several Forms, even by Nature; the Pear, the Holly, the Asp, &c. grow long in Bulk, with few and little Arms: The Oak by Nature broad, and such like. All this I grant: But grant me also, that there is a profitable End and Use of every Tree, from which if it decline (though by Nature) yet Man by Art may (nay must) correct it. Now other End of Trees I never could learn, than good Timber, Fruit much and good, and Pleasure: Uses Physical hinder nothing a good Form.

Neither let any Man ever so much as think, that it is unprofitable, much less impossible, to reform any Tree of what Kind soever: For (believe me) I have tried it: I can bring any Tree (beginning betime) to any Form. The Pear and Holly may be made to spread, and the Oak to close.

Thus far the good Man out of his *eight and forty Years Experience* concerning *Timber-trees*: He descends then to the *Orchards*; which, because it may likewise be acceptable to our industrious *Planter*, I thus contract.

6. Such as stand for *Fruits* should be *parted* from within two Foot (or thereabouts) of the Earth; so high, as to give liberty to dress the *Root*, and no higher; because of exhausting the *Sap* that should feed his *Fruit*: For the *Boal* will be first, and best served and fed, being next to the *Root*, and of greatest Substance. These should be *parted* in two, three, or four *Arms*, as your *Graffs* yield *Twigs*; and every *Arm* into two or more *Branches*, every *Branch* into his several *Cyons*; still spreading by equal Degrees; so as his lowest *Spray* be hardly without the Reach of a Man's *Hand*, and his *highest* not past two Yards higher: That no *Twig* (especially in the midst) touch his Fellow; let him spread as far as his *List*, without any *Master-bough*, or *Top*, equally; and when any fall lower than his *Fellows* (as they will with weight of *Fruit*) ease him the next Spring of his superfluous *Twigs*, and he will rise: When any mount above the rest, *top* him with a *Nip* between your *Fingers*, or with a *Knife*: Thus reform any *Cyon*; and as your *Tree* grows in *Stature* and *Strength*, so let him rise with his *Tops*, but *slowly*, and easily, especially in the midst, and equally in *Breadth* also; following him upward, with lopping his *Under-growth*, and *Water-boughs*, keeping the same Distance of *two Yards*, not above *three*, in any wise, betwixt the lowest and highest *Twigs*.

1. Thus shall you have handsome, clear, healthful, great and lasting *Trees*.

2. Thus will they grow safe from *Winds*, yet the *Top* spreading.

3. Thus shall they bear much *Fruit*; I dare say, one as much as five of our common *Trees*, all his *Branches* loaden.

4. Thus shall your *Boal*, being low, defraud the *Branches* but little of their *Sap*.

5. Thus shall your *Trees* be easy to *dress*, and as easy to gather the *Fruit* from, without bruising the *Cyons*, &c.

6. The fittest Time of the *Moon* for the *Pruning* is (as of *Grafting*) when the *Sap* is ready to stir (not proudly stirring) and so to cover the *Wound*; and here, for the Time of Day, we may take *Columella*, *Frondem medio die arborator ne cadito*, Lib. xi. Old *Trees* would be pruned before young *Plants*: And note, that wheresoever you take any Thing away, the *Sap* the next *Summer* will be putting; be sure therefore when he puts to bud in any unfit Place, you rub it off with your Finger; and if this be done for three or four Years still at *Midsummer*, it will at last wholly clear the Side-boughs, and exalt the Growth of the *Stem* exceedingly; and this is of good Use for *Elms*, and such *Trees* as are continually putting forth where they have been pruned: Thus begin timely with your *Trees*, and you may bring them to what Form you please. If you desire any *Tree* should be taller, let him break, or divide higher: This for young *Trees*. The *Old* are reformed by curing of their *Diseases*, of which we have already discoursed. There is this only to be considered, in reference to *Foresters*, out of what he has spoken concerning *Fruit-trees*; that (as has been touch'd) where *Trees* are planted for Shadow, and mere *Ornament*, as in *Walks* and *Avenues*, the *Brouse-wood* (as they call it) should most of it be cherished; whereas in *Fruit*, and *Timber-trees* (*Oak* excepted) it is best to free them of it: As for *Pollards* (to which I am no great Friend, because it makes so many *Scrags* and *Dwarfs* of many *Trees*, which would else be good *Timber*, endangering them with *Drips* and the like *Injuries*) they should not be headed above once in ten or twelve Years, at the Beginning of the *Spring*, or End of the *Fall*. And note, that all *coppicing* and *cutting close*, invigorates the *Roots* and the *Stem* of whatsoever grows weak and unkindly; but you must then take Care it be not overgrown with *Weeds* or *Grass*: Nothing (says my Lord *Bacon*, *Exp.* 586. and truly) causes *Trees* to last so long, as the frequent *Cutting*; every such *Diminution* be a *Re-invigoration* of the *Plant's* Juice, so that it neither goes too far, nor rises too faintly, as when 'tis not timely refreshed with this *Remedy*; and therefore we see, that the most ancient *Trees* in *Church-yards*, and about *old Buildings*, are either *Pollards* or *Dotards*, seldom arising to their full Altitude. 'Tis true (as Mr. *Nourse* observes) that *Elm* and *Oak* frequently *pollarded* and cut, hindering their mounting, increases the *Bulk* and *Circumference*, and makes a Shew of Substance; when all the while 'tis but a hollow Trunk, filled with its own Corruption, spending the genuine Moisture which should go to the Growth of the Arms and Head, and interior Substance of useful *Timber*.

7. For the Improvement of the speedy Growth of *Trees*, there is not a more excellent Thing than the frequent *rubbing* of the *Boal* or *Stem*, with some Piece of *Hair-cloth*, or ruder Stuff, at the Beginning of *Spring*: Some I have known done with *Seals-skin*; the more rugged Bark with a Piece of *Coat of Mail*, which is made of small *Wires*: This done, when the Body of the *Trees* are wet, as after a soaking *Rain*; yet so, as not to *excorticate*, or gall the *Tree*, has exceedingly accelerated its Growth (I am assured, to a wonderful and incredible Improvement) by opening the *Pores*, freeing them of * *Moss*, and killing the *Worm*.

* See Chap.
vii. Book ii.

8. Lastly, *Fronstration*, or the taking off some of the luxuriant *Branches* and *Sprays* of such *Trees*, especially whose *Leaves* are profitable for *Cattle* (whereof already) is a Kind of *Pruning*: And so is the *scarrifying* and cross *hatching* of some *Fruit-bearers*, and others, to abate that *φύλλομανία*, which spends all the *Juice* in the *Leaves*, to the Prejudice of the rest of the Parts.

But after all this, let us hear what the learned and experienced *Esq; Brotherton* has observed upon this *Article* of *Pruning*, and particularly of the taking off the *Top*; that those *Trees* which were so used, some Years before the severe *Frost* of 1684. died: Those not so pruned, escaped: And of other *Trees* (having but a small Head left) the rest of the Boughs cleared, the *Tops* flourished, and the loose *Branches* shread, perished, and the unpruned escaped: Moreover, when the like *Pruning* has been tried on *Trees* twenty Foot high, the Difference of the Increase was visible the following Summer; but within seven or eight Years Time, the Difference was exceeding great, and even prodigious, both in *Bark* and *Branch*, beyond those *Trees* that had been pruned.

9. This, and the like, belonging to the *Care* of the *Wood-ward*, will mind him of his continual Duty; which is to walk about and survey his young *Plantations* daily; and to see that all *Gaps* be immediately stopt; trespassing *Cattle* impounded; and (where they are infested) the *Deer* chased out, &c. It is most certain, that *Trees* preserved and governed by this *Discipline*, and according to the *Rules* mentioned, would increase the Beauty of *Forests*, and Value of *Timber*, more in ten or twelve Years, than all other imaginable *Plantations* (accompanied with our usual Neglect) can do in Forty or Fifty.

10. To conclude; in the Time of this *Work*, should our ingenious *Arborator* frequently incorporate, mingle, and unite the *Arms* and *Branches* of some young and flexible *Trees*, which grow in *Consort*, and near to one another, by entring them into their mutual *Barks* with a convenient *Incision*: This, especially about *Fields* and *Hedge-rows*, for *Fence* and *Ornament*. Dr. Plot mentions some that do naturally, or rather indeed accidentally, mingle thus; nay, and so embrace and coalesce, as if they issued out of the Bowels of one another: Such are the two *Beeches* in the Way from *Oxford* to *Reading* at *Cain-End*; the Bodies of which *Trees* springing from different *Roots*, after they have ascended parallel to the *Top*, strangely unite together a great Height from the Ground, a transverse Piece of *Timber* entring at each End the Bodies of the *Trees*, and growing jointly with them: The same is seen in *Sycamores* at *New-College* Gardens: I my self have woven young *Ash-poles* into Twists of three and four Braids, like *Womens* Hair, when they make it up to fillet it under their *Coifs*, which have strangely incorporated and grown together without Separation; but these are rather for *Curiosity*, than of Advantage for *Timber*.

Trees will likewise grow frequently out of the *Boal* of the other; and some *Roots* will penetrate through the whole Length of the *Trunk*, till fastening in the very Earth, they burst the including *Tree*, as it has happened in *Willows*, where an *Ash-tree* has sprung likely from some *Key* or *Seed* dropt from the rotten Head of it: But this Accident not so properly pertaining to this *Chapter*, I conclude with recommending the bowing and bending of young *Timber-trees*, especially *Oak* and *Ash*, into various *Flexures*, *Curbs* and *Postures*, obliged to ply them-

BOOK III. themselves into different *Modes*, which may be done by humbling and binding them down with tough *Bands* and *Withs*, or *Hooks* rather, cut *Skrew-wise*, or slightly *haggled* and indented with a *Knife*, and so *skrewed* into the Ground, or hanging of weighty *Stones* to the *Tops*, or *Branches*, till the *Tenor* of the *Sap*, and Custom of being so constrained, did render them apt to grow so of themselves, without Power of redressing: This Course would wonderfully accommodate Materials for *Knee-timber* and *Shipping*, the *Wheel-wright*, and other Uses, conform it to their *Moulds*, and save infinite Labour, and abbreviate the Work of *Hewing* and *Waste*.

— adeo in teneris consuescere multum est.

And the *Poet*, it seems, knew it well, and for what Purposes,

^a *When in the Woods with mighty Force they bow
The Elm, and shape it to a crooked Plow;*

so as it even half made it to their Hands.

C H A P. III.

Of the Age, Stature, and Felling of Trees.

FELLING. I. **T**HE *Age* of Trees, except of the *Coniferous* (for the most Part known by the *Degrees* of their tapering *Branches*) is vulgarly reckoned by the Number of *Solar Revolutions*, or *Circles*; the former *Bark* being digested and compacted into *lignous* and woody Substance, which is annually invested by a succeeding *Bark*; which yet in some is not finished so soon as in other Trees; as we find in the *Oak*, *Elm*, *Pine*, *Plum-trees*, &c. which exceed one another in Growth, however co-equal in Years: But of this hereafter. In the mean Time, it is not till a Tree is arrived to his perfect *Age* and full *Vigour*, that the *Lord* of the *Forest* should consult or determine concerning a *Felling*: For there is certainly in Trees (as in all Things else) a Time of *Increment*, or Growth; a *Status* or Season when they are at *best* (which is also that of *Felling*) and a *Decrement* or *Period* when they *decay*. To the *first* of these they proceed with more or less *Velocity*, as they consist of more strict and compacted *Particles*, or are of a slighter and more laxed *Contexture*; by which they receive a speedier or slower *Defluxion* of *Aliment*. This is apparent in *Box*, and *Willow*; the one of a harder, the other of a more tender *Substance*: But as they proceed, so they likewise continue. By the *State* of Trees I would signify their utmost *Effort*, *Growth* and *Maturity*, which are all of them different as to *Time* and *Kind*; yet do not I intend by this any *Period* or Instant in which they do not continually either improve or decay (the *End* of one being still the *Beginning* of the *other*) but farther than which their *Natures* do not extend; but immediately (though to our Senses *imperceptible*) through some *Infirmity* (to which all Things sublunary be obnoxious) dwindle and impair, either through *Age*, Defect of *Nourishment*, by *Sickness* and Decay of principal *Parts*; but especially and more inevitably, when

^a Continuò in Silvis magna vi flexa domatur
In burim, & curvi formam accipit Ulnus aratri:

Geo. i.

violently

violently invaded by mortal and incurable *Infirmities*, or by what other CHAP. III. Extinction of their *vegetative Heat*, *Substraction* or *Obstruction* of *Air* and *Moisture*; which making all *Motions* whatsoever to cease and determine, is the Cause of their final Destruction.

2. Our honest *Countryman*, to whose *Experience* we have been obliged for something I have lately *animadverted* concerning the *pruning* of *Trees*, does, in another *Chapter* of the same *Treatise*, speak of the *Age* of *Trees*. The *Discourse* is both learned, rational, and full of Encouragement: For he does not scruple to affirm, that even some *Fruit-trees* may possibly arrive to a *Thousand Years* of *Age*; and if so *Fruit-trees*, whose continual bearing does so much impair and shorten their *Lives*, as we see it does their *Form* and *Beauty*; how much longer might we reasonably imagine some *hardy* and slow-growing *Forest-trees* may probably last? I remember *Pliny* tells us of some *Oaks* growing in his *Time* in the * *Hercynian Forest*, which were thought *co-evous* with the *World* it self; their *Roots* had even raised *Mountains*, and where they encounter'd, swell'd into goodly *Arches*, like the *Gates* of a *City*: But our more modern *Author's* Calculation for *Fruit-trees* (I suppose he means *Pears*, *Apples*, &c.) his Allowance is *three hundred Years* for *Growth*, as much as for their *Stand* (as he terms it) and *three hundred* for their *Decay*, which does in the *Total* amount to no less than *nine hundred Years*. This Con-
* Hercyniæ
Silvæ robo-
rum vastitas
intacta ævis,
& congenita
mundo, prope
immortali
sorte miracu-
la excedit.
Plin. Lib. xvi.
Cap. ii.
jecture is deduced from *Apple-trees* growing in his *Orchard*, which having known for *forty Years*, and upon diligent Enquiry of sundry aged Persons of *eighty Years* and more, who remembred them *Trees* all their *Time*, he finds, by comparing their *Growth* with others of that *Kind*, to be far short in *Bigness* and *Perfection* (*viz.* by more than two *Parts* of three) yea, albeit those other *Trees* have been much hindered in their *Stature*, through ill *Government* and *Mis-ordering*: And this to me seems not at all extravagant, since I find mention of a *Pear-tree* near *Ross* in *Herefordshire*, which being of no less than *eighteen Foot* in *Circumference*, and yielding seven *Hogsheads* of *Cyder* yearly, must needs have been of very long *Standing* and *Age*, tho' perhaps not so near *Methusalem's*.

3. To establish this, he assembles many *Arguments* from the *Age* of *Animals*, whose *State* and *Decay* double the *Time* of their *Increase* by the same *Proportion*: If then (saith he) those frail *Creatures*, whose *Bodies* are nothing (in a *Manner*) but a tender *Rottenness*, may live to that *Age*; I see not but a *Tree* of a solid *Substance*, not damnified by *Heat* or *Cold*, capable of, and subject to any kind of ordering or dressing, feeding naturally, and from the *Beginning* disburthen'd of all *Superfluities*, eased of, and of his own accord avoiding the *Causes* that may annoy him, should double the *Life* of other *Creatures* by very many *Years*. He proceeds, What else are *Trees* in *Comparison* with the *Earth*, but as *Hairs* to the *Body* of *Man*? And it is certain, that (without some *Distemper*, or forcible Cause) the *Hairs* dure with the *Body*, and are esteemed *Excrements* but from their superfluous *Growth*: So as he resolves, upon good *Reason*, that *Fruit-trees* well ordered may live a *thousand Years* and bear *Fruit*; and the longer the more, the greater and the better; (for which an *Instance* also in *Dr. Beal's Herefordshire Orchards*, *Pag. 21, 22.*) because his *Vigour* is proud and stronger, when his *Years* are many. Thus you shall see old *Trees* put forth their

BOOK III. *Buds and Blossoms* both sooner, and more plentifully than *young Trees* by much; and I sensibly perceive (saith he) my *young Trees* to enlarge their *Fruit* as they grow greater, &c. And if *Fruit-trees* continue to this *Age*, how many *Ages* is it to be supposed strong and huge *Timber-trees* will last? whose massy *Bodies* require the Years of divers *Methuselahs*, before they determine their Days; whose *Sap* is strong and bitter; whose *Bark* is hard and thick, and their *Substance* solid and stiff; all which are Defences of Health and long Life. Their Strength withstands all forcible *Winds*; their *Sap* of that Quality is not subject to *Worms* and Tainting; their *Bark* receives seldom or never by Casualty any Wound; and not only so, but they are free from *Removals*, which are the Death of *Millions* of *Trees*; whereas the *Fruit-tree* (in Comparison) is little, and frequently blown down; his *Sap* sweet, easily and soon tainted; his *Bark* tender, and soon wounded; and himself used by *Man* as *Man* uses himself; that is, either unskillfully, or carelessly. Thus he. But *Vossius de Theolog. Gent. Lib. v. Cap. v.* gives too little *Age* to *Ashes*, when he speaks but of one hundred Years (in which, as in the rest, he seems to agree with my Lord Bacon, *Hist. Vitæ & Mort. Artic. i.*) and to the *Medica, Pyrus, Prunus, Cornus* but sixty; he had as good have held his Peace: Even *Rosemary* has lasted amongst us a hundred Years.

4. I might to this add much more, and truly with sufficient Probability, that the *Age* of *Timber-trees*, especially of such as be of a compact, resinous, or balsamical Nature (for of this Kind are the *Yew, Box, Horn-beam, White-thorn, Oak, Walnut, Cedar, Juniper, &c.*) are capable of very long Duration and Continuance: Those of largest *Roots* (a Sign of *Age*) longer lived than the shorter; the dry than the wet; and the gummy, than the watery; the sterile than the fruitful: For not to conclude from *Pliny's* * *Hercynian Oaks*, or the *Turpentine-Tree* of *Idumæa* (which *Josephus* ranks also with the *Creation*) I mentioned a *Cypress*, yet remaining somewhere in *Persia* near an old *Sepulchre*, whose *Stem* is as large as five Men can encompass, the Boughs extending fifteen Paces every way; this must needs be a very old Tree, believed by my *Author* little less than two thousand five hundred Years of *Age*. Of such another, Dr. *Spon*, in his Voyage into *Greece*, speaks, which by its spreading seems to be of the *Savine* Kind: And, in Truth, as to the *Age* and Duration, *Cypress, Cedar, Box, Ebony, Brasil*, and other exceeding hard and compact (with some resinous) *Woods*, growing chiefly in both *East* and *West-Indies*, must needs be of wonderful *Age*. The Particulars were too long to recount. The old *Platanus* set by *Agamemnon*, mentioned by *Theophrastus*, and the *Herculean Oaks*; the *Laurel* near *Hippocrene*, the *Vatican Ilex*, the *Vine* which was grown to that Bulk and *Woodiness*, as to make a *Statue* of *Jupiter*, and *Columns* in *Juno's Temple*; and at present 'tis found that the great *Doors* of the *Cathedral* at *Ravenna* is made of such *Vine-tree* Planks; some of which are twelve Foot long, fourteen and fifteen Inches broad; the whole Soil of that Country producing *Vines* of prodigious Growth; and such another in *Margiana* is spoken of by *Strabo*, that was twelve Foot in *Circumference*: *Pliny* mentions one of six hundred Years old in his Time; and at *Ecoan* the late *Duke* of *Montmorancy's* House, is a *Table* of a very large Dimension, made of the like Plant: And that which renders it the more strange, is, That a Tree growing in such a wreathed and twisted manner, rather like a *Rope* than Timber,

* *Silvarum, Hercynia die-rum sexaginta iter occupans, ut major aliis, ita & notior.*
Pomp. Mela, l. iii. c. iii.

Timber, and needing the Support of others, should arrive to such a Bulk, and firm Consistence ; but so it is, and *Olearius* affirms, that he found many *Vines* near the *Caspian Sea*, whose Trunks were as big about as a Man. And the old *Lotus-Trees*, recorded by *Valerius Maximus*, and the *Quercus Mariana*, celebrated by the Prince of Orators: *Pliny's* huge *Larix*, and what grew in the *Fortunate Islands*, with that enormous Tree *Scaliger* reports was growing in the *Troglodytic India*, &c. were famous for their Age : *St. Hierom* affirms he saw the *Sycamore* that *Zaccheus* climbed up, to behold our LORD ride in Triumph to *Jerusalem* : But that's nothing for Age to the *Olive* under which our *Blessed Saviour* agonized, still remaining (as they say) in the *Garden* to which he used to resort. At the same Rate, *Surius* tells of other *Olive-trees* at *Nazareth*, and of the cursed *Fig-tree*, whose *Stump* was remaining above fifteen hundred Years. Not to omit that other *Fig-tree* (yet standing near *Cairo*) which is said to have opened in two Parts, to receive and protect the *Blessed Virgin* and *holy Babe*, as she was flying into *Egypt* ; but is now shewed whole again, as *Monconys*, who saw (but believed nothing of it) tells the Story. There is yet there a Tree of the same Kind, which measures seventeen Paces in Circumference : And now in the *Aventine Mount* they shew us the *Malus Medica*, planted by the Hand of *St. Dominic*, and another in the *Monastery* at *Fundi*, where *Thomas Aquinas* lived, planted by that *Saint*, 1278. In *Congo* they speak of Trees capable to be excavated into *Vessels*, that would contain two hundred Men a Piece. To which add those superannuated *Tilia's* now at *Basil*, and that of *Auspurg*, under whose prodigious *Shade* they so often feast, and celebrate their *Weddings* ; because they are all of them noted for their reverend *Antiquity* ; that of *Basil* branching out one hundred Paces *Diameter*, from a *Stem* of about twenty Foot in Circle, under which the *German Emperors* have sometimes eaten : And to such Trees it seems they paid *Divine Honours*, as the nearest *Emblems* of *Eternity*, & *tanquam sacras ex vetustate*, as *Quintilian* speaks. And like to these might that *Cypress* be, which is celebrated by *Virgil*, near to another Monument.

5. But we will spare our *Reader*, and refer him that has a Desire to multiply *Examples* of this Kind, to those undoubted *Records* our *Naturalist* mentions in *Chap. xliv. Lib. xvi.* where he shall read of *Scipio Africanus's* *Olive-trees* ; *Diana's Lotus* ; the *Ruminal Fig-tree* ; under which the *Bitch-Wolf* suckled the *Founder* of *Rome* and his *Brother* ; lasting (as *Tacitus* calculated) eight hundred and forty Years ; putting out new Shoots, presaging the *Translation* of that *Empire* from the *Cæsarian Line*, hap'ning in *Nero's* Reign. The *Ilex*, of prodigious *Antiquity*, as the *Hetruscan* Inscription remaining on it imported : But *Pausanias*, in his *Arcadics*, thinks the *Samian Vitex* (of which already) to be one of the oldest Trees growing, and the *Platan* set by *Menelaus* ; to these he adds the *Delian Palm*, co-evous with *Apollo* himself, and the *Olive* planted by *Minerva*, according to their Tradition ; the over-grown *Myrtil* ; the *Vatican* and the *Holm*, and the *Tiburtine*, and especially that near to *Tusculum*, whose Body was thirty-five Foot about ; besides divers others which he there enumerates in a large *Chapter* : And what shall we conjecture of the Age of *Xerxes's Platanus*, in *Admiration* whereof he staid the March of so many hundred thousand Men for so many Days ; by which the wise *Socrates* was used

used to *swear*; and certainly, a goodly *Tree* was a powerful Attractive, when that prudent *Consul*, *Passienus Crispus*, fell in Love with a prodigious *Beech* of a wonderful Age and Stature, which he used to sleep under, and would sometimes refresh it with pouring *Wine* at the Roots; and that wise Prince *Francis the First*, as much enamoured with an huge *Oak*, which he caused to be so curiously immured at *Bourges*.

6. We have already made mention of *Tiberius's Larch*, intended to be employed about the *Naumachia*, which being one hundred and twenty Foot in Length, bare two Foot *Diameter* all that Space (not counting the Top) and was looked upon as such a Wonder, that though it was brought to *Rome* to be used in that vast Fabrick, the *Emperor* would have it kept *propter Miraculum*; and so it lay unemployed till *Nero* built his *Amphitheatre*. To this might be added the *Mast* of *Demetrius's Galeasse*, which consisted but of one *Cedar*: And that of the *Float* which waisted *Caligula's Obelisks* out of *Egypt*, four Fathoms in Circumference. We read also of a *Cedar* growing in the *Island* of *Cyprus*, which was one hundred and thirty Foot long, and eighteen in *Diameter*; and such it seems there are some yet growing on Mount *Libanus* (though so very few in Number) our late Travel-
 * Mr. *Maundrill*, affirms himself to have measured one of twelve Yards six Inches in Girt, sound, and no less than thirty Yards from the Ground, divided into five Limbs, each of which was equal to a great Tree: Of the *Plane* in *Athens*, whose Roots extended thirty-six Cubits farther than the Boughs, which were yet exceedingly large; and such another was that most famous Tree at *Veliternus*, whose Arms stretched out eighty Foot from the Stem: But these were *solid*. Now if we will calculate from the *Hollow*, besides those mentioned by *Pliny*, in the *Hercynian Forest*; the *Germans* had *Castles* in *Oaks*, and (as now the *Indians*) had of old some *Punti*, or *Canoos* of excavated *Oak*, which would well contain thirty, some forty Persons: Such were the ancient *μονόζυγα*, in use yet about *Cephalonia*, as Sir *George Wheeler* observed; and such the *Ἀδρῶα Πλοῖα* used by those of *Cyprus*: But what were these to a *Canoo* in *Congo*, which was made to hold two hundred Men? And the *Lician Platanus*, recorded by the *Naturalist*, and remaining long after his Days, had a Room in it of eighty-one Foot in Compass, adorned with *Fountains*, stately *Seats* and *Tables* of Stone; for it seems it was so glorious a Tree both in Body and Head, that *Licinius Mutianus* (three times *Consul* and Governour of that *Province*) used to feast his whole Retinue in it, choosing rather to lodge in it, than in his golden-roofed *Palace*; it was in Compass eighty Foot, and grew in *Asia*. And of later Date, that vast *Cerrus* in which an *Eremit* built his *Cell* and *Chapel*, so celebrated by the noble *Fracastorius* in his Poem *Malteide. Cant. viii. Stro. xxx.*

But for these capacious hollow Trees we need go no farther than our own Country; there being (besides that which I mention in *Gloucestershire*) an *Oak* at *Kidlington-Green* in *Oxfordshire*, which has been frequently used (before the Death of the late Judge *Morton*, near whose House it stood) for the immediate Imprisonment of *Vagabonds* and *Malefactors*, till they could conveniently be removed to the County-Goal: And such another *Prison Dr. Plot* does, in his excellent History of *Oxfordshire*, mention out of *Ferdinand Hertado* in *Moravia*, to be made out of the Trunk of a *Willow*, twenty-seven Foot in Compass: But not to go out of our promised Bounds, the Learned *Doctor* speaks of

* *Maundrill's*
 Journey to
Jerusalem,
 p. 140.

an *Elm* growing on *Blechington-Green*, which gave Reception and Harbour to a poor *great-belly'd Woman* (whom the unhospitable People would not receive into their Houses) who was brought to Bed in it of a *Son*, now a lusty young Fellow. This puts me in mind of that (I know not what to call it) *Privilege* belonging to a venerable *Oak*, lately growing in *Knoll-Wood*, near *Trely-Castle* in *Staffordshire*, of which, I think, *Sir Charles Skrymsber* is Owner; that upon *Oath* made of a *Bastard's* being begotten within the reach of its *Bough's Shade* (which I assure you at the rising and declining of the *Sun* is very ample) the *Offence* was not obnoxious to the Censure of either *Ecclesiastical* or *Civil* Magistrate. These, with our *Historians*, I rather mention also for their extravagant Use, and to refresh the *Reader* with some Variety, than for their extraordinary Capacity; because such Instances are innumerable, should we pretend to illustrate this Particular with more than needs.

And now I have spoken of *Elms*, and other Extravagancies of *Trees*, there stands one (as this curious Observer notes) in *Binsley Common*, six Yards *Diameter* next the Ground, which 'tis conjectured has been so improved by raising an earthen Bank, or Seat about it, which has caused it to put forth into *Spurs*; it not being so considerable in the higher *Trunk*.

7. Compare me then with these that nine fathom'd-deep *Tree* spoken of by *Josephus Acosta*; the *Mastick-tree*, seen and measured by *Sir Francis Drake*, which was four and thirty Yards in Circuit; those of *Nicaragua* and *Gambra*, which seventeen Persons could hardly embrace: Among these may come in the *Cotton-tree* described by *Dampier*. In *India* (says *Pliny*) *Arbores tante proceritatis traduntur, ut sagittis superari nequeant* (and adds, which I think *material*, and therefore add also) *Hæc facit ubertas soli, temperies cæli, & Aquarum abundantia*. Such were those *Trees* in *Corfica*, and near *Memphis*, &c. recorded by *Theophrastus*, &c. and for prodigious Height, the two and three hundred Foot unparalleled *Palms-Royal* described by *Captain Ligon*, growing in our *Plantations* of the *Barbados*; or those goodly *Masts* of *Fir*, which I have seen and measured, brought from *New-England*; and what *Bembus* relates of those twenty-fathom'd *Antarctic-trees*; or those of which *Cardan* writes, called *Ciba*, which rising in their several *Stems* each of twenty Foot in Compass, and as far distant each from other, unite in the *Boal* at fifteen Foot height from the Ground, composing three stately *Arches*, and thence ascending in a *Shaft* of prodigious Bulk and Altitude: Such *Trees* of thirty-seven Foot *Diameter* (an incredible Thing) *Scaliger* (his *Antagonist*) speaks of *ad Gambra fluvium*. *Matthiæolus* mentions a *Tree* growing in the Island of *Cyprus*, which contained one hundred and thirty Foot high sound *Timber*: And upon *Mount Ætna* in *Sicily* is a Place called by them *gli Castayne*, from three *Chestnut-trees* there standing, where in the Cavity of one, yet remaining, a considerable Flock of *Sheep* is commonly folded: *Kircher's* Words are these, as seen by himself, *Et quod forsân αἰδοῦναι videri possit, ostendit mihi viæ dux, unius Castaneæ Corticem tantæ amplitudinis, ut intra eam integer pecorum grex à pastoribus, tanquam in Caula commodissima, noctu includeretur*. *China Illust.* p. 185. But this, as I remember, was lately ruin'd by the direful Conflagration about *Catanea*. And what may we conceive of those *Trees* in the *Indies*, one of whose *Nuts* hardly one

Book III. Man is able to carry; and which are so vast, as they depend not, like other *Fruit*, by a *Stalk* from the *Boughs*, but are produced out of the very *Body* and *Stem* of the *Tree*, and are sufficient to feed twenty Persons at a *Meal*? There were *Trees* found in *Brazil*, that sixteen Men could hardly fathom about; and the *Jesuits* caused one of these to be felled, for being superstitiously worshipped by the *Savages*, which was one hundred and twenty *Foot* in Circumference. The *Mexican* Emperor is said to have had a *Tree* in his *Garden*, under whose *Shade* a thousand Men might sit at a competent Distance.

We read of a certain *Fig* in the *Charibee Islands*, which emits such large Buttresses, that great *Planks* for *Tables* and *Flooring* are cleft out of them, without the least Prejudice to the *Tree*; and that one of these does easily shelter two hundred Men under them: And in *Nieuhoff's* Voyage to the *East-Indies*, of the *Kynti*, a Kind of *Oak*, which yield *Planks* of four *Foot* Breadth, and forty in Length: *Strabo*, I remember, *Georg. Lib. xv.* talks of fifty Horsemen under a *Tree* in *India*; his Words are ὡς δ' ὑπ' ἐν δένδρῳ μετὰ μὲ εἰς ἐν σκιαζομένης ἰππέως πεντήκοντα, and of another that shaded five *Stadia* at once; and in another Place of a *Pine* about *Ida*, which measured twenty-four *Foot* Diameter, and of a monstrous Height: To these may be added the *Arbor de Rays*, a certain *Tree* growing in the *East-Indies*, which propagates it self into a vast *Forest* (if not hindered) by shooting up, and then letting a Kind of gummy String to fall and drile from its Branches, which takes Root in the Ground again, and in this Process spread a vast Circuit, the single Stem of some of which are reported to be no less than fifty *Foot* Diameter, a Thing almost incredible. To this may be added the *Balete*, described by Mr. *Ray*, (*Append. 3d Vol.*) and what he cites of *Melchion Barros*, who found *Trees* Proof against Weapons, resisting the Force of any edged Tool, being of a Consisture so hard: But even this, and all we have hitherto produced, is nothing to what I find mentioned in the late *Chinese History* (as 'tis set forth upon Occasion of the *Dutch Embassy*) where they tell us of a certain *Tree* called *Ciennich* (or the *Tree* of a thousand Years) in the Province of *Suchu*, near the City *Kien*, which is so prodigiously large, as to throw two hundred *Sheep* under one only *Branch* of it, without being so much as perceived by those who approach it. And to conclude with yet a greater Wonder, of another in the Province of *Chekian*, whose Amplitude is so stupendiously vast, as fourscore Persons can hardly embrace: These gigantick *Trees*, the *Chinese Timber-Merchants* transport on *Floats*, upon which they build *Huts* and little Cottages, where they live with their Families, floating many thousand Miles till all be sold, as *Le Compte* tells us: In the mean Time we must not omit the strange and incredible Bulk of some *Oaks* standing lately in *Westphalia*, whereof one served both for a *Castle* and *Fort*; and another there, which contained in Height one hundred and thirty *Foot*, and (as some report) thirty *Foot* Diameter; and another which yielded one hundred Wane-Load. I have read of a *Table* of *Walnut-tree* to be seen at *St. Nicholas's* in *Lorrain*, which held twenty-five *Foot* broad, all of a *Piece*, and of competent Length and Thickness, rarely fleck'd and water'd; *Scamozzi* the *Architect* reports he saw it: Such a Monster that might be, under which the *Emperor Frederick the Third* held his magnificent *Feast*, 1472. For in this *Recension* we will endeavour to give a Taste of more fresh Observations, and to compare our modern *Timber* with the *Antient*,
and

and that, not only abroad, but without travelling into foreign Countries CHAP. III.
for these Wonders.

8. What goodly *Trees* were of Old *adored*, and consecrated by the *Driads*, I leave to conjecture from the Stories of our antient *Britains*, who had they left *Records* of their *Prodigies* in this Kind, would doubtless have furnished us with *Examples* as remarkable for the *Growth* and *Stature* of *Trees*, as any which we have deduced from the *Writers* of Foreign Countries; since the Remains of what are yet in being (notwithstanding the Havock which has universally been made, and the little Care to improve our *Woods*) may stand in fair Competition with any thing that *Antiquity* can produce.

9. There is somewhere in *Wales* an *Inscription* extant, cut into the Wood of an old Beam, thus,

SEXAGINTA PEDES FUERANT IN STIPITE NOSTRO,
EXCEPTA COMA QUÆ SPECIOSA FUIT.

this must needs have been a noble Tree, but not without later *Parallels*; for to instance in the several *Species*, and speak first of the Bulks of some immense Trees; there was standing an old and decayed *Chestnut* at *Fraiting* in *Essex*, whose very Stump did yield thirty sizable Load of *Logs*. I could produce you another of the same Kind in *Gloucestershire*, which contains within the Bowels of it a pretty wainscotted Room inlighten'd with Windows, and furnish'd with Seats, &c. to answer the *Lician Platanus* lately mentioned.

10. But whilst I am on this Period; see what a *Tilia* that most learned and obliging Person Sir *Tho. Brown* of *Norwich* describes to me in a Letter just now received.

An extraordinary large and stately Tilia, Linden, or Lime-tree, there groweth at Depeham in Norfolk, ten Miles from Norwich, whose Measure is this. The Compass in the least Part of the Trunk or Body about two Yards from the Ground, is at least eight Yards and half; about the Root nigh the Earth, sixteen Yards, about half a Yard above that, near twelve Yards in Circuit: The Height to the uppermost Boughs about thirty Yards, which surmounts the famous Tilia of Zurich in Switzerland; and uncertain it is whether in any Tilicetum, or Lime-walk, abroad it be considerably exceeded: Yet was the first Motive I had to view it not so much the Largeness of the Tree, as the general Opinion that no Man could ever name it; but I found it to be a Tilia foemina; and (if the Distinction of Bauhinus be admitted from the greater and lesser Leaf) a Tilia Platyphyllos, or Latifolia; some Leaves being three Inches broad; but to distinguish it from others in the Country, I called it Tilia Colossæa Depehamensis.

Thus that learned Person, from this and the like Instance (as the Reader will find in what follows growing in our own Country) I am not apt so much to admire what is pretended so mightily to exceed the refreshing Shades of some of our Oaks, Beeches, Elms, and other ample Umbrages, if diligently compared; as I am to impute it to what the younger * *Pliny* attributes to Mens affecting Novelties, that tanta

* Lib. viii.
Ep. xx. ad
Gallius.

suarum rerum satietas, aliacumque aviditas.
A *Poplar-tree*, not much inferior to this, he informs me grew lately at *Harling* by *Thetford*, at Sir *William Gawdy's* Gate, blown down by that terrible *Hurricane* about four Years since.

But here does properly intervene the *Linden* of *Schalouse* in *Swisse*, under which is a Bower composed of its Branches, capable of containing three hundred Persons sitting at ease : It has a Fountain set about with many Tables, formed only of the Boughs, to which they ascend by Steps ; all kept so accurately, and so very thick, that the *Sun* never looks into it : But this is nothing to that prodigious *Tilia* of *Newstadt* in the *Dutchy* of *Wirtemberg*, so famous for its Monstrosity, that even the *City* itself receives a Denomination from it, being called by the *Germans* *Neustadt ander grossen Linden*, or *Newstadt* by the great *Lime-tree*. The Circumference of the *Trunk* is twenty-seven Foot four Fingers : The *Ambitus*, or Extent of the *Boughs*, four hundred and three *Ferè* ; the *Diameter* from *South* to *North* one hundred and forty-five, from *East* and *West* one hundred and nineteen Foot ; set about with divers *Columns* and *Monuments* of *Stone* (eighty-two in Number at present, and formerly above an *Hundred* more) which several *Princes* and noble Persons have adorned, and celebrated with *Inscriptions*, *Arms* and *Devices*, and which, as so many *Pillars*, serve likewise to support the umbragious and venerable Boughs : And that even the *Tree* had been much ampler, the *Ruins* and Distances of the *Columns* declare, which the rude Soldiers have greatly impair'd.

By the *Date* of the antientest *Column*, yet intire, namely *Anno* 1555, may be conjectured how goodly a *Tree* it was almost two hundred Years since. The *Inscriptions* on the several *Arms* and *Supporters* are as follows.

D. V. H. Z. W. CLL ——— Graff zu Leuehtenberg. 1591. 1583. 1575. Albert von rosenberg Ritter. 1591. Wolff Keidel alter Furleutum. 1555. Some report he planted it. Hans Heinrie vonder Tana. 1583. Conrad von Flbeg. 1575. Friz Nerter von Hertenek. 1575. Wirich von Gemmingen. 1575. Bartol ——— Mot. 1555. V. Hans Funk der zeit Burgermeister Die erst, 1555. Hans Ulrich Stigelheimer zu Durarbenig Fuchlicher. br. Hoff-meister. 1591.

Præsul de Langheim rediens Cisterliæ ab urbe
Pyramidem hanc posuit flammis Cœlestibus auctam.
Sentiât hæc etiam Mumen spirabile toto
Pectore, & illius semper sit munere fœlix.

Johann. Abt zu Langh. 1601. Job. Abt zu Schoenthal. 1584. Eberhard von Gimmingen. 1555. David von Helmstad Amtman. Graff. Fridrich zu Mompelyard. Hans Henrick von Lammestein. Sigismund Signiger. L. H. Z. W. A. 353. G. L. Mary Graff au Brandenb. 1562. Georg. Ernest Graff zu Henneb. Herr zu Aschaffb. 1575. Michel Helmling Statt-schreiber. 1555. Hans Ulrick von Steine. 1575. Daniel von Helmstatt. zu Kappenaw. 1556. ——— Stamel von Reischbach 1575. Willhelm von Crombach 1588. Bernolph von Gammingen. 1588. Schweiker Wumbold von Umstatt. 1591. Henrich Link Pfarrer zu Uden. Andreas von Oberbach Vorsmeist. zu Neu-statt. Neubrecht Bart Keller zu Leustatt. 1557. ——— Ernberg. Thomas Busch von Schorndorff. Wolfgang von Gemmingen 1588. Feit Kumeter Forstmeister. 1551, and 1530.

After this we might forbear the naming that at *Tillburg* near *Buda* in *Hungary*, growing in the middle of the Street, extending to sixty-

two Paces from the Stem, sustained by twenty-eight *Columns*: Nor that nearer us, at *Cleves* in the *Low-Countries*, a little without the entering into the Town, cut in eight *Faces* supported with *Pillars*, and containing a Room in the middle, the Head of the Tree curiously shap'd: I say, I need not have charged this *Paragraph* with half these, but to shew how much more the *Lime-tree* seems to be disposed to be brought into these *arborious* Wonders, than other Trees of flower Growth: And yet I am told of a *White-thorn* at *Worms* in *Germany*, planted in the Centre of the *Quadrangle* of the great Church, whose Branches, held up with Stone, is in Circle fifty Paces: Several more occur, too tedious to recite: But what is all this, take the most spreading of them, to what we shall shew, whilst that of *Neustadt* comes not yet by *forty Foot* near to the Dimensions of an *Oak* standing lately in *Workshop-Park*, belonging to his Grace the Duke of *Norfolk*, *Earl Marshal* of England, spreading almost three thousand Yards square, and under the Shade whereof near a *thousand Horse* might commodiously stand at once. But, besides this gigantic *Lime-tree*, there is likewise a *White-thorn*, brought (as the Tradition goes) a small Twig out of *Palestine*, Anno 1470, by *Eberhard*, first Duke of *Wirttemberg*, and planted near *Tubing*, where he founded *St. Peter's Monastery*, the Branches whereof being sustained by *forty Columns* of Stone, is yet a flourishing Tree: 'Tis probable that of *Glastenbury* is of this Kind, and above a *thousand Years* antienter, if the Report be true. At *Forti* grows a *Filbert* whose *Trunk* is as big as three Mens Middles: Near *Essling* is a *Juniper-tree* of almost *two Foot* Diameter in the lower *Trunk*, and very tall: These *Prodigies*, with several more we have from *Dr. Faber*, *Physician* to *Frederic Duke* of *Wirttemberg*, and collected by the late industrious Jesuit *Schotti*, in his *Appendix ad Lib. ii. De Mirabilibus Miscellaneis*. Nor may here that goodly *Birch-tree* be forgotten, which growing in one of the Courts of the Palace of *Ausburgh*, is so spreading, as that the Branches will cover three hundred and sixty-five Tables, even as many as there are Days in the Year, with its *Shade*, as *Tavernier* tells us in his *Travels*. Mr. *Cook*, in his ingenious and useful *Treatise*, mentions a *Witch-Elm* growing within these three or four Years in Sir *Walter Baggot's Park* in the County of *Stafford*, which after two Men had been five Days felling, lay *forty Yards* in Length; was at the *Stool* seventeen Foot diameter: It broke in the Fall fourteen Load of Wood, forty-eight Load in the Top: Yielded eight Pair of Naves, eight thousand six hundred and sixty Foot of Boards and Planks: It cost ten Pounds, seventeen Shillings the sawing, the Whole esteemed ninety-seven Tuns: This was certainly a goodly Stick!

What other prodigious Trees do at present, and of late abound in that Country, may be seen in *Dr. Plot's Natural History*; nay, some planted in the Memory of Men of the Place, that have grown to a wonderful Procerity: Such was an *Oak* at *Narbury*, of fifteen Yards in Girth, which being felled, two Men at either Side on Horse-back could not see one another: And of an *Ash* of eight Foot diameter, the Timber of which was valued at 30 l.

II. I am told of a very *Withy-tree*, to be seen somewhere in *Barkshire*, which is increased to a most stupendious Bulk; and of two *Witch-bazel-trees* of prodigious Size, growing in *Oaksey-Park*, belonging to Sir *Edw. Pooles* near *Malmsbury* in *Wiltshire*, not inferior to the

BOOK III. largest Oaks : But these for arriving hastily to their *Acme* and *Period*, and generally not so considerable for their Use ; I pass to the *Ash*, *Elm*, *Oak*, &c.

There were of the *first* of these divers which measured in Length one hundred and thirty-two Foot, sold lately in *Essex* : And in the Manour of *Horton* (to go no farther than the Parish of *Ebsbam* in *Surrey*, belonging to my Brother *Richard Evelyn*, Esq;) there were *Elms* standing in good Numbers, which would bear almost three Foot Square for more than forty Foot in Height, which is (in my Judgment) a very extraordinary Matter. They grow in a moist *Gravel*, and in the *Hedge-rows*.

Not to insist upon *Beech*, which are frequently very large ; there are Oaks of forty Foot high and five Foot diameter, yet flourishing in divers old Parks of our Nobility and Gentry : And *Firs* of one hundred and fifty Foot in height ; which is exceeded by one growing in a Wood about *Bern* by almost one hundred Foot, as *Chabrous* tells us.

A large and goodly Oak there is at *Reedham*, in Sir *Richard Berney's* Park of *Norfolk*, which I am informed was valued at forty Pounds the Timber, and twelve Pounds the lopping Wood.

12. Nor are we to over-pass those memorable Trees which so lately flourished in *Dennington-Park* near *Newbury* ; amongst which three were most remarkable from the ingenious Planter, and Dedication (if Tradition hold) of the famous English Bard, *Jeoffry Chaucer* ; of which one was called the King's, another the Queen's, and a third *Chaucer's Oak*. The first of these was fifty Foot in height before any Bough or Knot appeared, and cut five Foot square at the Butt-end, all clear Timber. The Queen's was fell'd since the Wars, and held forty Foot excellent Timber, straight as an Arrow in Growth and Grain, and cutting four Foot at the Stub, and near a Yard at the Top ; besides a Fork of almost ten Foot clear Timber above the Shaft, which was crowned with a shady Tuft of Boughs, amongst which, some were on each Side curved like Rams-horns, as if they had been so industriously bent by Hand. This Oak was of a Kind so excellent, cutting a Grain clear as any Clap-board (as appeared in the Wainscot which was made thereof) that a thousand Pities it is some Seminary of the Acorns had not been propagated, to preserve the Species. *Chaucer's Oak*, though it were not of these Dimensions, yet was it a very goodly Tree : And this Account I received from my most honoured Friend *Phil. Packer*, Esq; whose Father (as lately the Gentleman his Brother) was Proprietor of this Park : But that which I would farther remark, upon this occasion, is the Bulk and Stature to which an Oak may possibly arrive within less than three hundred Years ; since it is not so long that our Poet flourished (being in the Reign of King *Edward III.*) if at least he were indeed the Planter of those Trees, as 'tis confidently affirmed. I will not labour much in this Enquiry ; because an implicit Faith is here of great Encouragement ; and it is not to be conceived what Trees of a good Kind, and in apt Soil, will perform in a few Years ; and this (I am informed) is a sort of gravelly Clay, moistened with small and frequent Springs. In the mean while, I have often wished, that Gentlemen were more curious of transmitting to Posterity, such Records, by noting the Years when they begin any considerable Plantation ; that the Ages to come may have both the Satisfaction and Encouragement by more accurate and certain Calculations.

Henry

Henry Ranjovious planted a Grove in *Ditmarsh*, Anno 1580, of Oak, *Fir*, *Beech*, *Birch*, &c. and erected a Stone with this *Inscription* (which I mention not for its Elegancy, but Example) *An. Dom. 1580. Quercus, Abietas, Betulas, &c. Plantavit: Annum & Initium factionis adscribi jussit; & earum Aetatem exploraret posteritas; quod in omnia Orbis secula aeterna Divinitati commendat*; as I find it recorded by that industrious Genealogist, *Scipio Amiratus* of Florence. But the only Instance I know of the like in our own Country, is in the Park at *Althorp* in *Northamptonshire*, the magnificent Seat of the Right. Hon. the *Earl of Sunderland*. I find a Jewish Tradition, cited by the learned *Bochart*, that *Noah* planted the Trees (he supposes *Cedars*) of which he afterwards built the *Ark* that preserved him: Nor was it esteemed any Diminution for Princes themselves to plant Trees with that Hand which held the Scepter and Reins of Empire: So as in the *Voorhout* of the *Hague*, stands a Tree placed there by the Hands of the Emperor *Charles*, which is yet in its prime Growth, and no small Boast of the good People: But to proceed.

13. There was in *Cunsborough* (sometimes belonging to my Lord of *Dover*) several Trees bought by a *Cooper*, of which he made ten Pounds per Yard for three or four Yards, as I have been credibly assured: But where shall we parallel that mighty Tree which furnished the Main-mast to the Sovereign of our Seas, which being one hundred Foot long save one, bare thirty-five Inches diameter: Yet was this exceeded in Proportion and Use, by that Oak which afforded those prodigious Beams that lie thwart her. The Diameter of this Tree was four Foot nine Inches, which yielded four square Beams of four and forty Foot long each of them. The Oak grew about *Frameingham* in *Suffolk*; and indeed it would be thought fabulous, but to recount only the extraordinary Dimensions of some Timber-trees growing in that Country; and of the excessive Sizes of these Materials, had not mine own Hands measured a Table (more than once) of above five Foot in breadth, nine and an half in length, and six Inches thick, all intire and clear (not reckoning the Slab.) This Plank cut out of a Tree fell'd by my Grandfather's Order, was made a Pastry-board, and lay on a Frame of solid Brick-work at *Wotton* in *Surrey*, where it was so placed before the Room was finished about it, or Wall built, and yet abated by one Foot shorter, to confine it to the intended Dimensions of the Place; for at first it held this breadth, full ten Foot and an half in length: By an Inscription cut in one of the Sides, it had lain there above an hundred Years. To this may be added that Table of one Plank, of above seventy-five Foot long, and a Yard broad through the whole Length, now to be seen in *Dudly-Castle Hall*, which grew in the Park, described by Dr. *Plot*, *Nat. Hist. of Staffordshire*. *Mersennus* tells us, that the great Ship, called the *Crown*, which the late French King caused to be built, has its Keel-timber one hundred and twenty Foot long; and the Main-mast twelve Foot diameter at the Bottom, and eighty-five in Height.

14. To these I might add a Yew-tree in the Church-yard of *Crowhurst* in the County of *Surrey*, which I am told is ten Yards in Compass; but especially that superannuated Yew-tree growing now in *Braburne Church-yard*, not far from *Scots-Hall* in *Kent*; which being fifty-eight Foot eleven Inches in the Circumference, will bear near twenty Foot diameter, as it was measured first by my self imperfectly, and

BOOK III. and then more exactly for me, by order of the late Right Honourable Sir George Carteret, Vice-Chamberlain to his Majesty, and late Treasurer of the Navy: Not to mention the goodly Planks, and other considerable Pieces of squared and clear Timber, which I observed to lie about it, that had been hewed and sawn out of some of the Arms, only torn from it by impetuous Winds. Such another Monster I am informed is also to be seen in Sutton Church-yard, near Winchester. To these we add what we find taken Notice of by the learned and industriously curious Dr. Plot, in his *Natural History of Oxfordshire*; particularly an Oak between Nuncham-Courtney and Clifton, spreading from Bough-end to Bough-end, eighty-one Foot, shading in Circumference five hundred and sixty square Yards of Ground, under which two thousand four hundred and twenty Men may commodiously stand in shelter. And a bigger than this, near the Gate of the Water-walk at Magdalen-College, whose Branches shoot sixteen Yards from the Stem; likewise of another at Ricat, in the Lord Norrey's Park, extending its Arms fifty-four Foot, under which three hundred and four Horses, or four thousand three hundred and seventy four Men may sufficiently stand: This is that *Robur Britannicum* so much celebrated by the late Author of *Dodona's Grove*, and under which he leans contemplating in the *Frontispiece*. But these (with infinite others, which I am ready to produce) might fairly suffice to vindicate and assert our Proposition, as it relates to modern Examples, and Sizes of Timber-trees, comparable to any of the Antients, remaining upon laudable and unsuspected Records; were it not great Ingratitude to conceal a most industrious, and no less accurate Account, which comes to my Hands from Mr. Halton, Auditor to the Right Honourable the most Illustrious and Noble Henry Duke of Norfolk, Earl Marshal of England.

In Sheffield Lordship.

The Names of
the Persons
who gave In-
telligence of
the Particu-
lars.
Edw. Raw-
son.

15. In the *Hall-Park*, near unto *Rivelin*, stood an Oak which had eighteen Yards without Bough or Knot, and carried a Yard and six Inches square at the said Height or Length, and not much bigger near the Root: Sold twelve Years ago for eleven Pounds. Consider the Distance of the Place and Country, and what so prodigious a Tree would have been worth near London.

In *Firth's-Farm* within *Sheffield Lordship*, about twenty Years since, a Tree blown down by the Wind, made, or would have made two *Forge-Hammer-Beams*, and in those, and the other Wood of that Tree, there was of Worth, or made fifty Pounds; and *Godfrey Frogat* (who is now living) did oft say, he lost thirty Pounds by the not buying of it.

A *Hammer-beam* is not less than 7 $\frac{1}{2}$ Yards long, and 4 Foot square at the *Barrel*.

In *Sheffield-Park*, below the *Mannor*, a Tree was standing which was sold by one *Gifford* (Servant to the then Countess of Kent) for two Pounds ten Shillings, to one *Nich. Hicks*; which yielded of sawn *Wair* fourteen hundred and, by Estimation, twenty Cords of Wood.

Ed. Morphy,
Wood-ward.

A *Wair* is two Yards long, and one Foot broad, fixscore to the Hundred: So that in the said Tree was ten thousand and eighty Foot of Boards; which, if any of the said Boards were more than half Inch thick, renders the Thing yet more admirable.

In

In the upper End of *Rivelin* stood a *Tree*, called the *Lord's-Oak*, CHAP. III. of twelve *Yards* about, and the *Top* yielded twenty-one *Chord*, cut down about thirteen *Years* since.

In *Sheffield-Park*, *An. 1646*, stood above one hundred *Trees* worth a thousand *Pounds*, and there are yet two worth above twenty *Pounds*. *Still note the Place and Market.*

In the same *Park*, about eight *Years* ago, *Ralph Archdall* cut a *Tree* that was thirteen *Foot Diameter* at the *Kerf*, or Cutting-place near the *Root*.

In the same *Park*, two *Years* since, *Mr. Sittwell*, with *Jo. Magson*, did choose a *Tree*, which after it was cut, and laid aside flat upon a level Ground, *Sam. Staniforth*, a *Keeper*, and *Edw. Morphy*, both on Horseback, could not see over the *Tree* one anothers *Hat-crowns*. (And such another was the *Marbury-Oak*, mentioned in *Secl. x.* of this *Chapter*.) This *Tree* was afterwards sold for twenty *Pounds*.

In the same *Park*, near the old *Ford*, is an *Oak-tree* yet standing, of ten *Yards Circumference*.

In the same *Park*, below the *Conduit-Plain*, is an *Oak-tree* which bears a *Top*, whose *Boughs* shoot from the *Boal* some fifteen, and some sixteen *Yards*. John Halton.

Then admitting $15\frac{1}{2}$ *Yards* for the common, or mean Extent of the *Boughs* from the *Boal*, which being doubled, is thirty-one *Yards*; and if it be imagined for a *Diameter*, because the *Ratio* of the *Diameter* to the *Circumference* is $\frac{113}{355}$ it follows $113. 355. :: 97\frac{1}{2}$ *Yards*, which is the *Circumference* belonging to this *Diameter*.

Then further it is demonstrable in *Geometry*, that half the *Diameter* multiplied into half the *Circumference*, produces the *Area* or Quantity of the *Circle*, and that will be found to be $754\frac{1}{4}$, which is 755 square *Yards* ferè.

Then lastly, if a *Horse* can be limited to three square *Yards* of Ground to stand on (which may seem a competent Proportion of three *Yards* long, and one *Yard* broad) then may two hundred and fifty-one *Horses* be well said to stand under the Shade of this *Tree*. But of the more *Northern Cattle* certainly, above twice that Number.

WORKSOPP-PARK:

16. In this *Park*, at the Corner of the *Bradshaw-rail*, lieth the *Boal* of an *Oak-tree*, which is twenty-nine *Foot* about, and would be found thirty, if it could be justly measured; because it lieth upon the Ground; and the Length of this *Boal* is ten *Foot*, and no *Arm* nor *Branch* upon it. Kenheim Homer.

In the same *Park*, at the *White-Gate*, a *Tree* did stand that was from *Bough-end* to *Bough-end* (that is, from the extream Ends of two opposite *Boughs*) one hundred and eighty *Foot*; which is witnessed by *Jo. Magson* and *Geo. Hall*, and measured by them both. Jo. Magson, Geo. Hall.

Then because 180 *Foot*, or 60 *Yards*, is the *Diameter*; 30 *Yards* will be the *Semidiameter*: And by the former Analogies

$$113. 355 :: 60. 188\frac{1}{2}$$

and

$$1. 30 :: 94\frac{1}{2}. 2827\frac{1}{2}$$

That is, the Content of Ground upon which this *Tree* perpendicularly drops, is above 2827 square *Yards*, which is above half an *Acre* of Ground: And the assigning three square *Yards* (as above) for an *Horse*, there may 942 be well said to stand in this *Compass*.

Book III. In the same *Park* (after many hundreds fold, and carried away) there is a *Tree* which did yield *Quarter-cliff Bottoms*, that were a *Yard* square: And there is of them to be seen at *Workfop* at this Day, and some *Tables* made of the said *Quarter-cliff* likewise.

Jo. Mason.

In the same *Park*, in the Place there called the *Hawks-nest*, are *Trees*, forty Foot long of *Timber*, which will bear two Foot square at the Top-end or Height of forty Foot.

If then a *Square*, whose Side is two Foot, be inscribed in a *Circle*, the Proportions at that *Circle* are,

	Feet
Diameter	2 : 8284
Circumference	8 : 8858
Area	6 : 2831

And because a *Tun* of *Timber* is said to contain forty solid Feet; one of these *Columns* of *Oak* will contain above six * *Tun* of *Timber* and a Quarter: In this Computation, taking them to be *Cylinders*, and not tapering like the *Segments* of a *Cone*.

* A Statutable Tun of Timber is by some reckoned forty-three Foot of solid: and to a Load fifty.

WELBEEK-LANE.

17. The *Oak* which stands in this *Lane*, called *Grindal Oak*, hath at these several Distances from the Ground these *Circumferences*,

	Foot	Foot	Inch
at 1	33	:	01
at 2	28	:	05
at 6	25	:	07

The Breadth is, from Bough-end to Bough-end, *diametrically* eighty-eight Foot; the Height from the Ground to the Top-most Bough, eighty-one Foot [this *Dimension* taken from the Proportion that a *Gnomon* bears to the Shadow] there are three *Arms* broken off and gone, and eight very large ones yet remaining, which are very fresh and good *Timber*,

Eighty-eight Foot is 29½ Yards, which being in this Case admitted for the *Diameter* of a *Circle*, the *square Yards* in that *Circumference* will be six hundred and seventy-six *ferè*; and then allowing three Yards (as before) for a *Beast*, leaves two hundred and twenty-five *Beasts*, which may possibly stand under this *Tree*.

But the *Lord's Oak*, that stood in *Rivelin*, was in *Diameter* three Yards, and twenty-eight Inches; and exceeded this in *Circumference* three Feet, at one Foot from the Ground.

SHIRE-OAK.

Hen. Homer.

Shire-Oak is a *Tree* standing in the Ground late Sir *Tho. Hewet's*, about a Mile from *Workfop-Park*, which drops into three *Shires*, viz. *York*, *Nottingham* and *Darby*, and the Distance from Bough-end to Bough-end, is ninety Foot and thirty Yards.

This *Circumference* will contain near seven hundred and seven square Yards, sufficient to shade two hundred and thirty-five *Horse*.

Thus far the accurate Mr. *Halton*.

18. Now among such venerable *Trees* (especially conspicuously placed as this last Mr. *Holton* has named) should be spared for the most noble and natural *Boundaries* to great *Parishes*, and *Gentlemen's Estates*, famous

famous for which is the *Chestnut-tree* at *Tamworth* in *Gloucestershire*; which has contained a signal *Boundary* to that *Mannor* in King *Stephen's* Time, as it stands upon Record: See *Lib. iii. Cap. vii. xviii.* And now before I shut up these encouraging Instances, I am informed by a *Person* of Credit, that an *Oak* in *Sheffield-Park*, called the *Ladies Oak*, felled, contained forty-two *Tun* of *Timber*, which had *Arms* that held at least four Foot square for ten Yards in Length; the *Body* six Foot of clear *Timber*: That in the same *Park* one might have chosen above one thousand *Trees* worth above six thousand Pounds; another thousand worth forty thousand Pounds, & sic de cæteris. To this Mr. *Halton* replies, That it might possibly be meant of the *Lord's-Oak* already mentioned, to have grown in *Rivelin*: For now *Rivelin* it self is totally destitute of that Issue she once might have gloried in of *Oaks*; there being only the *Hall-Park*, adjoining, which keeps up with its Number of *Oaks*. And as to the Computation of one thousand *Trees* formerly in *Sheffield-Park*, worth six, thousand Pounds, it is believed there were a thousand much above that Value; since in what is now inclosed, it is evident, touching one hundred worth a thousand Pounds. I am inform'd, that an *Oak* (I think in *Shropshire*) growing lately in a *Copse* of my Lord *Craven's*, yielded nineteen *Tun* and half of *Timber*, twenty-three *Cord* of *Fire-wood*, two Load of *Brush*, and two Load of *Bark*: And my worthy Friend, *Leonard Pinckney, Esq;* lately first Clerk of his Majesty's *Kitchen*, did assure me, that one *John Garland* built a very handsome *Barn*, containing five *Bays*, with *Pan, Posts, Beams, Spars, &c.* of one sole *Tree*, growing in *Workopp-Park*. I will close this with an Instance which I greatly value, because it is transmitted to me from that honourable and noble Person, Sir *Edward Harley*: I am (says he) assured by an Inquisition taken about three hundred Years since, that a *Park* of mine, and some adjacent Woods, had not then a *Tree* capable to bear *Acorns*; yet that very *Park* I have seen full of great *Oaks*, and most of them in the extreamest Wane of decay. The Trunk of one of these *Oaks* afforded so much *Timber*, as upon the Place would have yielded fifteen Pounds, and did compleatly Seat with *Wainscot-Pews* a whole Church: You may please (says he, writing to Sir *Rob. Murray*) to remember when you were here, you took Notice of a large *Tree*, newly fallen; when it was wrought up, it proved very hollow and unsound: One of its Cavities contained two *Hogsheds* of *Water*: Another was filled with better *Stuff*, *Wax* and *Honey*: Notwithstanding all Defects, it yielded, besides three *Tun* of *Timber*, twenty-three *Cords* of *Wood*. But my own *Trees* are but Chips in Comparison of a *Tree* in the Neighbourhood, in which every Foot forward, one with another, was half a *Tun* of *Timber*; it bore five Foot square, forty Foot long; it contained twenty *Tun* of *Timber*, most of it sold for one Pound per *Tun*; besides that, the Boughs afforded twenty-five *Cords* of *Fuel-wood*: This was called the *Lady-Oak*. Is't not Pity such goodly Creatures should be devoted to *Vulcan, &c.*? So far this noble Gentleman, to which I would add *Diræ*, a deep Execration of *Iron-Mills*, and I had almost said *Iron-Masters* too,

Quos ego; sed motos præstat componere—

for I should never finish, to pursue these Instances through our once goodly *Magazines* of *Timber* for all Uses, growing in this our native Country,

BOOK III. *Country*, comparable (as I said) to any we can produce of *elder Times*; and that not only (though chiefly) for the Encouragement of *Planters*, and *Preservers* of one of the most excellent and necessary *Materials* in the World for the Benefit of Man; but to evince the continued *Vigour* of *Nature*, and to reproach the Want of *Industry* in this *Age* of ours; and (that we may return to the *Argument* of this large *Chapter*) to assert the *Procerity* and *Stature* of *Trees* from their very great *Antiquity*: For certainly, if that be true, which is by divers affirmed concerning the *Quercetum* of *Mambre* (where the *Patriarch* entertained his *Angelical* Guests) recorded by *Eusebius* to have continued till the Time of *Constantine the Great*, we are not too prejudicately to censure what has been produced for the Proofs of their *Antiquity*; nor for my Part do I much question the *Authorities*: But let this suffice; what has been produced being not only an Historical *Speculation* of *Encouragement* and *Use*, but such as was pertinent to the *Subject* under Consideration, as well as what I am about to add concerning the *Texture* and *similar* Parts of the Body of *Trees*, which may also hold in *Shrubs*, and other *lignous* Plants; because it is both a *curious* and *rational* Account of their *Anatomization*, and worthy of the sagacious *Enquiry* of that learned Person, the late Dr. *Goddard*, as I find it entered amongst other of those precious *Collections* of this illustrious *Society*.

19. The *Trunk* or *Bough* of a *Tree* being cut *transversely* plain and smooth, sheweth several *Circles* or *Rings* more or less *orbicular*, according to the external Figure, in some *parallel* Proportion, one without the other, from the *Centre* of the *Wood* to the Inside of the *Bark*, dividing the Whole into so many *circular* Spaces. These *Rings* are more large, gross, and distinct in Colour and Substance in some kind of *Trees*, generally in such as grow to a great Bulk in a short Time, as *Fir*, *Ash*, &c. smaller or less distinct in those that either not at all, or in a longer Time grow great; as *Quince*, *Holly*, *Box*, *Lignum-vitæ*, *Ebony*, and the like sad-colour'd and hard *Woods*; so that by the Largeness or Smallness of the *Rings*, and Quickness or Slowness of the Growth of any *Tree* may, perhaps, at Certainty be estimated.

These *Spaces* are manifestly broader on the one Side than on the other, especially the more outer, to a double Proportion, or more; the Inner being near an Equality.

It is asserted, that the larger Parts of these *Rings* are on the *south* and *sunny* Side of the *Tree* (which is very rational and probable) inso-much, that by cutting a *Tree* *transverse*, and drawing a *Diameter* through the broadest and narrowest Parts of the *Rings*, a *Meridian* Line may be described.

The outer Spaces are generally narrower than the inner, not only in their narrower Sides, but also on their broader, compared with the same Sides of the inner: Notwithstanding which, they are for the most Part, if not altogether, bigger upon the whole Account.

Of these Spaces, the *outer* Extremities in *Fir*, and the like *Woods*, that have them larger and grosser, are more dense, hard, and compact; the inner more soft and spongy; by which Difference of Substance it is, that the *Rings* themselves come to be distinguished.

According as the Bodies and Boughs of *Trees*, or several Parts of the same, are bigger or lesser, so is the *Number*, as well as the *Breadth* of

of the *circular* Spaces greater or less ; and the like, according to the *Age*, especially the Number. CHAP. III.

It is commonly, and very probably asserted, that a Tree gains a *new* one every Year. In the Body of a great *Oak* in the *New-forest*, cut *transversely even* (where many of the Trees are accounted to be some hundreds of Years old) three and four hundred have been distinguished. In a *Fir-tree*, which is said to have just so many Rows of Boughs about it, as it is of Years Growth, there has been observed just *one* less, immediately above one Row, than immediately below. Hence some probable Account may be given of the Difference between the outer and the inner Parts of the *Rings*, that the outermost being newly produced in the *Summer*, the exterior Superficies is condensed in the *Winter*.

20. In the young Branches and Twigs of *Trees* there is a *Pith* in the Middle, which in some, as *Asb*, and especially *Elder*, equals or exceeds in Dimensions the rest of the Substance, but waxes less as they grow bigger, and in the great Boughs and Trunk scarce is to be found : This gives way for the Growth of the inward *Rings*, which at first were less than the outer (as may be seen in any *Shoot* of the first Year) and after grow thicker, being it self *absorbed*, or converted into *Wood* ; as it is certain *Cartilages* or *Gristles* are into *Bones* (in the Bodies of *Animals*) from which, to Sense, they differ even as much as *Pith* from *Wood*.

These *Rings* or Spaces appearing upon transverse *Section* (as they appear *elliptical* upon *oblique* and straight Lines upon direct *Section*) are no other than the Extremities of so many *Integuments*, investing the whole *Tree*, and (perhaps) all the Boughs that are of the same Age with any of them, or older.

The *Growth* of *Trees* *Augmentation* in all Dimensions is acquired, not only by *Accession* of a new *Integument* yearly, but also by the *Reception* of Nourishment into the *Pores* and Substance of the rest, upon which they also become thicker ; not only those towards the Middle, but also the rest, in a thriving *Tree* : Yet the principal Growth is between the *Bark* and *Body*, by *Accession* of a new *Integument* yearly, as hath been mentioned : Whence the cutting of the *Bark* of any Tree or Bough round about, will certainly kill it.

The *Bark* of a *Tree* is distinguished into *Rings* or *Integuments*, no less than the *Wood*, though much smaller or thinner, and therefore not distinguishable, except in the thick *Barks* of great old *Trees*, and toward the *Inside* next the *Wood* ; the outer Parts drying and breaking with innumerable *Fissures*, growing wider and deeper, as the Body of the *Tree* grows bigger, and mouldering away on the outside.

Though it cannot appear, by Reason of the continual Decay of it, upon the Account aforesaid ; yet it is probable, the *Bark* of a *Tree* hath had successively as many *Integuments* as the *Wood* ; and that it doth grow by Acquisition of a *new one* yearly on the *Inside*, as the *Wood* doth on the *Outside* ; so that the chief Way, and Conveyance of Nourishment to both the *Wood* and the *Bark*, is between them both.

The least *Bud* appearing on the Body of a *Tree*, doth, as it were, make *Perforation* through the several *Integuments* to the Middle, or very near ; which Part is, as it were, a *Root* of the Bough into the Body of the *Tree* ; and after becomes a *Knot*, more hard than the other *Wood* : And when it is larger, manifestly shewing it self also to

BOOK III. consist of several *Integuments*, by the *Circles* appearing in it, as in the Body : More hard, probably, because straitned in Room for Growth ; as appears by its distending, buckling, as it were, the *Integuments* of the *Wood* about it ; so implicating them the more ; whence a *knotty* Piece of *Wood* is so much harder to cleave.

It is probable, that a *Cyon* or *Bud*, upon *Graffing* or *Inoculating*, doth, as it were, root it self into the *Stock* in the same Manner as the *Branches*, by producing a kind of Knot. Thus far the accurate *Doctor*.

21. To which permit me to add only (in Reference to the *Circles* we have been speaking of) what another curious *Enquirer* suggests to us ; namely, that they are caused by the *Pores* of the *Wood*, through which the *Sap* ascends in the same Manner as between the *Wood* and the *Bark* ; and that in some *Trees*, the *Bark* adheres to the *Wood*, as the *Integuments* of *Wood* cleave to one another, and may be separated from each other as the *Bark* from the outwardmost ; and being thus parted, will be found on their *Outsides* to represent the *Colour* of the outermost, contiguous to the *Bark* ; and on the *inner* Sides, to hold the *Colour* of the *inner* Side of the *Bark*, and all to have a deeper or lighter Hue on their *inner* Side, as the *Bark* is on that Part more or less tinged ; which *Tincture* is supposed to proceed from the *ascendant Sap*. Moreover, by cutting the *Branch*, the ascending *Sap* may be examined as well as the *Circles* : It is probable, the more frequent the *Circles*, the larger and more copiously the *Liquor* will ascend into it ; the fewer, the sooner descend from it. That a *Branch* of three *Circles* cut off at *Spring*, the *Sap* ascending, will be found at *Michaelmas* ensuing ; cut again in the same *Branch*, or another of equal Bigness, to have one more than it had at *Spring* ; and either at *Spring* or *Fall* to carry a *Circle* of *Pricks* next the *Bark*, at other Seasons a *Circle* of *Wood* only next it. But here the Comparison must be made with Distinction ; for some *Trees* do probably shoot new *Tops* yearly till a certain Period, and not after ; and some have perhaps their *Circles* in their *Branches* decreased from their *Bodies* to the Extremity of the *Branch*, in such *Oeconomy* and Order, that (for Instance) an *Apple-tree* Shoot of this Year has one *Circle* of *Pricks* or *Wood* less than the *Graft* of two Years Growth ; and that of two Years Growth, may the next Year have one *Circle* more than it had the last Year ; but this only till that *Branch* shoot no more *Grafts*, and then 'tis doubtful whether the outmost *Twig* obtain any more *Circles*, or remain at a *Stay*, only nourished, not augmented, in the *Circles*. It would also be required, whether the *Circles* of *Pricks* increase not till *Midsummer* and after, and the *Circles* of *Wood* from thence to the following *Spring* ? But this may suffice, unless I should subjoin,

22. The *vegetative* Motion of *Plants*, with the *Diagrams* of the *Jesuit Kircher*, where he discourses of their stupendious *Magnetisms*, &c. could there any thing material be added to what has already been so ingeniously enquired into by the learned *Dr. Grew*, in his *Anatomy* of *Vegetables*, and that of *Trunks* ; where experimentally, and with extraordinary Sagacity, he discusses the present Subject (with entire Satisfaction of the inquisitive *Reader*) beginning at the *Seeds*, to the Formation of the *Root*, *Trunk*, *Branches*, *Leaves*, *Flower*, *Fruit*, &c. where you have the most accurate Descriptions of the several *Vessels* for *Sap*, *Air*, *Juices*, with the stupendious *Contexture* of all the *organical* Parts ; and than which there can be nothing more fully entertaining :

tertaining : So that what Dr. *Goddard*, and other ingenious Men have CHAP. III.
 but conjecturally hinted, is by this inquisitive Person (and that of the
 excellent *Malpighius*) evinced by *autoptical* Experience, and profound
 Research into their *Anatomy*. To all which we may by no means for-
 get the most *Lincean* Inspector Mr. *Ant. Van Leeuwenhoek*, concern-
 ing the *Barks of Trees*, which he affirms, and *experimentally* con-
 vinces, that that *Integument*, namely the *Bark*, was produced from
 the *Wood*, and not the *Wood* from the *Bark*. But this *Discourse*, to-
 gether with the *Microscopical Figure* (being too long to be here in-
 serted) refers to that most industrious Person's *Letter, Transact. Numb.*
296. p. 1843. Let us therefore proceed to the *Felling*.

23. It should be in this *Status*, Vigour and Perfection of Trees FELLING.
 (which for the *Oak* I take to be about the Age of fifty, or 'twixt that
 and sixty Years Growth, where the Soil is natural) that a *Felling* should
 be celebrated ; since whilst our *Woods* are *growing* it is pity, and in-
 deed too soon ; and when they are *decaying*, too late. I do not pre-
 tend that a Man (who has occasion for *Timber*) is obliged to attend so
 many Ages e'er he fell his *Trees* ; but I do by this infer, how highly
 necessary it were, that Men should perpetually be *Planting* ; that so
Posterity might have *Trees* fit for their Service, of *competent*, that is
 of a *middle* Growth and Age, which it is impossible they should have,
 if we thus continue to destroy our *Woods*, without this providential
Planting in their stead, and *Felling* what we do cut down with great
 Discretion, and Regard of the Future.

I know it is an *Objection*, or rather an unreasonable Excuse of the
 slothful Neglect of successive and continual *Planting*, upon so tedious
 an Expectation of what is not likely to be *Timber* in our Time : But
 as this is quite otherwise (provided Men would be earlier at the Work)
 they might have sufficient of their own *Planting* (nay, from the very
 Rudiment and Seeds) abundantly to recompence their Patience and At-
 tendance, living to the Age Men usually attain by the common Course
 of Nature ; with how much more Improvement to their Children and
 Posterity ? And this minds me of what's reported of the Emperor
Maximilian the II^d. That by chance finding an antient *Husband-*
man setting *Date-stones*, asks him what his meaning was to plant a
 Tree that required an *hundred* Years before it bare any *Fruit* ? Sir,
 replies the good Man, *I have Children, and they may have more*
come after them. At which the *Emperor* was so well pleased, that
 he gave him an hundred *Florins*. Was not this like that of *Laertes*
 to *Ulysses* ?

But before we go farther with the History of the *Stature* and *Mag-*
nitude of *Trees*, we are not to conclude as if all those Trees and
 Plants, which arrive to that *enormous* Stature and Bulk we have men-
 tioned, were not to be found in other Countries, both of the same and
 other *Species* ; but that even of those *Exoticks*, and divers of our
 own, which seem *Pigmies* and *Dwarfs*, compared to those *Giants* in
 their Native *Climate*, are so much greater than in ours ; since we find
 what we account but *Shrubs*, are divers of them well-grown Trees,
 and prosper into useful *Timber* ; such as *Juniper* (emulating the tall
Cedar) *Sabine*, *Tamarisk*, *Cornel*, *Phillyrea*, *Granade*, *Lentiscus*,
Thuya, *Laurel*, *Bays*, and even *Rosemary* (and other *Frutexes* and
lignous Plants) superior in Growth and Stature (than with us) where
 they spontaneously emerge. Thus not only the *White-Mulberry* won-
 derfully

Book III. derfully out-strips ours, but those of much smaller Stature; as the *Arbutus*, growing on Mount *Athos*, which became a spreading Tree; so the *Cypress* in *Candy* to *Timber*, fit for vast Beams and Planks of four Foot breadth: The *Larch* over-topping the *Fir*; nay, the *Myrtle* with us but a *Bush*, make Staves for *Spears*; the *Oleander*, & *humilis Genista*; nay, the *Rhododendron* Posts and Rafters; and even *Herbaceous Suffrutages*, and amongst the *Calinary* Furniture; a Grain of *Mustard* springing to a Tree, whose Branches afford Harbour to the Birds of the Air; and the very *Hyssop*, for a Stalk that carried a *Sponge* to the Mouth of our *Blessed Lord* on the *Cross*. We are told by *Josephus*, in *Macherontis's* Reign, there was a Plant of *Rue* growing, and was equal for Height and Thickness to any *Fig-tree*, as was still remaining to the Time of *Herod*, and would have stood longer, had not the *Jews* cut it down. *Jos. Antiq. Bell. Jud. Lib. vii. Cap. xxxviii.* How these, and indeed all other Vegetables differ in the *North* from those of the *South*, growing on the same *Mountain*, Monsieur *Brenier* has shewn us; some nipt and starved with that *Penetrable Frigus* and scorching *Heat*, quite changing almost their very Nature and Constitution; some of them dry, and yielding nothing but *Leaves*, others of the same *Species* are gummy, juicy and succulent: The *Lentiscus* yields *Mastich* in *Cio*; in *Italy*, the *Oak* bears *Galls*; and the *Fru-xinus* exudes *Manna* in *Calabria*: Thus do *Cælum* and *Solum* govern the vegetable Kingdom, for the mutual Supply of the most useful Productions, especially that of the *Forest*; without which, there could be no Commerce in the Word; for so has Providence ordained. Let us now proceed with *Felling*.

24. Such as we shall perceive to *decay*, should first be pick'd out for the *Ax*; and then those which are in their State, or approaching to it; but the very thriving, and manifestly improving, indulged as much as possible. But to explore the Goodness and Sincerity of a *standing Tree*, is not the easiest Thing in the World: We shall anon have occasion to mention my Lord *Bacon's* Experiment, to detect the *Hollowness* of *Timber*: But there is doubtless none more infallible, than the *boring* it with a middling *Piercer* made *Auger-fashion*, and by frequent pulling out, and examining what Substance comes along with it, as those who bore the *Earth* to explore what *Minerals* the Place is impregnated with, and as found *Cheeses* are tasted: Some again there are who by digging a little about the *Roots*, will pronounce shrewdly concerning the *State* of a *Tree*; and if they find him perished at the *Top* (for *Trees* die upwards, as *Men* do from the *Feet*) be sure the Cause lies deep, for 'tis ever a Mark of great Decay in the *Roots*. There is also a swelling *Vein*, which discovers it self eminently above the rest of the *Stem*, though like the rest invested with *Bark*, and which frequently circles about and embraces the *Tree*, like a Branch of *Ivy*, which is an infallible Indication of *Hollowness* and Hypocrisy within.

25. The Time of the *Year* for this destructive *Work* is not usually till about the End of *April* (at which Season the *Bark* does commonly rise freely) though the Opinions and Practice of Men have been very different: *Vitruvius* is for an *Autumnal Fall*; others advise *December* and * *January*: *Cato* was of opinion *Trees* should have first borne their *Fruit*, or at least, not till full ripe; which agrees with that of the *Architect*, who begins his *Fell* from the Commencement

See §. 35.
* Post ortum
Pleiadum à
die 6 Kal.
Jan. usq; ad
archiluriortum,

scil. 8. Kal. Octob. Veget. rei milit. Lib. v. Cap. ix.

of *Autumn* to the *Spring*, when *Favonius* begins to spire ; and his Reason is, for that from *thence*, during all the *Summer*, *Trees* are as if they were going with *Child*, and diverting all their Nourishment to the *Embryo*, *Leaves* and *Fruit*, which renders them weak and infirm : This he illustrates from teeming *Women*, who during their *Pregnancy* are never so healthful as after they are delivered of their Burden, and abroad again : And for this Reason (says he) those *Merchants* who expose *Slaves* to *Sale*, will never warrant one that is with *Child* : The *Buyer* was (it seems) to stand to the Hazard. Thus he : But I remember *Monsieur Perrault* in his pompous *Edition* of our *Author*, and learned *Notes* upon this *Chapter*, reproves the *Instance*, and corrects the *Text*, à *disparatione procreationis*, &c. to *ad disparationem*, &c. affirming that *Women* are never more sound and healthy than when they are *pregnant* ; the Nutrition derived to the *Infant*, being (according to him) no Diminution or Prejudice to the *Mother* ; as being but the Consumption of that *Humidity* which enfeebles the bearing *Woman*, and thence infers, that the *Comparison* cannot hold in *Trees*, which become so much *stronger* by it : But to insist no longer on this ; there is no doubt, that whilst *Trees* abound in over-much, crude, and superfluous Moisture (though it may, and do contribute to their Production and Fertility, for which Reason *Lucina* was invoked by *parturient* Women) they are not so fit for the *Ax* as when being discharged of it, and that it rises not in that Quantity as to keep on the *Leaves* and *Fruit*, those *laxed* Parts and *Vessels* by which the Humour did ascend, grow dry and close, and are not so obnoxious to Putrefaction, and the *Worm* : Hence it is that he cautions us to take Notice of the *Moon's* Decline, because of her Dominion over *Liquids*, and directs our *Woodman* (some Days before he *fells* downright) to make the *Cash* or Overture, *usque ad mediam medullam*, to the End the whole Moisture may exsist ; for that not only by the *Bark* (which those who resemble *Trees* to *Animals* will have to be *analogous* to *Arteries*) does the *Juice* drain out ; but by that more *fatty* and *whiter* Substance of the *Wood* itself, immediately under the *Bark* (and which our *Carpenters* call the *Sap*, and therefore hew away, as subject to rot) which they will have to be the *Veins* : It is (say they) the Office of these *Arteries* of *Bark*, receiving Nourishment from the *Roots*, to derive it to every Part of the *Tree*, and to remand what is crude and superfluous by the *Veins* to the *Roots* again ; whence, after it has been better digested, it is made to ascend a second Time by the other *Vessels* in perpetual *Circulation* ; and therefore necessary so deep an Incision should be made as may serve to exhaust both the *venal* and *arterial* Moisture : But for this nice *Speculation*, I refer the Curious to the already mentioned Dr. *Grew*, and to the learned *Malpighius*, who have made *other*, and far more accurate Observations upon this Subject : In the mean Time, as to that of the *Worm* in *Timber-trees*, and their rotting, sometimes within, and sometimes without ; observe that such as *gape* and rift outwardly (as does that of the *Oak*, when fell'd) the *Sap* thereby let out, the *Timber* and *Heart* within is found to be much more solid than that of the *Chestnut* and other *Trees* who keep the Moisture *within* (however seeming sound outwardly) the *Timber* is frequently extremely rotted and perish'd. Lastly, concerning the *Bark*, though some are for stripping it, and so to let the *Tree* stand till about *Mid-June*, to preserve it from the *Worm* (all which Time it will put forth

Book III. *Leaves*, and seemingly flourish) yet that which is *unbark'd*, is obnoxious to them, contracts somewhat a darker Hue, which is the Reason so many have commended the *Season* when it will most freely *strip*) yet were this to be rather consider'd for such *Trees* as one would leave *round* and *unsquar'd*; since we find the wild *Oak*, and many other Sorts, *fell'd* over-late, and when the *Sap* begins to grow proud, to be very subject to the *Worm*; whereas, being cut about *Mid-Winter*, it neither *casts*, *rists*, nor *twines*; because the cold of the *Winter* does both dry and consolidate; whiles in *Spring*, and when pregnant, so much of the *Virtue* goes into the *Leaves* and *Branches*: Happy therefore were it for our *Timber*, some real *Invention* of *Tanning* without so much *Bark* (as the Honourable Mr. *Charles Howard* has most ingeniously offered) were become universal, that *Trees* being more early felled, the *Timber* might be better *season'd* and condition'd for its various *Uses*. But as the Custom is, Men have now Time to *fell* their *Woods*, even from *Mid-winter* to the *Spring*; but never any after the *Summer Solstice*: And now we speak of *Tanning*, they have in *Jamaica* the *Mangrove*, *Olive*, and a *Third* whose *Barks* tan much better than do ours in *England*; so as in six Weeks the *Leather* is fit to be employed to any Use: They have likewise there a *Tree*, whose *Berries* wash better and whiter than any *Castile-soap*.

26. Then for the *Age* of the *Moon*, it has religiously been observed; and that *Diana's* Presidency in *Silvis* was not so much celebrated to credit the *Fictions* of the *Poets*, as for the Dominion of that moist *Planet*, and her Influence over *Timber*: However experienced Men commend the *Felling* soon after a *Full-Moon*, and so during all the *Decrease*, and so to let the *Tree* lie at least three Months, to render the *Timber* strong and * solid: For my Part, I am not so much inclined to these *Criticisms*, that I should altogether govern a *Felling* at the Pleasure of this mutable *Lady*; however, there is doubtless some Regard to be had,

* See *Macrobius*, Sat. Lib. vii. Cap. vi.

2 Nor is't in vain Signs fall and rise to note.

Whilst as to other more *recondit* and deep *Astrological* Observations, *minute* and *scrupulous*, perhaps not altogether to be rejected, both as to the various *Configurations* of the superior Bodies, and Operation on both *vegetable* and *sensitive*, especially as to the *Growth* of *Fruit*, *sowing*, *planting*, and *cultivating* (indicating the proper Seasons, according to the *Access* and *Recess* of the greater *Luminaries*, through the *Zodiac*) It were Ingratitude to impute it all to the *Superstition* of the *Antients*, or the total Ignorance of *Causes* in those great and learned Men (such as *Hesiod*, *Virgil*, *Cato*, *Varro*, *Columella*, *Pliny*, and the rest) who have so freely left us these Lessons; doubtless from their long Experience, and extraordinary Penetration and Enquiry into Nature: Let the *Curious* then (for his better Satisfaction) consult that learned Treatise of *Judicial Astrology*, written by Sir *Christopher Heydon*.

In the mean Time the *old Rules* are these:

Fell in the *Decrease*, or four Days after *Conjunction* of the two great *Luminaries*; some the last Quarter of it; or (as *Pliny*) in the

* Nec frustra signorum obitus speculamur & ortus.

very Article of the *Change*, if possible; which hapning (saith he) in the last Day of the *Winter Solstice*, that *Timber* will prove *immortal*: At least should it be from the *twentieth* to the *thirtieth* Day, according to *Columella*: *Cato* four Days after the *Full*, as far better for the Growth, nay, *Oak* in the *Summer*: But all *vimineous* Trees *silente Luna*; such as *Sallows*, *Birch*, *Poplar*, &c. *Vegetius* for *Ship-timber*, from the *fifteenth* to the *twenty-fifth*; the *Moon* as before; but never during the *Increase*, Trees being then most abounding with *Moisture*, which is the only Source of *Putrefaction*: And yet 'tis affirmed upon unquestionable *Experience*, that *Timber* cut at any *Season* of the *Year*, in the *old Moon*, or last *Quarter*, when the Wind blows westerly, proves as sound and good as at any other *Period* whatsoever; nay, all the whole *Summer* long, as in any *Month* of the *Year* (especially Trees that bear no *Fruit*). *Theophrastus* will have the *Fir*, *Pine* and *Pitch-tree* felled when first they begin to bud: I enumerate them all, because it may be of great use on some publick *Emergencies*.

27. Then for the *Temper*, and *Time of Day*: The Wind low, neither *East* nor *West* (but *West* of the two) the *East* being most pernicious, and exposing it to the *Worms*; and for which the best Cure is, the plentiful fobbing it in Water; neither in *frosty*, *wet*, or *dewy* Weather; and therefore never in a *Forenoon*, but when the *Season* has been a good while *dry* and *calm*; for as the *Rain* fobs it too much, so the Wind closes and obstructs the *Moisture* from ouising out. Lastly, touching the *Species*: Fell *Fir* when it begins to spring; not only because it will then best quit its *Coat* and strip; but for that they hold it will never decay in Water; which howsoever *Theophrastus* deduces from the old *Bridge* made of this Material over a certain River in *Arcadia*, cut in this *Season*, is hardly sufficient to satisfy our Enquiry.

28. Previous to this Work of *Felling* is the Advice of our Countryman *Markham*, and it is not to be rejected: Survey (saith he) your Woods as they stand, immediately after *Christmas*, and then divide the *Species* in your Mind (I add rather in some *Note-book* or *Tables*) and consider for what Purposes every several *Kind* is most useful, which you may find in the several *Chapters* of this *Discourse* under every *Head*. After this reckon the *bad* and *good* together, so as one may put off the other, without being forced to glean your Woods of all your best *Timber*. This done (or before) you shall acquaint your self with the *marketable Prices* of the *Country* where your *Fell* is made, and that of the several *Sorts*; as what so many *Inches* or *Foot square*, and *long*, is worth for the several *Employments*: What *Planks*, what other *Scantlings*, for so many *Spoaks*, *Naves*, *Rings*, *Pales*, *Poles*, *Spurs*, &c. as suppose it were *Ash*, to set apart the largest for the *Wheel-wright*, the smallest for the *Cooper*, and that of ordinary scantling for the *Ploughs*, and the *Brush* to be *kidded* and sold by the hundred or thousand, and so all other *Sorts* of *Timber*, viz. *large*, *middling Stuff* and *Poles*, &c. allowing the *Waste* for the Charges of *Felling*, &c. all which you shall compute with greater Certainty, if you have Leisure, and will take the Pains to examine some of the *Trees* either by your own *Fathom*, or (more accurately) by *girting* it about with a *String*, and so reducing it to the *Square*, &c. by which Means you may give a near Guess; or, you may mark such as you intend to *fell*; and then begin your *Sale* about *Candlemas* till the *Spring*; before which you must not (according as our *Custom* is) lay the *Ax* to the *Root*;

BOOK III. *Root*; though some for particular Employments, as for *Timber* to make *Ploughs*, *Carts*, *Axel-trees*, *Naves*, *Harrows*, and the like *Husbandry-Tools*, do frequently cut in *October*.

Being now entering with your *Workmen*, one of the first and most principal Things is, the skilful *disbranching* of the *Boal* of all such *Arms* and *Limbs* as may endanger it in the *Fall*, wherein much *Fore-cast* and *Skill* is required of the *Woodman*; so many excellent *Trees* being utterly spoiled for want of this only Consideration: And therefore in *Arms* of *Timber*, which are very great, chop a *Nick* under it close to the *Boal*, so meeting it with the downright *Strokes*, it will be severed without *splicing*.

29. We have shewed why some, four or five Days before *felling*, bore the *Tree* cross-way, others cut a *Kerf* round the *Body*, almost to the very *Pith* or *Heart*, and so let it remain a while; by this Means to drain away the *Moisture*, which will distill out of the wounded *Veins*, and is chiefly proper for the *moister* Sort of *Trees*: And in this Work the very *Ax* will tell you the Difference of the *Sex*; the *Male* being so much harder and browner than the *Female*: But here (and where-ever we speak thus of *Plants*) you are to understand the *Analogical*, not *proper* Distinctions.

30. But that none may wonder why in many *Authors* of good Note, we find the *Fruit-bearers* of some *Trees* called *Males*, and not rather *Females*, as particularly the *Cypress*, &c. This preposterous *Denomination* had (I read) its Source from very antient *Custom*, and was first begun in *Aegypt* (*Diodorus* says in *Greece*) where we are told, that the *Father* only was esteemed the sole *Author* of *Generation*; the *Mother* contributing only *Receptacle* and *Nutrition* to the *Off-spring*, which legitimated their *Mixtures* as well with their *Slaves* as *Free-women*: And upon this Account it was, that even *Trees* bearing *Fruit*, were amongst them reputed *Males*, and the *sterile* and barren ones for *Females*; and we are not ignorant how learnedly this *Doctrine* has been lately revived by some of our most celebrated *Physicians*: But since the same *Arguments* do not altogether *quadrant* in *Trees*, where the *Coition* is not so sensible (whatever they pretend of the *Palms*, &c. and other *amorous* intertwining of *Roots*) in my Opinion we might with more *Reason* call that the *Female* which bears any eminent *Fruit*, *Seed* or *Egg* (from whence *Animals*, as well as *Trees*, not excepting *Man* himself, as the learned *Steno*, *Swamerdam* and others have, I think, undeniably made it out) and them *Males* who produce none: But sometimes too the *Rudeness* or less *Asperity* of the *Leaves*, *Bark* and *Grain*, nay, their *Medical* Operations, may deserve the *Distinction*; to which *Aristotle* adds *Branchiness*, less *Moisture*, quick *Maturity*, &c. *Lib. i. de Plin. Cap. iii.* All which seems to be most conspicuous in *Plum-trees*, *Hollies*, *Ashes*, *Quince*, *Pears*, and many other Sorts; not to insist on such as may be compelled even to change, as it were, their *Sex*, by *Grafting* and *artificial* Improvements: For whatever we are told of such evident Distinction of *Sexes* in some

* Maranch,
Lib. xi. Cap.
xi. Maris
enim pomum
ad natum ha-
bet quoddam veluti Infantis genitale ejusdem cum pomo corticis & coloris, Foemina Muliebri Pudendum ad
veram ejus Effigiem efformatum videtur, quo simile magis Sculptor non fingat.

(* *Mala Medica*, &c.) I look upon it as hapning rather through some accidental *Protrusion*, artificial *Exuberance* or *Depression*, than constant and natural: But I return to,

31. *Felling*, which should be to leave the *Stools* as close to the CHAP. III.
Ground as possible may be, especially if you design a *Renaſcency* from
the *Roots*; unleſs you will *grub* for a total Deſtruction, or the Uſe of
that Part we have already mentioned, ſo far ſuperior in Goodneſs to what
is more remote from the *Root*, and beſides the longer you cut and con-
vert the *Timber*, the better for many *Uſes*. Some are of Opinion, that
the *ſeedling Oak* ſhould never be cut to improve his *Boal*; becauſe, ſay
they, it produces a reddiſh Wood, not acceptable to the *Workman*; and
that the Tree which grows on the *Head* of his *Mother*, does ſeldom
prove good *Timber*: It is obſerved indeed, that one Foot of *Timber*
near the *Root* (though divers I know who otherwiſe opine) and (which
is the proper *Kerfe*, or Cutting-place) is worth *three* farther off: And
haply, the *Succeſſor* is more apt to be tender, than what was cut off to
give it Place; but let this be enquired into at *Leiſure*: If it be a *Win-
ter-fell*, for *Fuel*, proſtrate no more in a Day than the *Cattle* will eat
in two Days, I mean of the *Browſe-wood*, and when that's done, *Kid*,
and ſet it up an End, to preſerve it from rotting.

32. Dr. *Plot* recommends the *Disbranching* to be done in the *Spring*
before *Felling*, whiſt the *Tree* is ſtanding, that is, from *May* to *Mi-
chaelmas*, and ſo to let it continue till the next *Spring*, and diſburthen
them when felled, as the Cuſtom is in *Staffordſhire*, and the *North*;
for exceedingly contributing to a dry Seaſoning, freeing it from the At-
tack of *Worms* and other accidental Corruption; and thinks that the
Prejudice accruing thereby, as to the *Tanner* (in regard of the more
difficult *Excortication*) is no Way to be put in Balance with the Ad-
vantage and Improvement of the *Timber* for *Paling*, *Building* of
Ships, *Houſes*, &c. Accounting this Method of that univerſal Importance,
as to merit the *Deliberation* of a *Parliament*: In the mean while, by
whatever Method you proceed as to this, when once a *Tree* is proſtrate,
and the *Bark* ſtripped off, let it ſo be ſet, as it may be beſt dry; then
cleanſe the *Boal* of the *Branches* which were left, and ſaw it into
Lengths for the *ſquaring*, to which belong the *Meaſure* and *Girth* (as
our *Workmen* call it) which I refer to the *Buyer*, and to many ſubſi-
diary *Books* lately printed, wherein it is taught by a very familiar *Cal-
cule mechanical* and eaſy Method.

33. But by none, in my Apprehenſion, ſet forth in a more *facile*,
and *accurate* Way, than what that induſtrious *Mathematician*, Mr. *Ley-
bourn*, has publiſhed, in his late *Line of Proportion made eaſy*, and
other his *Labours*; where he treats as well as of the *Square* as the
Round, as 'tis applicable to *Boards* and *Superficials*, and to *Timber*
which is *bewed*, or leſs rough, in ſo *eaſy* a *Method*, as nothing can be
more deſired. I know our ordinary *Carpenters*, &c. have generally
upon their *Rulers* a *Line*, which they uſually call *Gunter's Line*;
but few of them underſtand how to work from it as they ſhould: And
divers *Country Gentlemen*, *Stewards* and *Woodmen*, when they are to
meaſure rough *Timber* upon the *Ground*, conſide much to the *Girt*,
which they do with a *String*, at about four or five Foot Diſtance from
the *Root* or great *Extream*: Of the *String's* Length, they take a
Quarter for the true *Square*, which is ſo manifeſtly erroneous, that
thereby they make every *Tree*, ſo meaſured, more than a *fiſth* Part leſs
than really it is. This *Miſtake* would therefore be reformed; and it
were (I conceive) worth the *Seller's* while, to inſpect it accordingly:
Their *Argument* is, that when the *Bark* of a *Tree* is ſtripped, and the

BOOK III. *Body* hewed to a *Square*, it will then hold out no more Measure; that which is cut off being only fit for *Fuel*, and the *Expence* of *Squaring* costs more than the *Chips* are worth. To convince them of this *Error*, I shall refer and recommend them to the above-named *Author*: And to what the industrious Mr. *Cooke* has so *mathematically* demonstrated: Where also of taking the *Altitude* of *Trees*, the better to judge of the Worth of them, with the *measuring* of *Wood-lands*, &c. together with necessary *Calculations* for the *levelling* of *Ground*, and removing of *Earth*, drawing of *Plots* and *Figures*; all which are very conducive to the several *Arguments* of this *Silvan Work*. But to proceed:

34. If you are to remove your *Timber*, let the *Dew* be first off, and the *South-wind* blow before you draw it: Neither should you by any Means put it to Use for three or four *Months* after, (some not till as many *Years*) unless great Necessity urge you, as it did *Duilius*, who, in the *Punic War*, built his *Fleet* of *Timber* before it was *seasoned*, being not above two *Months* from the very *Felling* to the *Launching*; and as were also those *Navies* of *Hiero* after forty Days; and that of *Scipio*, in the third *Carthaginian War*, from the very *Forest* to the Sea. July is a good Time for bringing home your *felled Timber*: But concerning the *Time* and *Season* of *Felling*, a just *Treatise* might be written: Let the learned therefore consult *Vitruvius* particularly on this *Subject*, *Lib. ii. Cap. xix.* Also *M. Cato, Cap. xvii. Plin. Lib. xvi. Cap. xxxi. Constantinus* and *Hieron. Lib. iii. de RR. Veget. Lib. iv. Cap. xxxv. Columella, Lib. iii. Cap. ii.* but especially the most ample *Theophrastus* *φυτῶν ἱστορίας, Lib. v.* Note, that a *Tun* of *Timber* is forty solid *Feet*, a *Load* fifty.

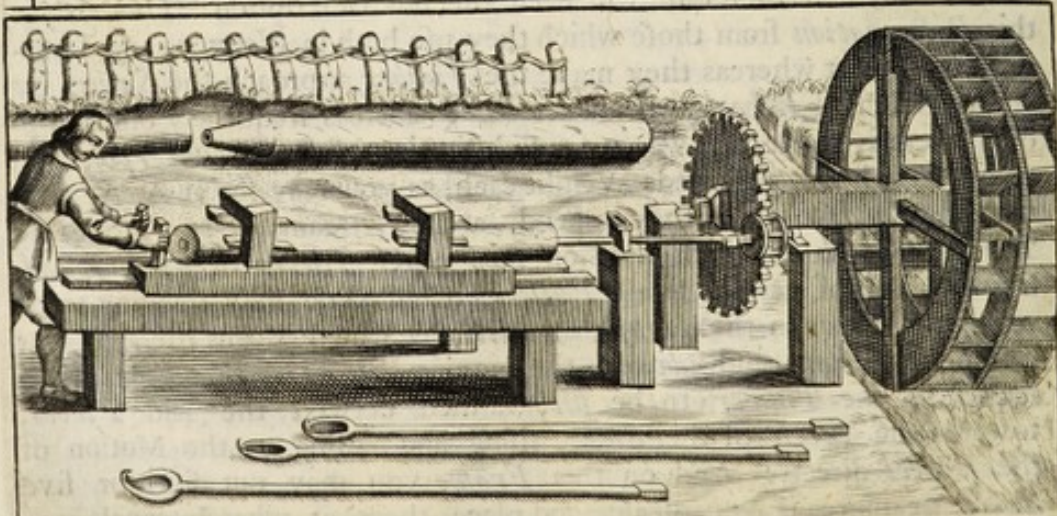
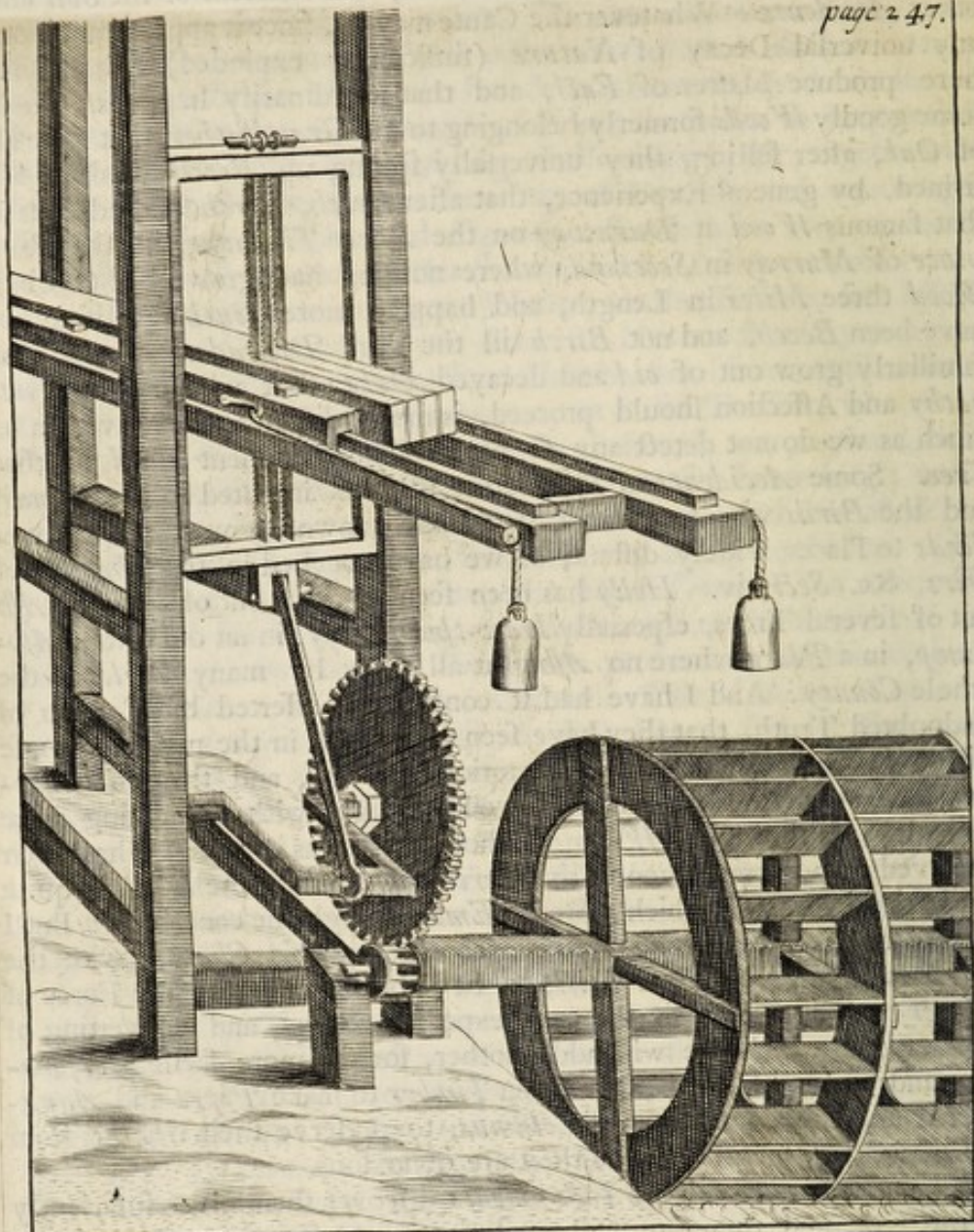
35. To make excellent *Boards* and *Planks*, 'tis the Advice of some, you should bark your *Trees* in a fit *Season*, and so let them stand naked a full Year before the *felling*; and in some Cases and Grounds, it may be profitable: But let these, with what has been already said in the foregoing *Chapters* of the several *Kinds*, suffice for this *Article*: I shall add one *Advertisement* of *Caution* to those noble *Persons* and others who have *Groves* and *Trees* of Ornament near their *Houses*, and in their *Gardens* in *London*, and the *Circle* of it; especially, if they be of great *Stature*, and well grown; such as were lately the *Groves* in the several *Inns* of *Court*; nay, even that (comparatively, new *Plantation*) in my Lord of *Bedford's* * *Garden*, &c. and where-ever they stand in the more interior Parts of this *City*; that they be not over-hasty, or by any Means persuaded to cut down any of their old *Trees*, upon hope of new more flourishing *Plantations*, thickning, or repairing *Deformities*, because they grew so well when first they were set: It is to be considered how exceedingly that pernicious *Smoak* of the *Sea-coal* is increased in and about *London* since they were first planted, and the *Buildings* invironing them, and inclosing it in amongst them, which does so universally contaminate the *Air*, that what *Plantations* of *Trees* shall be now begun in any of those Places, will have much ado, great Difficulty, and require a long Time to be brought to any tolerable Perfection: Therefore let them make much of what they have; and though I discourage none, yet I can animate none to cut down the old.

36. And here might now come in a pretty *Speculation*, what should be the *Reason* after general *Fellings*, and *Extirpations* of vast *Woods* of one *Species*, the next *spontaneous* Succession should be of quite a different Sort? We see indeed something of this in our *Gardens* and

* Since the first Publication of this Discourse, most of those Groves and Trees have been cut down, to give place for Buildings, and turned into Streets.

Corn-fields (as the best of *Poets* witnesses) but that may be much imputed to the Alteration, by Improvement, or Detriment of the *Soil* and other *Accidents*: Whatever the Cause may be, since it appears not from any universal Decay of *Nature* (sufficiently exploded) I shall only here produce Matter of *Fact*, and that it ordinarily happens. As in some goodly *Woods* formerly belonging to my *Grandfather*, that were all of *Oak*, after felling, they universally sprung up *Beech*; and 'tis affirmed, by general Experience, that after *Beech*, *Birch* succeeds; as in that famous *Wood* at *Darnway* on the *River Tindarne*, in the *Province* of *Murray* in *Scotland*, where nothing had grown but *Oak* in a *Wood* three *Miles* in Length, and happily more southerly, it might have been *Beech*, and not *Birch* till the third *Degradation*. *Birches* familiarly grow out of *old* and decayed *Oaks*; but whence this *Sympathy* and Affection should proceed, is more difficult to resolve, in as much as we do not detect any so prolific and eminent *Seed* in that *Tree*. Some *Accidents* of this Nature may be imputed to the *Winds*, and the *Birds* who frequently have been known to waft and convey *Seeds* to Places widely distant, as we have touched in the *Chapter* of *Firs*, &c. *Seet. iv.* *Holly* has been seen to grow out of *Ash*, as *Ash* out of several Trees, especially *Haw-thorn*; nay, in an old rotten *Ash-stump*, in a *Place* where no *Ashes* at all grew by many *Miles* in the whole *County*: And I have had it confidently asserted by *Persons* of undoubted Truth, that they have seen a *Tree* cut in the middle, whose *Heart* was *Ash-wood*, and the exterior Part *Oak*, and this in *Northamptonshire*: And why not as well (though with something more difficulty) as through a *Willow*, whose *Body* (as is noted) it has been observed to penetrate even to the *Earth*? Detruding the *Willow* quite out of its *Place*, of which a pretty *Emblem* might be conceived: But I pursue these *Instances* no farther, concluding this *Chapter* with the *Norway Engine*, or *Saw-Mill*, to be either moved with the Force of *Water* or *Wind*, &c. for the more expedite cutting, and converting of *Timber*; to which we will add another, for the more facile *Perforation* and boring of *Elms*, and other *Timber* to make *Pipes* and *Aqueducts*, and the excavating of *Columns*, to preserve their *Shafts* from splitting, to which otherwise they are obnoxious.

The *Frames* of both the *Instruments* discover themselves sufficiently to the *Eye*, and therefore will need the less Description: There is yet this *Reformation* from those which they use both in *Norway*, and *Switzerland*; that whereas they make the *Timber* approach the *Saws*, by certain indented *Wheels* with a *Rochet* (which is frequently out of order) there is in the first *Figure*, a Substitution of two *Counterpoises* of about three hundred Pounds Weight each, as you may see at A. A. fastning the *Cords* to which they append, at the Extrems of two moveable *Pieces* of *Timber*, which slide on two other *Pieces* of fixed *Wood*, by the Aid of certain small *Pullies*, which you may imagine to be within an *Hinge* in the *House*, or *Mill*, by which Means the *Weights* continually draw and advance the moving *Pieces* of *Wood*, and consequently the *Timber* to be slit, fastned betwixt the said *Pieces*, towards the *Teeth* of the *Saws*, rising and falling as the Motion of the *Wheel* directs: And on this *Frame* you may put four or five *Saws*, or more if you please, and place them at what Intervals you think fit, according to the Dimensions which you design in cutting the *Timber* for your Use; and when the *Piece* is sawn, then one or two



Men with a *Lever* must turn a *Roller*, to which there is annexed a strong *Cord*, which will draw back the *Piece*, and lift up the *Counterpoise*; and so the *Piece* put a little towards one Side, direct the *Saws* against another.

The *second Figure* for *Boring*, consists of an *Ax-tree*, to which is fastned a *Wheel* of *six* and *thirty Teeth*, or more, as the *Velocity* of the *Water-motion* require; for if it be slow, more *Teeth* are requisite: There must also be a *Pinion* of *six*, turned by the said indented *Wheel*: Then to the *Ax-tree* of the *Pinion* is to be fixed a long *Auger*, as in *Letter A*, which must pass through the *Hole B*, to be opened, and closed as occasion requires, somewhat like a *Turner's Lathe*; the *Tree*, or *Piece* of *Timber* to be *bored*, is to be placed on the *Frame C D*, so as the *Frame* may easily slide by the Help of certain small *Wheels*, which are in the *Hollow* of it, and turn upon strong *Pins*, so as the *Workman* may shove forwards, or draw the *Tree* back, after 'tis fastned to the *Frame*; that so the *Auger* turning the End of the *Tree*, may be applied to it; still remembring to draw it back at every Progress of three or four *Inches*, which the *Auger* makes for the cleansing it from the *Chips*, lest the *Auger* break: Continue this Work till the *Tree*, or *Piece* of *Timber*, be *bored* as far as you think convenient; and when you desire to enlarge the *Hole*, change your *Auger-bits* as the *Figure* represents them.

To these we might add several more, as they are described by *Besson*, *Ramelli*, *Cause*, and others; as likewise *Cranes* and *Machines* for the easier *Elevation*, *Moving* and *Transporting* of *Timber*; but they are now become familiar, and therefore I omit them.

Notwithstanding all this, I could wish that the most effectual and proper *Tools* for *Carpentary-work*, and other useful *Inventions* for the raising and transport of great and massive *Timber*, and the like *mechanic Uses*, were described and explained by some Persons expert in the *French Tongue*, and proper *English Terms*; together with the *Figures*, as they are published in *Monsieur Feliben's Principles of Architecture*, as of greater use for our *Plantations* abroad.

The fallen *Leaves* of *Trees* in *Woods*, which lie sometimes very thick and deep, should be raked and shoveled up; being dry, are very useful for the covering of tender *Kitchen Garden Plants*, in *Winter*, instead of *Litter*; and the rest, if buried in some *Hole* to rot, when dried and reduced to *Powder*, becomes excellent *Mould*: I wonder this *Husbandry* is so much neglected.

C H A P. IV.

Of Timber, the Seasoning and Uses, and of Fuel.

Since it is certain and demonstrable, that all *Arts* and *Artisans* what-soever, must fail and cease, if there were no *Timber* and *Wood* in a *Nation* (for he that shall take his *Pen*, and begin to set down what *Art*, *Mystery*, or *Trade* belonging any way to *human Life*, could be maintained and exercised without *Wood*, will quickly find that I speak no *Paradox*) I say, when this shall be well considered, it will appear, that we had better be without *Gold*, than without *Timber*: This Contemplation, and the universal Use of that precious *Material* (which

SEASONING.

BOOK III. yet is not of universal Use 'till it be duly prepared) has moved me to design a solemn Chapter for the *Seasoning*, as well as to mention some farther particular *Application* of it. The first, and chiefeſt Use of *Timber*, was doubtleſs for the building of *Houſes* and *Habitations* to ſhelter *Men* in: It is in his *Cap. i. Lib. ii.* where *Vitruvius* ſhews, in what ſimple and plain manner our firſt *Progenitors* erected their humble *Cottages*; when, like thoſe of *Colchis* and *Phrygia*, they began to creep out of the *ſubterranean* and cavernous *Rocks*, and laid the firſt *Groundſil* upon which they placed the upright *Poſts*, and rudely framed a pointed *Roof*, *Arboribus perpetuis planis* (on which the *Critics* have vexed their *Reſearches*) and from which mean *Beginning*, all the ſuperb and pompous *Effects* of *Architecſture* have proceeded: But to purſue our *Title*, we have before ſpoken concerning ſome Preparations of *ſtanding Trees* deſigned for *Timber*, by a half cutting, diſbarking, and the *Seasons* of *drawing* and *uſing* it.

2. Lay up your *Timber* very dry, in an airy Place (yet out of the *Wind* or *Sun*) and not ſtanding upright, but lying along, one Piece upon another, interpoſing ſome ſhort *Blocks* between them, to preſerve them from a certain *Mouldineſs*, which they uſually contract while they ſweat, and which frequently produces a Kind of *Fungus*, eſpecially if there be any ſappy Parts remaining.

3. Some there are yet, who keep their *Timber* as moiſt as they can, by ſubmerging it in *Water*, where they let it imbibe, to hinder the cleaving; and this is good in *Fir*, both for the better *ſtripping* and *ſeaſoning*; yea, and not only in *Fir*, but other *Timber*: Lay therefore your *Boards* a *Fortnight* in the *Water* (if running, the better, as at ſome *Mill-pond* Head) and then ſetting them upright in the *Sun* and *Wind*, ſo as it may freely paſs through them (eſpecially during the Heats of *Summer*, which is the Time of finiſhing *Buildings*) turn them daily, and, thus treated, even newly ſawn *Boards* will Floor far better than a many *Years* dry *Seasoning*, as they call it. But to prevent all poſſible *Accidents*; when you lay your *Floors*, let the *Joints* be ſhot, fitted, and tacked down only for the firſt *Year*, nailing them for good and all the next; and by this Means they will lie ſtaunch, cloſe, and without ſhrinking in the leaſt, as if it were all of one Piece; and upon this Occaſion I am to add an *Obſervation*, which may prove of no ſmall uſe to *Builders*; that if one take up *Deal-boards* that may have lain in the *Floor* an hundred *Years*, and ſhoot them again, they will certainly ſhrink (*toties quoties*) without the former Method. Amongſt *Wheel-wrights* the *Water-ſeaſoning* (which hinders the exhaling of the *Alcaly Salt* in it, cauſing the Hardneſs) is of ſpecial Regard, and in ſuch Eſteem amongſt ſome, that I am aſſured the *Venetians*, for their Proviſion in the *Arsenal*, lay their *Oak* ſome *Years* in it, before they employ it. Indeed the *Turks*, not only fell at all Times of the *Year*, without any regard to the *Season*, but employ their *Timber* green and unſeaſoned; ſo that though they have excellent *Oak*, it decays in a ſhort Time by this only Neglect.

Elm felled never ſo green for ſudden Uſe, if plunged four or five Days in *Water* (eſpecially *Salt*) which is beſt, obtains an admirable *Seasoning*, and may immediately be uſed. I the oftner inſiſt on this *Water-ſeaſoning*, not only as a Remedy againſt the *Worm*, but for its Efficacy againſt *Warping* and *Distortions* of *Timber*, whether uſed within, or expoſed to the *Air*. Some again commend *Buryings* in the Earth,

Earth, others in *Wheat*; and there be Seasonings of the *Fire*, as for CHAP. IV. the scorching and hardning of *Piles*, which are to stand either in the *Water*, or the *Earth*.

————— the Oak
Explore, suspended in the Chimney-smoke:

For that to most *Timber* it contributes much to its Duration. Thus do all the *Elements* contribute to the Art of *Seasoning*. The learned *Interpreter* of *Antonio Neri's Art of Glass*, Cap. v. speaking of the Difference of *Vegetables*, as they are made use of at various *Seasons*, observes from the *Button-mould-makers*, in those *Woods* they use, that *Pear-trees*, cut in *Summer*, work toughest, but *Holly* in the *Winter*, *Box* hardest about *Easter*, but mellow in the *Summer*, *Hawthorn* kindly about *October*, and *Service-tree* in *Summer*.

4. And yet even the greenest *Timber* is sometimes desirable for such as *Carve* and *Turn*; but it choaks the Teeth of our *Saws*; and for *Doors*, *Windows*, *Floors*, and other close Works, it is altogether to be rejected, especially where *Walnut-tree* is the *Material*, which will be sure to shrink: Therefore it is best to chuse such as is of *two* or *three* Years *Seasoning*, and that is neither moist nor over-dry; the *Mean* is best. Sir *Hugh Plat* informs us, that the *Venetians* use to burn and scorch their *Timber* in a flaming *Fire*, continually turning it round with an *Engine*, till they have gotten upon it an hard, black, *coaly* Crust; and the Secret carries with it great Probability; for that the Wood is brought by it to such a Hardness and Dryness, *ut cum omnis putrefactio incipiat ab humido*, nor *Earth*, nor *Water* can penetrate it; I my self remembring to have seen *Charcoals* dug out of the Ground amongst the Ruins of ancient Buildings, which have, in all Probability, lain covered with *Earth* above fifteen hundred Years.

5. *Timber* which is *cleft*, is nothing so obnoxious to *rif* and cleave as what is *bewn*; nor that which is *squared*, as what is *round*: and therefore where Use is to be made of huge and massy *Columns*, let them be *bored* through from End to End; it is an excellent Preservative from splitting, and not *unphilosophical*; though to cure this Accident, the rubbing them over with a *Wax-cloth* is good, Painter's *Putty*, &c. or before it be converted, the smearing the *Timber* over with *Cow-dung*, which prevents the Effects both of *Sun* and *Air* upon it; if of Necessity it must lie exposed: But besides the former Remedies, I find *this*, for the closing of the Chops and Clefts of *green Timber*, to anoint and supple it with the *Fat* of powdered *Beef-broth*, with which it must be well soaked, the *Chasms* filled with *Spunges* dipt into it; *this* to be twice done over: Some *Carpenters* make use of *Grease* and *Saw-dust* mingled; but the first is so good a Way (says my *Author*) that I have seen *Wind-shock Timber* so exquisitely closed, as not to be discerned where the Defects were: This must be used when the *Timber* is green.

6. We spake before of *squaring*, and I would now recommend the *quartering* of such *Trees* as will allow useful and competent *Scantlings*, to be of much more Durableness and Effect for Strength, than where (as Custom is, and for want of Observation) whole *Beams* and *Timbers* are applied in *Ships* or *Houses*, with *Slab* and all about them, upon false Suppositions of Strength beyond these *Quarters*: For there is in all

* Et suspensa focus explorit robora fumus.

BOOK III. *Trees* an evident *Interstice*, or Separation, between the *Heart* and the rest of the *Body*, which renders it much more obnoxious to decay and miscarry, than when they are treated and converted as I have described it; and it would likewise save a world of *Materials* in the *Building* of great *Ships*, where so much excellent *Timber* is hew'd away to spoil, were it more in Practice. Finally,

7. I must not omit to take Notice of the *Coating* of *Timber* in *Work*, used by the *Hollanders*, for the Preservation of their *Gates*, *Port-cullises*, *Draw-bridges*, *Sluices*, and other huge *Beams* and *Contignations* of *Timber* exposed to the *Sun*, and perpetual Injuries of the *Weather*, by a certain Mixture of *Pitch* and *Tar*, upon which they strew small Pieces of *Cockle*, and other *Shells*, beaten almost to *Powder*, and mingled with *Sea-sand*, or the *Scales* of *Iron*, beaten small and sifted, which *incrusters*, and arms it after an incredible Manner against all these Assaults and foreign Invaders: But if this should be deem'd more obnoxious to *firing*, I have heard that a *Wash* made of *Allum*, has wonderfully protected it against the Assaults even of that devouring *Element*, and that so a *wooden Tower* or *Fort* at the *Piræum*, an *Athenian Port*, was defended by *Archelaus*, a Commander of *Mithridates*, from the great *Sylla*: But you have several *Compositions* for this Purpose in that incomparable Treatise of *Naval Architecture*, written in the *Low-Dutch* by *N. Witsen*, Chap. vi. Part i. The Book is in *Folio*, and he that should well translate it into our *Language* (which I much wonder has not yet been done) would deserve well of the Publick.

8. *Timber* that you have occasion to lay in *Mortar*, or which is in any Part contiguous to *Lime*, as *Doors*, *Window-Cases*, *Groundsils*, and the Extremities of *Beams*, &c. have sometimes been capped with molten *Pitch*, as a marvelous Preserver of it from the burning and destructive Effects of the *Lime*; but it has since been found rather to heat and decay them, by hindering the *Transudation* which those Parts require; better supplied with *Loam* or Strewings of *Brick-dust*, or Pieces of *Boards*; some leave a small Hole for the *Air*. But though *Lime* be so destructive whilst *Timber* lies thus dry, it seems they mingle it with *Hair*, to keep the *Worm* out of *Ships* which they sheath for *Southern Voyages*; though it is held much to retard their Course: Wherefore the *Portuguese* scorch them with Fire, which often proves very dangerous; and indeed their *Timber* being harder, is not so easily penetrable; and therefore have some been thinking of finding out some tougher Sorts of *Materials*, especially of a bitter Sap; such as is reported to be the *Wood* of a certain *Indian Pear*: And some talk of a *Lixivium* to do the Feat; others of a pitchy Substance to be extracted out of *Sea-coal*; but nothing has yet been found more expedient, than the late Application of thin *Lamins* of *Sheet-lead*, if that also be no Impediment to their sailing: However, there are many Kind of *Woods* in the *Western-Indies* (besides the *Acajou*) that breed no *Worms*, and such is the white *Wood* of *Jamaica*, proper enough to build *Ships*. In the mean Time, let me not omit what the learned Dr. *Lister*, in his *Notes* upon *Godarius* of *Insects*, says, That he is persuaded there could not be a more probable Expedient to discover what Kind of *Timber* were best for *Sheathing*, than to tie certain polished Pieces of *Wood* (cut like *Tallies*) to a *Buoy*, in some Waters and Streams much infested with the *Worms*; for that Sort of *Wood* which the *Worm* should refuse, would

in all Reason be chosen for the Use desired. The *Indies* being stored CHAP. IV.
with greater Varieties of *Timber* than *Europe*, it were probable there
might some be found, which that Kind of *River-worm* will never attack.

9. For all Uses, *that Timber* is esteemed the best, which is the most
ponderous, and which, lying long, makes deepest *Impression* in the *Earth*,
or in the *Water*, being floated; also what is without *Knots*, yet firm,
and free from *Sap*; which is that *fatty, whiter, and softer* Part, cal-
led by the Antients *Alburnum*, which you are diligently to hew away:
Here we have much ado about the *Torus* of the *Fir*, and the *Φλαῖωδης*
κύκλος by both *Vitruvius* and *Theophrastus*, which I pass over. You
shall perceive some which has a *spiral* Convolution of the *Veins*; but
it is a Vice proceeding from the Severity of unseasonable *Winters*, and
Defect of good Nutriment.

10. My Lord *Bacon*, *Exp.* 658. recommends for *Trial* of a *sound* or
knotty Piece of *Timber*, to cause one to speak at one of the *Extreams*
to his Companion listening at the *other*; for if it be *knotty*, the *Sound*
(says he) will come abrupt.

11. Moreover, it is expedient that you know which is the *Grain*, and
which are the *Veins* in *Timber* (whence the Term *fluviani arborem*)
because of the Difficulty of working against it: Those therefore are
counted the *Veins* which grow largest, and are softer, for the Benefit of
Cleaving and *Hewing*; *that* the *Grain*, or *Pectines*, which runs in
Waves, and makes the diverse and beautiful *Chamfers* which some *Woods*
abound in to Admiration. The *Fir-tree*, *horizontally* cut, has two
Circles of different *Fibres*, which (when the *Timber* comes to be
cleft in the middle) separates into *four* different *Waves*, whence *Pliny*
calls them *quadrifluvios*, and it is to be noted, that the *nodous*, and
knotty Part of these sort of Trees, is that only which grows from the
first *Boughs* to the *Summit*, or *Top*, by *Vitruvius* termed the *Fusterna*,
which both *Baldus* and *Salmasius* derive à *Fuste*. The other *clean*
Part, free of these *Boils* (being that which when the *sappy Slab* is cut
away, is the best) he calls *Sapiena*. Finally, the *Grain* of *Beech*
runs two contrary Ways, and is therefore to be wrought accordingly;
and indeed the *Grain* of all *Timber* ought well to be observed; since
the more you work *according to it*, especially in *cleaving*, and the
less you *saw*, the stronger will be your Work.

12. *Here* it may be fitly enquired, whether of all the Sorts we have
enumerated, the *old* or the *younger* Trees do yield the fairest *Colour*,
pleasant Grain and *Gloss* for *Wainscot*, *Cabinets*, *Boxes*, *Gun-*
stocks, &c. and what kind of *Pear* and *Plum-tree* give the deepest
Red, and approaches nearest in Beauty to *Brasil*: 'Tis affirmed the *old*
Oak, *old Walnut*, and *young Ash*, are best for most *Uses*, and yet
for *Ship-carpentry* this does not always hold; nor does the Bigness of
it so much recommend it, because 'tis commonly a Sign of *Age*, which
(like to very *old Men*) is often brittle and effete. *Black* and *thorny*
Plum-tree is of the deepest *Oriency*; but whether these belong to the
Forest, I am not yet satisfied, and therefore have assigned them no *Chap-*
ter apart. But now I speak of the *Plum-tree*, I am assured by a
worthy *Friend*, that the *Gum* thereof dissolved in *Vinegar*, does cure
the most contumacious *Tetters*, when all other Remedies, outward or
inwardly applied, nothing availed.

13. Lastly, I would also add something concerning what *Woods* are
observed to be most *sonorous* for *Musical Instruments*: We as yet

BOOK III. detect few but the *German Aer*, which is a *Species* of *Maple*, for the *Rims* of *Viols*, and the choicest and finest grained *Fir* for the *Bellies*: The *Finger-boards*, *Back* and *Ribs*, I have seen of *Tew*, *Pear-tree*, &c. but *Pipes*, *Recorders*, and *Wind-Instruments*, are made both of hard and soft *Woods*; I had lately an *Organ* with a *Sett* of *Oaken-Pipes*, which were the most *sweet* and *mellow* that were ever heard; it was a very old *Instrument*, and formerly, I think, belonging to the Duke of *Norfolk*. We shall say nothing of the other various *Uses* of *Timber* superstitiously mentioned, when we find they might not carve the *Statues* of the *Pagan Gods* of every sort of *Wood*, *ne quovis ex ligno fiat Mercurius*; but of this by the Way.

14. For the *Place* of Growth, that *Timber* is esteemed best which grows most in the *Sun*, and on a dry and hale Ground; for those *Trees* which *suck*, and *drink* little, are most hard, robust, and longest lived, Instances of *Sobriety*. The *Climate* contributes much to its *Quality*, and the *Northern* Situation is preferred to the rest of the *Quarters*; so as that which grew in *Tuscany* was of Old thought better than that of the *Venetian* Side; and yet the *Biscay Timber* is esteemed better than what they have from colder Countries: And *Trees* of the *wilder Kind*, and *barren*, than the over-much cultivated and great Bearers: But of this already.

15. To omit nothing, *Authors* have summed up the *Natures* of *Timber*, as the hardest *Ebony*, *Box*, *Larch*, *Lotus*, *Terebinth*, *Cornus*, *Tew*, &c. and though these *indurated Woods* be too ponderous for *Ship-carpentry*, yet there have been *Vessels* built of them by the *Portuguese* in *America*; in which the *Planks*, and innermost *Timbers* had been sawed very thin for *Lightness* sake, and the *Knee-timber* put together of divers small Pieces, by Reason of the *Inflexibleness* of it, both which could not but render the *Ships* very weak: In the mean Time, the *Perfection* of these hard *Materials* consists much in their receiving the most exquisite *Politure*; and for this, *Linseed*, or the sweeter *Nut-Oil*, does the Effect best: *Pliny* gives us the *Receipt*, with a Decoction of *Walnut-shells*, and certain *wild Pears*: Next to these, *Oak* for *Ships* and *Houses* (or more minutely) the *Oak* for the *Keel*, the *Robur* for the *Prow*, *Walnut* the *Stern*, *Elm* the *Pump*. *Furnerus*, *Lib. i. Cap. xxii.* conceives the *Ark* to have been built of several Woods; *Cornel*, *Holly*, &c. for *Pins*, *Wedges*, &c. *Chestnut*, *Horn-beam*, *Poplar*, &c. Then for *Bucklers* and *Targets* were commended the more soft and moist, because apt to close, swell, and make up their Wounds again; such as *Willow*, *Lime*, *Birch*, *Alder*, *Elder*, *Ash*, *Poplar*, &c.

The *Robur*, or *Wild-Oak Timber*, best to stand in Ground; the *Quercus* without; and our *English*, for being least obnoxious to *splinter*, and the *Irish* for resisting the *Worm* (tough as *Leather*) are doubtless for *Shipping* to be preferred before all other: The *Cypress*, *Fir*, *Pines*, *Cedar*, &c. are best for *Posts* and *Columns*, because of their erect Growth, natural and comely *Diminutions*. Then again it is noted, that *Oriental Trees* are hardest towards the *Cortex* or *Bark*, our *Western* towards the *Middle*, which we call the *Heart*; and that *Trees* which bear no *Fruit*, or but little, are more durable than the more pregnant. It is noted of *Oak*, that the *Knot* of an inveterate *Tree*, just where a lusty *Arm* joins to the *Stem*, is as curiously veined as the *Walnut*, which omitted in the *Chapter* of the *Oak*, I here ob-

serve

serve. The *Palmeto* growing to that prodigious Height in the *Barbados*, and whose Top bears an excellently tasted *Cabbage*, grows so wonderfully hard, that an *Edge-tool* will scarce be forced into it.

Pines, Pitch, Alder and *Elm* are excellent to make *Pumps* and *Conduit-pipes*, and for all *Water-works*, &c. *Fir* for *Beams, Bolts, Bars*, being tough, and not so apt to break as the hardest *Oak*: In Sum, the more *oderiferous Trees* are the more durable and lasting; and yet I conceive that well-seasoned *Oak* may contend with any of them; especially, if either preserved under Ground, or kept perfectly dry: In the mean Time, as to its Application in *Shipping*, the best of it ought to be employed for the *Keel* (that is, within, else *Elm* exceeds) the main *Beams* and *Rafters*, whilst for the ornamental Parts, much lighter *Timber* serves: One *Note* more is requisite, namely, that great Care be had to make the *Trundels* of the best, toughest, and sincerest Part, many a *Vessel* having been lost upon this Account; and therefore dry and young *Timber* is to be preferred for this, and for which the *Hollanders* are plentifully furnished out of *Ireland*, as *Nicholas Witsen* has himself acknowledged.

Is it not after all this to be deplored, that we who have such perpetual Use and Convenience for *Ship-timber*, should be driven to procure it of *Foreign Stores*, so many thousand Loads, at intolerable Prices: But this we are obliged to do and supply from the *Eastern Countries*, as far as *Norway, Poland, Prussia, Dantzick*, and farther, even from *Bohemia*, though greatly impaired by *sobbing* so long in the Passage: But of this the most industrious, and our worthy Friend Mr. *Pepys* (late *Secretary* of the *Admiralty*) has given a just and profitable Account in his *Memoirs*.

16. Here farther for the *Uses* of *Timber*, I will observe to our *Reader* some other *Particulars*, for Direction both of the *Seller* and *Buyer*, applicable to the several *Species*: And first of the two Sorts of *Lathes* allowed by *Statute*, one of *five*, the other of *four Foot* long, because of the different Intervals of *Rafters*: That of *five* has one hundred to the *Bundle*, those of *four* one hundred and twenty; and to be in *Breadth* one *Inch* and *half*, and half *Inch* thick; of either of which Sorts there are *three*, viz. *Heart-oak, Sap-lathes*, and *Deal-lathes*, which also differ in *Price*: The *Heart-oak* are fittest to lie under *Tyling*; the *second* Sort, for *Plastering* of *Side-walls*; and the *third* for *Ceilings*, because they are straight and even.

17. Here we will gratifie our curious *Reader* with as curious an Account of the comparative *Strength* and *Fortitude* of the several usual Sorts of *Timber*, as upon Suggestions previous to this *Work*, it was several Times experimented by the *Royal Society*, though omitted in the first *Impression*, because the *Trials* were not compleat as they now thus stand in our *Register*.

MARCH 23. 1663.

The *Experiment* of breaking several Sorts of *Wood* was begun to be made: And there were taken three Pieces of several Kinds; of *Fir, Oak* and *Ash*, each an *Inch* thick, and two *Foot* long, the *Fir* weighed 8 ¹/₂ *Ounces*, and was broken with two hundred Pounds Weight: The *Oak* weighed 12 ³/₄ *Ounces*, broken with two hundred and fifty Pounds Weight; the *Ash* weighed 10 ¹/₄ *Ounces*, broken with three hundred and twenty-five Pounds Weight.

Besides,

Besides, there were taken three Pieces of the same Sort of *Wood*, each of $\frac{1}{2}$ *Inch* thick, and one *Foot* long: The *Fir* weighed 3j, and was broken with $\frac{1}{2}$ of an Hundred: The *Oak* weighed $1\frac{1}{8}$ *Ounces*, broken with $\frac{1}{4}$ of an Hundred: The *Ash* weighed $1\frac{1}{2}$ *Ounces*, broken with an hundred Pounds.

Again, there was a Piece of *Fir* $\frac{1}{2}$ *Inch* square, and two *Foot* long, broken with thirty-three Pounds; a Piece of $\frac{1}{2}$ *Inch* thick, one *Inch* broad, and seven *Foot* long, broken with one Hundred Weight *edge-wise*; and a Piece of $\frac{1}{2}$ *Inch* thick, $1\frac{1}{2}$ broad, two *Foot* long, broken with one hundred and twenty-five Pounds Weight, also *edge-wise*.

The *Experiment* was ordered to be repeated, and recommended by the *President* to Sir *William Petty* and Dr. *Hook*; and it was suggested by some of the *Company*, that in these *Trials* Consideration might be had of the *Age*, *Knottiness*, *Solidity*, several *Soils* and *Parts of Trees*, &c. and Sir *Robert Murray* did particularly add, that it might be observed how far any Kind of *Wood* bends before it breaks.

MARCH — 1664.

The *Operator* gave an *Account* of more Pieces of *Wood* broken by Weight, *viz.* a Piece of *Fir* four *Foot* long, two *Inches* fifty-three *Ounce Weight*, broken with eight hundred Pounds Weight, and very little bending, with seven hundred and fifty; by which the *Hypothesis* seems to be confirmed, that in similar Pieces the *Proportion* of the *Breaking-weight* is according to the *Basis* of the *Wood* broken. Secondly, of a Piece of *Fir* two *Foot* long, one *Inch* square, cut away from the middle both Ways to half an *Inch*, which supported two hundred and fifty Pounds Weight before it broke, which is more by fifty Pounds than a Piece of the same *Thickness* every Way was formerly broken with; the Difference was guessed to proceed from the more Firmness of this other Piece.

His *Lordship*, the *President*, was desired to contribute to the Prosecution of this *Experiment*, and particularly to consider what *Line* a *Beam* must be cut in, and how *thick* it ought to be at the *Extream*, to be equally strong: Which was brought in *April* 13. but I find it not entered.

APRIL 20. 1664.

The *Experiment* of breaking *Wood* was prosecuted, and there were taken two Pieces of *Fir*, each two *Foot* long, and one *Inch* square, which were broken, the one *long-ways* with three hundred Pounds Weight, the other *transverse-ways* with $2\frac{1}{2}$ Hundred. Secondly, two Pieces of the same *Wood*, each of $\frac{1}{2}$ of an *Inch* square, and two *Foot* long, broken, the one *long-ways* with $1\frac{1}{2}$ Hundred; the other *transverse*, with one hundred Pounds Weight. Thirdly, one Piece of two *Foot* long $\frac{1}{2}$ *Inch* square, broken *long-ways* with eighty-one Pounds: Fourthly, one Piece cut out of a crooked *Oaken-billet*, with an arching *Grain*, about $\frac{3}{4}$ *Inch* square, two *Foot* long, broken with $\frac{1}{2}$ Hundred.

JUNE 29. 1664.

There were made several *Experiments* more of breaking *Wood*: First, a Piece of *Fir*, $\frac{1}{2}$ *Inch* Diameter, and three *Inches* long, at which Distance the Weight hung, broke in the *Plane* of the *Grain* horizontally,

tally, with 66½ lb whereof 15 lb Troy; vertically, with 2 lb more. CHAP. IV.
 Also Fir of ¼ Inch Diameter, and 1½ Inch long, broke vertically with 20 lb, and horizontally with 19 lb. Elm of ½ Inch Diameter, and three Inches long, broke horizontally with 47 lb; vertically with 23 lb. Elm of 1 Inch Diameter, and 1½ Inch long, broke horizontally with 12 lb; vertically with 12 lb, which is Note-worthy.

JULY 6. 1664.

The Experiment of breaking Woods prosecuted: A Piece of Oak of ½ Inch Diameter, and three Inches long, at which Distance the Weight hung, broke horizontally with 48 lb; vertically with 40 lb. Ash of ½ Inch Diameter, and 3 Inch long, horizontally with 77 lb; vertically with 75 lb. Ash of 1 Inch Diameter, and 1½ Inch long, horizontally with 19 lb; vertically with 10 lb, &c. Thus far the Register.

In the mean Time I learn, that in the Mines of Mendip, Pieces of Timber, of but the Thickness of a Man's Arm, will support ten Tun of Earth; and that some of it has lain 200 Years, which is yet as firm as ever, growing tough and black, and being exposed two or three Days to the Wind and Sun, scarce yields to the Ax.

18. Here might come in the Problems of Cardinal Cusannus, in Lib. iv. *Idiotæ dial.* 4^{to}, concerning the different Velocity of the Ascent of great Pieces of Timber, before the smaller, submerged in Water; as also of the Weight; as v. g. Why a Piece of Wood 100 lb Weight, poising more in the Air than 2 lb of Lead, the 2 lb of Lead should seem to weigh (he should say sink) more in the Water? Why * of the specific Gravity of Timber in Proportion to Water, See the Table in Philosophical Transactions, n. 169. and 199.
 Fruits being cut off from the Tree, weigh heavier than when they were growing? With several the like Paradoxes, haply more curious than useful, and therefore we purposely omit them; but so may we not the Recommendation of that useful Treatise of Duplicate Proportion, together with a new Hypothesis of Elastic or Springy Bodies, to shew the Strengths of Timbers, and other homogeneous Materials applied to Buildings, Machines, &c. as it is published by that admirable Genius, the learned Sir William Petty. To which we join that Part of Dr. Grew's Comparative Anatomy of Trunks, as variously fitted for Mechanical Uses; where that most industrious and curious Searcher into Nature, describes to us whence Woods are soft, fast, hard, apt to be cleft, tough, durable, &c. Lastly,

19. Concerning squared, and principal Timber, for any usual Buildings, these are the legal Proportions, and which Buildings ought not to vary from.

Summers or Gir- ders from	$\left\{ \begin{array}{cc} \text{F.} & \text{F.} \\ 14 & 16 \\ 18 \text{ to } 20 \\ 20 & 23 \\ 23 & 26 \\ 26 & 28 \end{array} \right\}$	In length, must be in their square,	$\left\{ \begin{array}{cc} \text{In.} & \text{In.} \\ 11 & 8 \\ 13 & 9 \\ 14 & 10 \\ 16 & 12 \\ 17 & 14 \end{array} \right\}$	Joists of	$\left\{ \begin{array}{l} \text{Feet} \\ 11\frac{1}{2} \text{ In length} \\ \text{must be} \\ \text{in their} \\ 10\frac{1}{2} \text{ square} \end{array} \right\}$	$\left\{ \begin{array}{cc} \text{In.} & \text{In.} \\ 8 & 3 \\ 7 & 3 \\ 6 & 3 \end{array} \right\}$

Binding Joists and Trimmers from	$\left\{ \begin{array}{cc} \text{F.} & \text{F.} \\ 7 & 11\frac{1}{2} \end{array} \right\}$	In length must be in their Square	$\left\{ \begin{array}{cc} 6 & 5 \\ 7 & 5 \\ 8 & 5 \end{array} \right\}$	Wall-plates and Beams of any length, from 15 Foot, may have in their Square	$\left\{ \begin{array}{cc} \text{In.} & \text{In.} \\ 7 & 5 \\ 10 & 6 \\ 8 & 6 \end{array} \right\}$

Book III.

Purlynes from $\left\{ \begin{array}{l} \text{F.} \\ 15 \text{ to } 18 \end{array} \right\}$ to $\left\{ \begin{array}{l} \text{F.} \\ 18\frac{1}{2} \\ 21\frac{1}{2} \end{array} \right\}$ In length, must have in their Square $\left\{ \begin{array}{l} 9-8 \\ \& \\ 12-9 \end{array} \right\}$

Principal Rafter cut taper from $\left\{ \begin{array}{l} \text{F.} \\ 12\frac{1}{2} \\ 14\frac{1}{2} \\ 18\frac{1}{2} \end{array} \right\}$ to $\left\{ \begin{array}{l} \text{F.} \\ 14\frac{1}{2} \\ 18\frac{1}{2} \\ 21\frac{1}{2} \end{array} \right\}$ In length must have in their Square on one side $\left\{ \begin{array}{l} \text{In. In.} \\ 8 \ 5 \\ 9 \ 7 \\ 10 \text{ to } 8 \\ 12 \ 9 \\ 9 \ 9 \end{array} \right\}$ On the other side $\left\{ \begin{array}{l} \text{Single Rafter in length from} \\ 6 \\ 7 \\ 8 \\ 8 \\ 9 \end{array} \right\}$ $\left\{ \begin{array}{l} \text{F.} \\ 6\frac{1}{2} \\ 9\frac{1}{2} \end{array} \right\}$ must have in their Squ. $\left\{ \begin{array}{l} 5-3\frac{1}{2} \\ \& \\ 5-4 \end{array} \right\}$

Principal Dischargers of any Length from $\left\{ \begin{array}{l} \text{Foot} \\ 10 \end{array} \right\}$ upward must have in their Square $\left\{ \begin{array}{l} \text{Inch. Inch.} \\ 13-12 \\ 16-13 \end{array} \right\}$

But *Carpenters* also work by Square, which is ten *Foot* in framing and erecting the *Carcase* (as they call it) of any Timber Edifice, which is valued according to the Goodness and Choice of the *Materials*, and Curiosity in framing; especially *Roofs* and *Stair-cases*, which are of most Charges. And here might also something be added concerning the Manner of framing the *Carcases* of *Buildings*, as of *Floors*, *Pitch* of *Roofs*, the Length of *Hips* and *Sleepers*, together with the *Names* of all those several *Timbers* used in *Fabricks*, totally consisting of Wood; but I find it done to my Hand, and published some *Years* since, at the End of a late Translation of the first Book of *Palladio*, to which I refer the Reader. And to accomplish our *Artist* in Timber, with the utmost which that *Material* is capable of, to the Study and Contemplation of that stupendious *Roof*, which now lies over the renowned *Sheldonian Theatre* at the *University* of *Oxford*; being the sole Work and Contrivement of my most honoured Friend, Sir *Christopher Wren*, now worthily dignified with the *Superintendency* of the *Royal Buildings*. See Dr. *Plot's* Description of it in his *Nat. Hist. of Oxfordshire*, 272, 273. *Tab.* 13, 14. also Dr. *Wallis de Motu*, Part iii. de *Veete*, cap. vi. *Prop.* 10.

Other Conversions there are of *Timber* of all Lengths, Sizes and Dimensions, for *Arches*, *Bridges*, *Floors* and *Flat-work* (without the Supports of *Pillars*) *Tables*, *Cabinets*, *Inlayings* and *Carvings*, *Skrews*, &c. with the Art of *Turning*, to the Height of which divers *Gentlemen* have arrived, and, for their Diversion, produced Pieces of admirable Invention and Curiosity: These, I say, belonging to the *Mechanick* Uses of *Timber*, might enter here; with a *Catalogue* of innumerable *Models* and other *Rarities* (to be found in the *Repositories* and *Collections* of the *Curious*.) But let this suffice.

20. We did, in *Chap.* xxi. mention certain *Subterranean Trees*, which Mr. *Cambden* supposes grew altogether under the Ground: And truly it did appear a very *Paradox* to me, till I both saw, and diligently examined that Piece (*Plank*, *Stone*, or both shall I name it?) of *Lignum-fossile* taken out of a certain *Quarry* thereof at *Aqua Sparta*, not far from *Rome*, and sent to the most incomparably learned Sir *George Ent*, by that obliging *Virtuoso Cavalier dal Pozzo*. He that shall examine the *Hardness*, and feel the *Ponderousness* of it, sinking

sinking in *Water*, &c. will easily take it for a *Stone*; but he that shall behold its *Grain*, so exquisitely *undulated* and varied, together with its *Colour*, Manner of *hewing*, *Chips*, and other most perfect Resemblances, will never scruple to pronounce it arrant *Wood*.

Signor Stelluti (an *Italian*) has published a whole *Treatise* expressly to describe this great *Curiosity*: And there has been brought to our *Notice*, a certain *Relation* of an *Elm* growing in *Barkshire*, near *Farringdon*, which being cut towards the *Root*, was there plainly *petrified*; the like, as I once my self remember to have seen in another Tree, which grew quite through a *Rock* near the *Sepulchre* of *Agrippina* (the *Mother* of that Monster *Nero*) at the *Baia* by *Naples*, which appeared to be all *Stone*, and trickling down in *Drops* of *Water*, if I forget not. But whilst others have *philosophized* according to their Manner upon these extraordinary *Concretions*, see what the most industrious and knowing *Dr. Hook*, *Curator* of this *Royal Society*, has with no less *Reason*, but more *Succinctness*, observed from a late *Microscopical* Examen of another Piece of *petrified Wood*; the Description and Ingenuity whereof cannot but gratifie the Curious, who will, by this *Instance*, not only be instructed how to make *Enquiries* upon the like *Occasions*, but see also with what *Accurateness* the *Society* constantly proceeds in all their *Indagations* and *Experiments*; and with what *Candor* they relate, and communicate them.

21. It resembled *Wood*, in that

“ First, all the Parts of the *petrified* Substance seemed not at all dislocated or altered from their natural Position whilst they were *Wood*; but the whole Piece retained the exact Shape of *Wood*, having many of the conspicuous *Pores* of *Wood* still remaining, and shewing a manifest Difference visible enough between the *Grain* of the *Wood* and that of the *Bark*; especially, when any Side of it was cut smooth and polite; for then it appeared to have a very lovely *Grain*, like that of some curious close *Wood*.

“ Next (it resembled *Wood*) in that all the smaller, and (if so I may call those which are only to be seen by a good Glass) *microscopical* Pores of it, appear (both when the Substance is cut and polished transversely, and parallel to the Pores) perfectly like the *microscopical* Pores of several Kinds of *Wood*, retaining both the Shape and Position of such Pores.

“ It was differing from *Wood*,

“ First, in *Weight*, being to common *Water*, as $3\frac{1}{4}$ to 1. whereas there are few of our *English Woods* that, when dry, are found to be full as heavy as *Water*.

“ Secondly, in *Hardness*, being very near as hard as *Flint*, and in some Places of it also resembling the Grain of a *Flint*: It would very readily cut *Glass*, and would not without Difficulty (especially in some Parts of it) be scratched by a black hard *Flint*: it would also as readily strike *Fire* against a *Steel*, as also against a *Flint*.

“ Thirdly, in the *Closeness* of it; for, though all the *microscopical* Pores of the *Wood* were very conspicuous in one Position, yet, by altering that Position of the polished Surface to the Light, it also was manifest that those Pores appeared darker than the rest of the Body, only because they were filled up with a more dusky Substance, and not because they were hollow.

“ Fourthly,

“ Fourthly, in that it would not burn in the *Fire*; nay, though I kept it a good while red-hot in the Flame of a *Lamp*, very intensely cast on it by a *Blast* through a small *Pipe*; yet it seemed not at all to have diminished its Extension; but only I found it to have changed its Colour, and to have put on a more dark and dusky brown Hue. Nor could I perceive that those Parts which seemed to have been *Wood* at first, were any thing wasted, but the Parts appeared as solid and close as before. It was farther observable also, that as it did not consume like *Wood*, so neither did it crack and fly like a *Flint*, or such like hard *Stone*; nor was it long before it appeared red-hot.

“ Fifthly, in its *Dissolubleness*; for putting some Drops of distilled *Vinegar* upon the *Stone*, I found it presently to yield very many *Bubbles*, just like those which may be observed in *Spirit of Vinegar* when it corrodes *Coral*; though I guess many of those *Bubbles* proceeded from the small Parcels of *Air*, which were driven out of the Pores of this petrified Substance, by the insinuating liquid *Mensstruum*.

“ Sixthly, in its *Rigidity* and *Friability*; being not at all flexible, but brittle like a *Flint*; inasmuch, that with one *Knock* of a *Hammer* I broke off a small Piece of it, and with the same *Hammer* quickly beat it to pretty fine *Powder* upon an *Anvil*.

“ Seventhly, it seemed also very differing from *Wood* to the Touch, feeling more cold than *Wood* usually does, and much like other close *Stones* and *Minerals*.

“ The Reason of all which *Phænomena* seems to be,

“ That this petrified *Wood* having lain in some Place where it was well soaked with petrifying *Water* (that is, such a *Water* as is well impregnated with stony and earthy Particles) did by Degrees separate, by *Straining* and *Filtration*, or, perhaps, by *Precipitation*, *Cohesion* or *Coagulation*, abundance of stony Particles from that permeating *Water*: Which stony Particles having, by Means of the fluid *Vehicle*, convey'd themselves not only into the microscopical Pores, and perfectly stopp'd up them, but also into the Pores, which may perhaps be even in that Part of the *Wood*, which through the *Microscope* appears most solid; do thereby so augment the Weight of the *Wood*, as to make it above three times heavier than *Water*, and perhaps six times as heavy as it was when *Wood*: Next, they hereby so lock up and fetter the Parts of the *Wood*, that the *Fire* cannot easily make them fly away, but the Action of the *Fire* upon them is only able to char those Parts as it were; like as a Piece of *Wood*, if it be closed very fast up in *Clay*, and kept a good while red-hot in the *Fire*, will, by the Heat of the *Fire*, be char'd, and not consumed; which may perhaps be the Reason why the petrified Substance appear'd of a blackish brown Colour after it had been burnt. By this Intrusion of the petrified Particles, it also becomes hard and friable; for the smaller Pores of the *Wood* being perfectly stuffed up with these stony Particles, the Particles of the *Wood* have few or no Pores in which they can reside, and, consequently, no Flexion or Yielding can be caused in such a Substance. The remaining Particles likewise of the *Wood* among the stony Particles, may keep them from cracking and flying, as they do in a *Flint*.

22. The casual finding of *subterraneous Trees*, has been the occasion of this curious *Digression*, besides what we have already said in

Chap.

Chap. iii. Book ii. Now it were a strange *Paradox* to affirm, that the *Timber under the Ground*, should, to a great Degree, equal the Value of that which grows *above the Ground*; seeing, though it be far *less*, yet it is far *richer*; the *Roots* of the vilest *Shrub* being better for its *Toughness*, and for *Ornament*, and delicate *Uses*, much more preferable than the *Heart* of the fairest and soundest *Tree*: And many *Hills*, and other Waste-Places, that have in late and former *Ages* been stately *Groves* and *Woods*, have yet this *Treasure* remaining, and perchance found and unperish'd, and commonly (as we observed) an *Hindrance* to other *Plantations*; *Engines* therefore, and *Expedients* for the more easily *extracting* these *Cumbrances*, and making *Riddance* upon such Occasions, besides those we have produced, would be *excogitated* and enquired after, for the *Dispatch* of this *difficult* Work.

Thus from all these *Instances* we may gather the *Necessity* of a more than ordinary Knowledge, requisite in such whose Profession obliges them that deal in *Timber*, to study the *Art* well; nor is it a small Stock of *Philosophy*, to skill in the Nature and Property of these Materials, and which does not only concern *Architects*, but their *Subsidiary Carpenters*, *Joiners*, especially *Wood-brokers*, &c. I cannot therefore but take Notice, that among the antient *Sportula*, bequeathed by several *Founders* and *Foundresses*, to encourage the *Gardeners*, *Dies Violaris*, and *Rose*, (which was about the Time of the *Floraria*) there was among the *Romans* a *College* or *Hall*, not unlike that of our *Carpenters*; where, upon a certain Day, the *Fraternity* not only met to feast, but doubtless to confer and edify one another; as appears by an antient *Inscription* of the *Dendrophori* at *Puteoli*, mention'd by the learned * Dr. *Spon*, which for the Honour of our present Discourse we subjoin.

* *Dissert. xxiii.*
Miscellan.
Antiq. Scet. ii.
Art. xi.

EX. S. C. DENDROPHORI. CREATI. OVI. SUNT. SUB.
 CURA. XV. VIR. ST. CC. V. V. PATRON. L. AMPIUS.
 STEPHANUS. SAC. M. DEI. Q. Q. DEDICATIONI. HU-
 JUS. PANEM. VINUM. ET. SPORTULAS. DEDIT. HER-
 CULANUS.

C. VALERIUS. PICENT. VI. C. JULIUS.
 LONGINIUS JUSTINUS.

With all the rest (a numerous *Catalogue*) of the *Consuls* Names; it being, it seems, a *Corporation* establish'd by the State, when they carried Boughs and Branches of Trees in *Procession*, and distributed a *Sportula* of Bread and Wine: But of this, and of the *Fabri*, *Tignarij*, *Naupegiarij* (Ship-Carpenters) and *Centonarij*, see this learned Man's excellent *Dissertation*.

These *Colleges* or *Halls* were dedicated to *Diana*, as *Goddeſs* of the *Woods*; of which another *Roman* *Inscription* is yet extant.

The Jews had
 their Feast of
Ευλαφία,
 mention'd by
 Josephus, in
 which they
 were oblig'd
 to carry Wood
 to the Temple
 for the main-
 taining the
 Fires of the
 Altar.

DIANA E.
 COLLEG. NAUPEGIAR.
 M. JUNIUS. BALISTUS.
 ET. Q. AVILLIUS. EROS.
 II. VIR. D. D.

23. Finally, for the Use of our *Chimneys*, and Maintenance of *Fire*, the Plenty of *Wood* for *Fuel*, rather than the *Quality*, is to be looked after; and yet there are some greatly to be prefer'd before others, as

M m m

harder,

BOOK III. *harder, longer-lasting, better heating, and chearfully burning; for which we have commended the Ash, &c. in the foregoing Paragraphs, and to which I pretend not here to add much, for the avoiding Repetitions; though even an History of the best way of Charring would not misbecome this Discourse.*

But something more is to be said, sure, concerning the *Felling* of *Lignum*, Fuel-wood (for so *Critics* would distinguish it from *Materia Timber*;) *Benedictus Cursius*, *Hortor. Lib. viii. Cap. xi.* reckons up what *Woods* make the best *Firing*: Also of *Coaling* & *de facibus*, *Clearing*, and what else belongs to *ξύλοποιία*, especially for the Use of * *Sacrifices*, which had their particular Sorts; as in the Temple *Despoene* in *Arcadia*, where they were prohibited the burning of *Olive-wood*, or the *φύλον μαννίν*, the *Vaticinatric Laurel*, or the thick-rind *Oak*, nor any *Fungus* or rotten *Wood*, but what was well dry'd, and apt to kindle without smoaking. In the *Sacrifice* of *Jupiter* they used white *Poplar*, the *Pine*, on the Altar of *Ceres*. The *Persian Magi* burnt their *Sacrifices* with *Myrtle*, and the Boughs of *Laurel*; and in general, all the *Pagan Gods*, that *Wood* which was sacred to the particular *Deity*. Of all which to particularize, let the Curious enquire. We proceed therefore with what concerns this most useful *Chapter*.

* V. *Eustath.*
in *Odyss.* iii.

And first, that our *Fuelist* begin with the *Under-wood*: Some conceive between *Martlemas* and *Holy-Rood*; but generally with *Oak*, as soon as 'twill *strip*, but not after *May*; and for *Ashes*, 'twixt *Michaelmas* and *Candlemas*; and so fell'd, as that the *Cattle* may have the *browsing* of it, for in *Winter* they will not only eat the tender *Twigs*, but even the very *Moss*; but *fell* no more in a Day than they can eat for this Purpose. This done, *kid* or *bavin* them, and pitch them upon their Ends, to preserve them from rotting: Thus the *Under-wood* being disposed of, the rest will prosper the better; and besides, it otherwise does but rot upon the Earth, and destroy that which would spring. If you *head* or *top* for the *Fire*, 'tis not amiss to begin three or four Foot above the *Timber*, if it be considerable; but in Case they are only *shaken-Trees* and *Hedge-rows*, strip them even to *thirty* Foot high, because they are usually full of *Boughs*; and 'twere good to *top* such as you perceive to wither at the *Tops* a competent Way beneath, to prevent their Sicknefs downwards, which will else certainly ensue; whereas by this Means even *dying Trees* may be preserved many Years to good Emolument, though they never advance taller; and being thus frequently shred, they will produce more than if suffered to stand and decay: This is a profitable *Note* for such as have old, doating, or any ways infirm *Woods*. In other *Fellings*, some advise never to commence the disbranching from the *Top*; for though the Incumbency of the very *Boughs* upon the *next*, cause them to fall off the easier, yet it endangers the splicing of the *next*, which is very prejudicial, and therefore advise the Beginning at the nearest. And in *cutting* for *Fuel*, you may as at the *Top*, so at the *Sides*, cut a *Foot* or more from the *Body*; but never when you shred *Timber-trees*. We have said how dangerous it is to cut for *Fire-wood* when the *Sap* is up, it is a Mark of improvident *Husbands*; besides, it will never burn well, though abundance be congested. Lastly, remember that *East* and *North-winds* are unkind to the succeeding Shoots.

Now for Directions in *Stacking* (of which we have said something in *Chap. of Coppices*) ever set the *lowest* Course an *End*, the *second*, that
on

on the Sides and Ends, viz. Sides and Ends outward; the *third* thwart CHAP. IV. the other on the Side, and so the rest, till all are placed, spending the up-moſt firſt.

Thus we have endeavoured to preſcribe the beſt Directions we could learn concerning this neceſſary Subject. And in this Penury of that dear Commodity, and to incite all ingenious Perſons, ſtudious of the Benefit of their *Country*, to think of Ways how our Woods may be preſerved, by all manner of *Arts* which may prolong the laſting of our *Fuel*, I would give the beſt Encouragements. Thoſe that ſhall ſeriously conſider the intolerable Miſery of the poor *Cauchi* (the then Inhabitants of the *Low-Countries*) deſcrib'd by *Pliny*, *Lib. xvi. Cap. i.* (how opulent ſoever their late *Induſtry* has render'd them) for want only of *Wood* for *Fuel*, will have Reaſon to deplore the exceſſive Decay of our former Store of that uſeful Commodity; and by what Shifts our Neighbours, the *Hollanders*, do yet repair that Defect, be invited to exerciſe their Ingenuity: The Proceſs of which, is caſting the *Die* or Square of the *Turf* in four equal Quarters; and to build them ſo up (as our *Brick-makers* do their *crude Ware*) that they may have the free Intercourſe of the *Air* till they are dry: See *Quicciardius*, in his Deſcription of *Holland*, or *du Cange's Gloſſary*, verbo *Turba*. But beſides the * *Dung* of *Beaſts*, and the *Peat* and *Turf* (which we may * In many Places (where *Fuel* is ſcarce) poor People ſpread Fern and Straw in the Ways and Paths where Cattle tread, and then clap it againſt a Wall till it be dry: But that of Hogs is very noiſome.

find in our *ouzy Lands* and *heathy Commons*) for their *Chimneys*, *Cowſheards*, &c. they make uſe of *Stoves*, both portable and ſtanding; and truly the more frequent Uſe of thoſe *Inventions* in our great waſting *Cities* (as the Cuſtom is through all *Germany*) as alſo of thoſe new and excellent *Ovens* invented by *Dr. Keſſler*, for the incomparably baking of *Bread*, &c. would be an extraordinary Expedient of huſbanding our *Fuel*, as well as the right mingling, and making up of *Char-coal-duſt* and *Loam*, as 'tis hinted to us by *Sir Hugh Plat*, and is generally uſed in *Maeftricht*, *Liege*, and the Country about it; than which there is not a more ſweet, laſting, and beautiful *Fuel*: The Manner of it is thus:

24. Take about one *third Part* of the ſmalleſt of any *Coal*, *Pit*, *Sea*, or *Char-coal*, and commix them very well with *Loam* (whereof there is in ſome Places to be found a Sort ſomewhat more combuſtible) make theſe up into *Balls* (moiſtned with a little *Urine* of *Man* or *Beaſt*) as big as an ordinary *Goſe-egg*, or ſomewhat bigger; or if you will in any other Form, like *Brick-bats*, &c. Expoſe theſe in the *Air* till they are thoroughly dry; they will be built into the moſt orderly *Fires* you can imagine, burn very clear, give a wonderful Heat, and continue a very long Time. But firſt you muſt make the *Fire* of *Char-coal* or *Small-coal*, covering them with your *Eggs*, *Hotshots*, or *Hovilles* (as they are called) and building them up in *Pyramids*, or what Shape you pleaſe, they will continue a glowing, ſolemn and conſtant *Fire* for ſeven or eight *Hours*, without being ſtirred, and then they encourage and recruit the innermoſt with a few freſh *Eggs*, and turn the reſt, which are not yet quite reduced to *Cinders*; and this Mixture is deviſed to ſlacken the impetuous devouring of the *Fire*, and to keep the *Coals* from conſuming too faſt.

Two or three ſhort *Billets* cover'd with *Char-coal*, laſt much longer, and with more Life than twice the Quantity by itſelf, whether *Char-coal* alone or *Billet*; and the *Billets* under the *Char-coal* being undiſturb'd, will melt as it were into *Char-coals* of ſuch a laſting Size.

If *Small-coals* be spread over the *Char-coal*, where you burn it alone, 'twill bind it to longer Continuance ; and yet more, if the *Small-coal* be made of the *Roots* of *Thorns*, *Briars* and *Brambles*. Consult *L. Bacon*, *Exp.* 775.

25. The *Quercus Marina*, *Wreck*, or *Sea-weed*, which comes in our *Oyster-barrels*, laid under *Newcastle-coal* to kindle it (as the Use is in some Places) will (as I am inform'd) make it out-last two great *Fires* of simple *Coals*, and maintain a glowing *luculent* Heat without waste. This Sort of *Fuel* is much made use of in *Malta* and the *Islands* thereabout, especially to burn in their *Ovens* ; and the *Peasant* who first brought it into Custom, I find highly commended by an *Author*, as a great *Benefactor* to his Country. The Manner of gathering it, is to cut it in *Summer-time* from the *Rocks*, whereon it grows abundantly, and bringing it in *Boats* or otherwise to Land, spread and dry it in the *Sun* like *Hay*, turning and cocking it till it be fully cured. It makes an excellent *Fire* alone, and roasts to Admiration ; and when all is burnt, the *Ashes* are one of the best *Manures* for *Land* in the World, for the Time it continues in Virtue, which should be frequently supplied with fresh ; and as to the *Fire* mingled with other *Combustibles*, it is evident that it adds much Life, Continuance and Aid to our fullen *Sea-coal* Fuel ; and if the Main *Ocean* should afford *Fuel* (as the *Bernacles* and *Soland-Geese* are said to do in some Parts of *Scotland*, with the very *Sticks* of their *Nests*) we in these *Isles* may thank ourselves if we be not warm. These few Particulars I have but mention'd to animate *Improvements*, and ingenious Attempts of detecting more cheap and useful *Processes*, for Ways of *Charing Coals*, *Peat*, and the like *fugiginous* Materials ; as the accomplish'd Mr. *Boyle* has intimated to us in the *Fifth* of those his precious *Essays* concerning the *Usefulness* of *Natural Philosophy*, *Part ii. Chap. vii, &c.* to which I refer the Curious. In the mean Time, were not *He* worthy a *Statue* of *Gold*, that (*Salvo* to our *Newcastle-Trade* and *Seminary* of *Mariners*) should in this *Penury*, and of *Fire-wood*, about so monstrous a Devourer, as this vast *City* (poison'd with *Smoak* and *Soot*) find out an *Expedient*, that should within the Space of *five* and *twenty* Years, not only free it from all this *hellish* and pernicious *Fog*, by furnishing it with *Fuel* sufficient to feed and maintain all its *Hearths* and *Fires* with sweet and wholesome *Billet* ? This, the ingenious Mr. *Nourse* seems to demonstrate, and I think not impossible, whilst my *Fumifugium* is long since vanished in *Aura*. There is no very great Store of *Wood* about *Madrid*, where the *Winters* are sharp, and so very piercing, that there is spent no less than four *Millions* of *Arrobas* of *Char-coal* (every *Arroba* being three Quarters of our *Bushel*) and pays to the *King* a *Real* per *Arroba* before it comes into the Town, or is sold : It is char'd of the *Enzina*, or *Cork-tree* ; besides which they use very little *Fuel-wood*, it being exceeding hard, and consequently lasting and sweet. But to return to the *Law*.

26. By the *Preamble* of the *Statute* of 7 *Edw. VI.* one may perceive (the *Measures* compared) how plentiful *Fuel* was in the Time of *Edw. IV.* to what it was in the *Reigns* of his *Successors* : This suggested a Review of *Sizes*, and a Reformation of *Abuses* ; in which it was *Enacted*, that every *Sack* of *Coals* should contain *four Bushels* ; every *Taleshide* to be four *Foot* long, besides the *Carf* ; and if named of one, marked one, to contain 16 *Inches Circumference*, within a *Foot*

of the Middle ; if of two Marks, 23 Inches ; of 3, 28 ; of 4, 35 ; of 5, 38 Inches *about* ; and so proportionably.

27. *Billets* were to be of three Foot and four Inches in Length : The single to be seventeen Inches and an half about ; and every *Billet* of one *Cast* (as they term the Mark) to be ten Inches about : Of two *Cast*, fourteen Inches, and to be marked (unless to the private Use of the *Owner*) within six Inches of the Middle : Of one *Cast*, within four Inches of the End, &c.

Every bound *Faggot* should be *three* Foot long ; the *Band* twenty-four Inches *Circumference*, besides the Knot.

In the 43 *Eliz.* the same *Statute* (which before only concern'd *London* and its *Suburbs*) was made more universal ; and that of *Edw. VI.* explained with this Addition : For such *Taleshides* as were of necessity to be made of *Cleft-wood*, if of one Mark and half-round, to be 19 Inches about ; if quarter-cleft 18 Inches $\frac{1}{2}$: Marked *two*, being round, it shall be 23 Inches *Compass* ; half-round 27 ; quarter-cleft 26 ; marked *three*, round 28 ; half-round 33 ; quarter-cleft 32 ; marked *four*, being round 33 Inches about ; half-round 39 ; quarter-cleft 38 ; marked *five*, round 38 Inches about ; half-round 44, quarter-cleft 43 ; the Measure to be taken within half a Foot of the Middle of the Length mentioned in the former *Statute*.

Then for the *Billet*, every one nam'd a *single*, being round, to have 7 Inches $\frac{1}{2}$ *Circumference* ; but no *single* to be made of *Cleft-wood* : If marked *one*, and round, to contain 11 Inches *compass* ; if half-round 13 ; quarter-cleft 12 $\frac{1}{2}$.

If marked *two*, being round, to contain 16 Inches ; half-round 19 ; quarter-cleft 18 $\frac{1}{2}$; the Length as in the *Statute* of King *Edw. VI.*

28. *Faggots* to be every Stick of *three* Foot in Length, excepting only one Stick of one Foot long, to harden and wedge the Binding of it : This, to prevent the Abuse (too much practised) of filling the middle Part and Ends with Trash and short Sticks, which had been omitted in the former *Statute* : Concerning *this* and of the *Dimensions* of *Wood* in the *Stack*, see *Coppices*, Chap. i. Book iii. to direct the less instructed *Purchaser* : And I have been the more particular upon this Occasion, because, than our *Fuel* bought in *Billet* by the *Notch* (as they call it in *London*) there is nothing more deceitful ; for by the vile Iniquity of some *Wretches* marking the *Billets* as they come to the *Wharf*, Gentlemen are egregiously cheated. I could produce an Instance of a *Friend* of mine (and a *Member* of this *Society*) for which the *Wood-monger* has little Cause to brag ; since he never durst come at him, or challenge his *Money* for the *Commodity* he brought ; because he durst not stand to the *Measure*.

At *Hall*, near *Foy*, there is a *Faggot* which consists but of one Piece of *Wood*, naturally grown in that Form, with a *Band* wrapped about it, and parted at the Ends into *four* Sticks, one of which is subdivided into *two* others : It was carefully preserved many Years by an *Earl* of *Devonshire*, and looked on as portending the *Fate* of his *Posterity*, which is since indeed come into the Hands of *four* *Cornish* Gentlemen, one of whose *Estates* is likewise divided 'twixt two *Heirs*. This we have out of *Cambden* ; and I here note, for the *Extravagancy* of the Thing, though as to the Verity of such *Portents* from *Trees*, &c. I do not find (upon Enquiry, which I have diligently made of my Lord *Brereton*) that there is any Certainty of the rising of those *Logs*

BOOK III in the *Lake* belonging to that Place, so as still to premonish the *Death* of the *Heir* of that *Family*, how confidently soever reported; though sometimes it has happened, but the *Event* is not constant. To this *Class* may be referred what is affirmed concerning the fatal *Prediction* of *Oaks* bearing strange *Leaves*, which may be enquired of: And of Accidents *fasciating* the Boughs and Branches of *Trees*, Dr. *Plat* takes Notice of in *Willows* and other soft Woods, especially in an *Ash* at *Biffeter*, uniformly wreath'd two or three Times round: Such a Curiosity also hangs up in the *Portic* of the *Physick-Garden* at *Oxford*, in a Top-branch of *Holly*, which shews it likewise happening sometimes even to harder Woods; and 'tis probable that such as we sometimes find so *helically* twisted, have received some *Blast*, that has contracted the *Fibres*, and curled them in that extravagant Manner. Wonderful *Contorsion* and *Perplexity* of the Parts of *Trees*, may be seen and admir'd in *Tea-roots*, especially in that given to the *Royal Society* by the Right Honourable the Lord *Somer* (the late most learned *President*) amongst the *Natural Rarities* of the *Repository*.

29. But I will now describe to you the *Mystery* of *Charing* (whereof something was but touch'd in the *Process* of extracting *Tar* out of the *Pines*) as I receiv'd it from a most industrious *Person*, and so conclude the *Chapter*.

There is made of *Char-coal* usually three Sorts, viz. one for the *Iron-works*, a second for *Gun-powder*, and a third for *London* and the *Court*, besides *Small-coals*, of which we shall also speak in its due Place.

We will begin with that Sort which is used for the *Iron-works*, because the rest are made much after the same Manner, and with very little Difference.

The best *Wood* for this is good *Oak*, cut into Lengths of three Foot, as they size it for the *Stack*: This is better than the *Cord-wood*, though of a large Measure, and much used in *Effex*.

The *Wood* cut, and set in *Stacks* ready for the *Coaling*, chuse out some level Place in the *Coppice*, the most free from Stubs, &c. to make the *Hearth* on: In the midst of this *Area* drive down a Stake for your *Centre*, and with a *Pole*, having a *Ring* fasten'd to one of the *Extremes* (or else with a *Cord* put over the *Centre*) describe a *Circumference* from twenty or more Feet *semidiameter*, according to the Quantity of your *Wood* design'd for *coaling*, which being near, may conveniently be *char'd* on that *Hearth*; and which at one Time may be 12, 16, 20, 24, even to 30 *Stack*: If 12 therefore be the Quantity you will *coal*, a *Circle*, whose *Diameter* is 24 Foot, will suffice for the *Hearth*; if 20 *Stack*, a *Diameter* of 32 Foot; if 30, 40 Foot, and so proportionably.

Having thus marked out the Ground with *Mattocks*, *Haws*, and fit Instruments, bare it of the *Turf*, and of all other combustible Stuff whatsoever, which you are to rake up towards the *Periphery*, or Outside of the *Circumference*, for an *Use* to be afterwards made of it; plaining and levelling the Ground within the *Circle*: This done, the *Wood* is to be brought from the nearest Part where it is *stack'd* in *Wheelbarrows*; and first the smallest of it placed at the utmost Limit, or very Margin of the *Hearth*, where it is to be set long-ways, as it lay in the *Stack*; the biggest of the *Wood* pitch or set up on End round about against the small *Wood*, and all this within the *Circle*, till you come within

within five or six *Foot* of the *Centre*; at which Distance you shall begin to set the *Wood* in a *triangular* Form (as in the following *Print*, a) till it come to be three *Foot* high: Against *this* again, place your greater *Wood* almost *perpendicular*, reducing it from the *triangular* to a *circular* Form, till, being come within a *Yard* of the *Centre*, you may pile the *Wood* long-ways, as it lay in the *Stack*, being careful that the Ends of the *Wood* do not touch the *Pole*, which must now be erected in the *Centre*, nine *Foot* in height, that so there may remain a round *Hole*, which is to be formed in working up the *Stack-wood*, for a *Tunnel*, and the more commodious *Firing* of the *Pit*, as they call it, though not very properly. This provided for, go on to pile, and set your *Wood* upright to the other, as before; till having gained a *Yard* more, you lay it long-ways again, as was shew'd: And thus continue the *Work*, still interchanging the *Position* of the *Wood*, till the whole *Area* of the *Hearth* and *Circle* be filled and piled up at the least eight *Foot* high, and so drawn in by Degrees in *piling*, that it resemble the Form of a *copped* brown *Household-loaf*, filling all *Inequalities* with the smaller *Trunchions*, till it lie very close, and be perfectly and evenly shaped. This done, take *Straw*, *Haume*, or *Fern*, and lay it on the out-side of the Bottom of the *Heap*, or *Wood*, to keep the next *Cover* from falling amongst the *Sticks*: Upon *this* put on the *Turf*, and cast on the *Dust* and *Rubbish* which was grubbed and raked up at the making of the *Hearth*, and reserved near the *Circle* of it; with *this* cover the whole *Heap* of *Wood* to the very Top of the *Pit* or *Tunnel*, to a reasonable and competent Thickness, beaten close and even, that so the *Fire* may not vent but in the Places where you intend it; and if in preparing the *Hearth*, at first, there did not rise sufficient *Turf* and *Rubbish* for this *Work*, supply it from some convenient Place near to your *Heap*. There be who cover this again with a *sandy*, or finer *Mould*, which if it close well, need not be above an *Inch* or two thick: This done, provide a *Screen*, by making light *Hurdles* with *split Rods* and *Straw* of a competent Thickness, to keep off the *Wind*, and broad and high enough to defend an opposite Side to the very Top of your *Pit*, being eight or nine *Foot*; and so as to be easily removed, as need shall require, for the *Luing* of your *Pit*.

When now all is in this Posture, and the *Wood* well ranged, and closed, as has been directed, set *Fire* to your *Heap*: But first you must provide you of a *Ladder* to ascend the Top of your *Pit*: This they usually make of a curved *Tiller*, fit to apply to the *convex* Shape of the *Heap*, and cut it full of Notches, for the more commodious setting their Feet, whiles they govern the *Fire* above; therefore now they pull up, and take away the *Stake* which was erected at the *Centre*, to guide the building of the *Pile* and Cavity of the *Tunnel*: This done, put in a Quantity of *Char-coals* (about a *Peck*) and let them fall to the Bottom of the *Hearth*; upon them cast in *Coals* that are fully kindled; and when those which were first put in are beginning to sink, throw in more *Fuel*; and so, from Time to Time, till the *Coals* have universally taken *Fire* up to the Top; then cut an ample and reasonable thick *Turf*, and clap it over the *Hole*, or *Mouth* of the *Tunnel*, stopping it as close as may be with some of the former *Dust* and *Rubbish*: Lastly, with the Handles of your *Rakers*, or the like, you must make *Vent-holes*, or *Registers* (as our *Chymists* would name them) through the Stuff which covers your *Heap* to the very *Wood*, these in Rangers of

BOOK III. of two or three *Foot* Distance, quite round within a *Foot* (or thereabouts) of the *Top*, though some begin them at the *Bottom*: A Day after begin another Row of *Holes* a *Foot* and *half* beneath the former, and so more, till they arrive to the Ground, as Occasion requires. Note, that as the *Pit* does *coal* and *sink* towards the *Centre*, it is continually to be fed with short and fitting *Wood*, that no Part remain unfired; and if it *chars* faster at one Part than at another, *there* close up the *Vent-holes*, and open them where need is: A *Pit* will in this manner be burning off and *charing*, five or six Days, and as it *coals*, the *Smoak* from thick and gross Clouds, will grow more blue and livid, and the whole Mass sink accordingly; so as by these Indications you may the better know how to stop and govern your *Spiracles*. Two or three Days it will only require for *cooling*, which (the *Vents* being stopped) they assist, by taking now off the outward Covering with a *Rabil* or *Rubber*; but *this*, not far above the Space of one *Yard* Breadth at a Time; and first they remove the coarsest and grossest of it, throwing the finer over the *Heap* again, that so it may neither *cool* too hastily, nor endanger the *burning* and reducing all to *Ashes*, should the whole *Pit* be uncovered and exposed to the *Air* at once; therefore they open it thus round by Degrees.

When now by all the former *Symptoms* you judge it fully *char'd*, you may begin to *draw*; that is, to take out the *Coals*, first round the Bottom, by which Means the *Coals*, *Rubbish* and *Dust* sinking and falling in together, may choak and extinguish the *Fire*.

Your *Coals* sufficiently *cooled*, with a very long-toothed *Rake*, and a *Vann*, you may load them into the *Coal-wains*, which are made close with *Boards*, purposely to carry them to *Market*: Of these *Coals* the grosser Sort are commonly reserved for the *Forges* and *Iron-works*; the middling and smoother put up in *Sacks*, and carried by the *Colliers* to *London*, and the adjacent *Towns*; those which are *char'd* of the *Roots*, if *picked* out, are accounted best for *chymical Fires*, and where a lasting and extraordinary *Blast* is required.

30. *Coal* for the *Powder-Mills* is made of *Alder-wood* (but *Lime-tree* were much better, had we it in that Plenty as we easily might) cut, *slack'd* and set on the *Hearth* like the former: But first ought the *Wood* to be wholly *disbarked* (which *Work* is to be done about *Midsummer* before) and being thoroughly dry, it may be *coaled* in the same Method, the *Heap* or *Pile* only somewhat smaller, by reason that they seldom *coal* above five or six *Stacks* at a Time, laying it but two *Lengths* of the *Wood* one above the other, in Form somewhat flatter on the *Top* than what we have described. Likewise do they fling all their *Rubbish* and *Dust* on the *Top*, and begin not to cover at the *Bottom*, as in the former Example. In like sort, when they have drawn up the *Fire* in the *Tunnel*, and stopped it, they begin to draw down their *Dust* by Degrees round the *Heap*; and this *proportionably* as it *fires*, till they come about to the *Bottom*; all which is dispatched in the space of two Days. One of these *Heaps* will *char* threecore *Sacks* of *Coal*, which may all be carried at one Time in a *Waggon*; and some make the *Court-coals* after the same manner. Lastly,

31. *Small-coals* are made of the *Spray* and *Brush-wood*, which is stripped off from the *Branches* of *Copse-wood*, and which is sometimes bound up into *Bavins* for this Use; though also it be as frequently *char'd* without binding, and then they call it *cooming* it together: This, they place in some near *Floor*, made level, and freed of Incumbrances, where

where setting one of the *Bavins*, or part of the *Spray*, on Fire, two Men stand ready to throw on *Bavin* upon *Bavin* (as fast as they can take *Fire*, which makes a very great and sudden Blaze) till they have burnt all that lies near the Place, to the Number (it may be) of five or six hundred *Bavins*: But e'er they begin to set *Fire*, they fill great *Tubs* or *Vessels* with *Water*, which stand ready by them, and this they dash on with a great *Dish* or *Scoop*, so soon as ever they have thrown on all their *Bavins*, continually plying the great Heap of glowing *Coals*, which gives a sudden Stop to the Fury of the *Fire*, whiles with a great *Rake* they lay and spread it abroad, and ply their casting of *Water* still on the *Coals*, which are now perpetually turned by two Men with great *Shovels*, a third throwing on the *Water*: This they continue till no more *Fire* appears, though they cease not from being very hot: After this, they shovel them up into great Heaps, and when they are thoroughly cold, put them up in *Sacks* for *London*, where they use them amongst divers *Artificers*, both to kindle greater *Fires*, and to temper and *aneal* their several *Works*: Lastly, this is to be observed, that the *Wood* which yields the finest *Coal*, is more flexible and gentle than that which yields the contrary.

32. The best *Season* for the fetching home of other *Fuel*, is in *June*, the *Ways* being then most dry and passable; yet I know some good *Husbands* will begin rather in *May*; because *fallowing*, and stirring of *Ground* for *Corn*, comes in the ensuing *Months*, and the *Days* are long enough, and *Swains* have then least to do.



b *The Central Pole or Place of the Tunnel, with the Area making ready.*

a *The Wood placed about it in Triangle.*

c *The Coal-wood piled up before it be covered with Earth.*

d *The Coal-pit, or Pile fired.*

33. And thus we have seen how for *House-boot*, and *Ship-boot*, *Plow-boot*, *Hey-boot* and *Fire-boot*, the *Planting* and *Propagation* of *Timber* and *Forest-trees* is requisite; so as it was not for nothing, that the very *Name* (which the *Greek* generally applied to *Timber*) ὕλη, by *Senecdoche*, was taken always *pro materia*; since we hardly find any Thing

BOOK III. Thing in *Nature* more universally *useful*; or, in Comparison with it, deserving the Name of *Material*; it being, in Truth, as the *Mother Parent* and (*metaphorically*) the *Passive Principle* ready for the *Form*.

See for this
Dr. Grew of
the Vegetation
of Trunks,
Chap. vii.

34. Lastly, to compleat this Chapter of the universal Use of Trees, and the Parts of them, something I could be tempted to say concerning *Staves, Wands, &c.* their *Antiquity, Use, Divine, Domestick, Civil and Political*; the Time of cutting, manner of seasoning, forming, and other curious Particulars (how dry soever the Subject may appear) both of *Delight and Profit*; but we reserve it for some more fit Opportunity, and perhaps it may merit a peculiar *Treatise*, as acceptable as it will prove divertissant. Instead of this, we will therefore gratifie our Reader with some no inconsiderable *Secrets*: And first we will begin with a few plain *Directions* for such Persons and Country Gentlemen, as (being far distant from, or unhandisomely imposed upon by common Painters) may be desirous to know how to stop, prime and paint their *Timber-work* at Home, and save the Expence of *Work*, by any of their Servants endued with an ordinary Capacity.

Putty to stop the Chaps and Cracks of wrought Timber, is made of *White* and *Red-lead*, and some *Spanish-white* (not much) tempered and bruised with so much *Linseed-Oil* as will bring it to the Consistence of a *Paste*. Then,

Your first *Priming* shall be of *Oaker* and *Spanish-white*, very thinly ground: The second with the same, a little whiter; but it matters not much. The third and last, with *White-lead* alone; some mingle a little *Spanish-white* with it, but it is better omitted. If you desire it exquisite, instead of *Linseed-Oil*, use that of *Wall-nuts*: But the ordinary *Stone-colour* for gross *Work*, exposed to the Air, may be of less Expence, with the more ordinary *Oil*, to which you may add a little *Char-coal* in the Grinding: But if (not much minding a small Charge) you desire it more fair and durable, lay your *Work* three Times with *White-lead* (which is indeed much better than *Spanish-white*) the first and second *Primer* very thin, yet so as not to run: These may be with *Linseed-Oil*; but the last with *Nut-oil*, and some *Oil of Turpentine* tempered together, which preserves it from tarnishing, and losing Colour (I speak here of *Work* within-doors): The ordinary *Priming* with *Red*, being a Cheat among Painters; seeing *White* upon *White* must needs render the Colour still whiter and fairer.

If it be for *Out-work*, and exposed to the Air, you may spare the *Turpentine*, whilst *Nut-oil*, through all the three Grindings, were most desirable.

To vein and wave on *White*, temper a little *Lamp-black* and *White* exceedingly thin with *Nut-oil* and *Turpentine*, and then dipping a gentle flexible Feather, vein and undulate your Work with a light Hand, as naturally as you can, to express the Veins of *Marble, &c.* either on *Black* or any other; but the Grain of *Timber*, with a Slight of the *Pencil*. *Vernish* is often used, where they paint in *Size*: For other, *Oil-colours*.

Blue is made of *Indigo*, with a small Addition of *Red-lead*, or *Verdigriese*, for a *Drier*; unless you will use *Drying-oil*, which is much preferable, and is made of *Linseed-oil* boiled with a little *Umber* bruised small: I speak nothing here of *Smalt* and *Byce*, which is only done by strewing.

Green,

Green, with *Verdigriese* ground, with *Linseed-oil*, pretty thick, CHAP. IV
and then tempered with *Joyner's Vernish* in a glazed *Pot* of Earth (the
best to preserve your *Colours* in) till it run somewhat thin; and just
touch it with your *Brush*, when you lay it on, having primed it the
second Time with *White*.

There is also a fair *Grass-green* for *Traillage*, priming first with
Yellow, then with *Vert de Montagne*, or *Lapis Armeniacus*.

Note, That every *Primer* must be dry, before you go it over again.

If you will *Re-vaile*, as they term it, and shadow, or vein your
Stone-colour, there is a *Colour* called *Shadowing-black*; or you may
now and then lightly touch it with a little *Red-lead*; or work with
Umber.

It will also behove you to have a good smooth *Slat*, and a *Pebble*
Mullar well polished, which may be bought at *London*; as likewise a
Dozen of large and lesser *Brushes*, and glazed *Pots*; and to grind the
Colours perfectly well. The *Spanish-white* requires little Labour;
the *Shadowing-black*, none at all.

When you have finished, wash your *Brushes* with warm Water and
a little Soap: Preserve your *Oil* in *Bladders*; and what *Colour* you
leave, plunge the *Pots* into fair Water, so as they may stand a little
covered in it, which will keep them from growing dry, till you have
occasion for them. That you may not be altogether ignorant of the
Charge and *Price* of the *Ingredients*, which seldom varies:

Clear and sweet *Linseed-oil* is usually had for 4 s. per Gallon.

Spruce-oaker, of all Sorts, to prime with, 3 s. per Pound.

Spanish-white, for half a Penny: *White-lead* 3 d. per Pound.

Verdigriese, clean and bright, 3 s. per Pound.

Black to shadow with, exceeding cheap.

Joiners Vernish, 6 d. per Pound.

So as for farther Direction; of *White-lead* six Pounds, *Spanish-white*
six Pounds, *Spruce-oaker* three Pounds, *Verdigriese* half a Pound, *Vernish*
one Pound, *Shadowing-black* half a Pound, &c. will serve one
for a pretty deal of *Work*, and easily inform what *Quantities* you should
provide for a greater or lesser Occasion.

We will next impart a *Receipt* for a cheap *Black-dye*, such yet as no
Weather will fetch out, and that may be of use both within and with-
out Doors, upon *Wainscot*, or any fine *Timber*, as I once applied it to
a *Coach* with perfect Success.

Take of *Galls*, grossly contused in a Stone-mortar, one Pound, boil
them in three Quarts of *White-wine Vinegar* to the Diminution of one
Part, two remaining: With this rub the *Wood* twice over; then take
of the *Silk-dyers Black*, liquid (cheap and easie to be had) a convenient
Quantity, mix it at Discretion with *Lamp-black* and *Aqua-vitæ*, suf-
ficient to make it thin enough to pass a Strainer: With this dye over
your *Work* again, and if at any Time it be stained or spotted with
Dirt, &c. rubbing it only with a *Woollen-cloth* dipped in *Oil*, it will
not only recover, but present you with a very fair and noble *Polish*.
There is a *Black* which *Joiners* use to tinge their *Pear-tree* with, and
make it resemble *Ebony*, and likewise *Fir*, and other *Woods* for *Cabi-*
nets, *Picture-frames*, &c. which is this:

Take

Take *Log-wood* q. s. boil it in ordinary *Lie*, and with this paint them over: when 'tis *dry*, work it over a second Time with *Lamp-black* and strong *Size*: That also *dry*, rub off the dusty Sootiness adhering to it, with a soft *Brush* or *Cloth*; then melt some *Bees-wax*, mixing it with your *Lamp-black* and *Size*; and when this is cold, make it up into a Ball, and rub over your former *Black*: Lastly, with a *Polishing-brush* (made of short stiff Boar's Bristles, and fastned with *Wire*) labour it till the *Lustre* be to your liking. But

The black *Putty*, wherewith they stop and fill up *Cracks* and *Fissures* in *Ebony*, and other fine *Wood*, is composed of a Part of the purest *Rosin*, *Bees-wax* and *Lamp-black*: This they heat and drop into the *Crannies*; then with an *hot Iron* glaze it over, and being cold, scrape it even with a sharp *Chizel*, and after all, polish it with a Brush of *Bents*, a Woollen-cloth, Felt, and an Hog's-hair Rubber: Also *Mastick* alone, mingled with a proper *Colour*, is of no less Effect.

35. We conclude all with that incomparable Secret of the *Japan* of *China-vernishes*, which has hitherto been reserved so choicely among the *Virtuosi*; with which I shall suppose to have abundantly gratified the most curious Employers of the finer *Woods*.

Take a *Pint* of Spirit of Wine exquisitely *dephlegmed*, four *Ounces* of *Gum-lacq*, which thus cleanse: Break it first from the Sticks and Rubbish, and roughly confusing it in a Mortar, put it to steep in Fountain-water, tied up in a Bag of coarse Linnen, together with a very small Morfel of the best *Castile-soap*, for twelve Hours; then rub out all the *Tincture* from it, to which add a little *Alum*, and reserve it apart: The *Gum-lacq* remaining in the Bag, with one Ounce of *Sandrac* (some add as much *Mastick* and *White-amber*) dissolve in a large *Matras* (well stopped) with the Spirit of Wine, by a two Days *Digestion*, frequently agitating it, that it adhere not to the Glass: Then strain and press it forth into a lesser Vessel: Some after the first *Infusion* upon the *Ashes*, after twenty-four Hours, augment the Heat, and transfer the *Matras* to the *Sand-bath*, till the Liquor begins to simmer; and when the upper Part of the *Matras* grows a little *hot*, and that the *Gum-lacq* is melted, which by that Time (if the *Operation* be heeded) commonly it is, strain it through a Linnen-cloth, and press it betwixt two Sticks into the Glass, to be kept for *Use*, which it will eternally be, if well stopped.

THE APPLICATION.

The *Wood* which you would *vernish*, should be very clean, smooth, and without the least Freckle or Flaw; and in Case there be any, stop them with a *Paste* made of *Gum Tragacanth*, incorporated with what *Colour* you design: Then cover it with a *Layer* of *Vernish* purely, till it be sufficiently drenched with it: Then take *seven* Times the Quantity of the *Vernish*, as you do of *Colour*, and bruise it in a small earthen Dish glazed, with a Piece of hard *Wood*, till they are well mingled: Apply *this* with a very fine and full *Pencil*; a Quarter of an Hour after do it over again, even to three times successively; and if every time it be permitted to *dry*, before you put on the next, 'twill prove the better: Within two Hours after these four *Layers* (or sooner if you please) *polish* it with *Presle* (which our *Cabinet-makers* call, as I think, *Dutch-reeds*) wet or dry; nor much imports it, though, in doing this, you should chance to discover any of the *Wood*; since you are to pass

pass it over four or five times, as above; and if it be not yet smooth enough, *press* it again with the *Reeds*, but now very tenderly: Then rub it sufficiently with *Tripoly*, and a little *Oil-olive* or *Water*: Lastly, cover it once or twice again with your *Vernish*, and two Days after, polish it as before with *Tripoly* and a Piece of *Hatter's Felt*.

The COLOURS.

To make it of a fair *Red*, take *Spanish-vermilion*, with a quarter Part of *Venice-lack*.

For *Black*, *Ivory* calcined (as *Chymists* speak) betwixt two well luted *Crucibles*; which being ground in *Water*, with the best and greenest *Copperas*, and so let dry, reserve.

For *Blue*, take *Ultra-marine*, and only twice as much *Vernish* as of *Colour*. The rest are to be applied like the *Red*, except it be the *Green*, which is hard to make fair and vivid, and therefore seldom used.

Note, The right *Japan* is done with three or four *Layers* of *Vernish* with the *Colours*; then two of pure *Vernish uncoloured* (which is made by the former *Process*, without the *Sandrac*, which is only mingled and used for *Reds*) which must be done with a swift and even Streak, that it may not dry before the *Aventurin* be sifted on it; and then you are to cover it with so many *Layers* of pure *Vernish*, as will render it like polished *Glass*. Last of all, furbish it with *Tripoly*, *Oil*, and the *Felt*, as before directed. *Note*,

By *Venturine* is meant the most delicate and slender *Golden-wire*, such as *Embroiderers* use, reduced to a kind of *Powder*, as small as you can file or clip it: This strewed upon the first *Layer* of pure *Vernish*, when dry, superinduces what *Colour* you please; and this is prettily imitated with several *Talkes*.

This being the first Time that so rare a *Secret* has been imparted (and which since the first Publication of it, has been so successfully improved amongst our *Cabinet-makers* here in *London*) the Reader will believe that I envy him nothing which may be of *Use* to the *Publick*: And though many *Years* since we were *Masters* of this *Curiosity*, *Athanasius Kircher* has set down a *Process* in his late *China Illustrata* pretty faithfully; yet, besides, that it only speaks *Latin* (such as 'tis) it is nothing so perfect as ours: Howbeit, there we learn, that the most opulent *Province* of *Chekiang* is for nothing more celebrated, than the excellent *Paper* which it produces, and the *Gum* called *Cie* (extilling from certain Trees) with which they compose their famous *Vernish*, so universally valued over the *World*, because it is found above all other *Inventions* of that Nature, to preserve and beautifie *Wood* above any Thing which has hitherto been detected: And it has accordingly so generally obtained with them, that they have whole *Rooms* and ample *Chambers* wainscoted therewith, and divers of their most precious *Furniture*; as *Cabinets*, *Tables*, *Stools*, *Beds*, *Dishes*, *Skreens*, *Staves*, *Frames*, *Pots*, and other *Utensils*: But long it was e'er we could, for all this, approach it in *Europe* to any Purpose, till *F. Eustachius Imart*, an *Augustine Monk*, obtained the *Secret*, and obliged us with it.

And now, after all, this *Vernish* is said to be improved by a later *Receipt* sent from the *China Missionaries* to the Great Duke of *Tuscany*, and communicated by *Dr. Sherards*, and described in the *Philosophical Transactions*.

BOOK III. *Transactions*, Number 262, to which I refer the Curious both for the *Materials, Colours, Composition and Working*.

I know not whether it may be any Service to speak here of *coloured Woods*, I mean such as are naturally so, because besides the *Berberys* for *Yellow*, *Holly* for *White*, and *Plum-tree* with *Quick-lime* and *Urine*, for *Red*, we have very few: Our *Inlayers* use *Fustic*, *Locust*, or *Acacia*; *Brasil*, *Prince* and *Rose-wood* for *Yellow* and *Reds*, with several others brought from both the *Indies*; but when they would imitate the natural turning of *Leaves* in their curious *Compartments* and *Bordures* of *Flower-works*, they effect it by dipping the *Pieces* (first cut into shape, and ready to *inlay*) so far into *hot Sand*, as they would have the *Shadow*; and the *Heat* of the *Sand* darkens it so gradually, without *Detriment* or *Burning* the thin *Chip*, as one would conceive it to be natural.

Note, That the *Sand* is to be heated in some very thin *Brass* Pan, like to the Bottom of a *Scale* or *Balance*: This I mention, because the burning with *Irons*, or *Aqua-fortis*, is not comparable to it.

I learn also, that *soft Wood* attains little *Politure* without infinite *Labour*, and the Expedient is, to plane it often, and every Time you do so, to smear it with strong *Glew*, which easily penetrating, hardens it; and the frequenter you do this, and still plane it, the harder and sleeker it will remain.

And now we have spoken of *Glew*, 'tis so common and cheap, that I need not tell you it is made by boiling the *Sinews*, &c. of *Sheepstrotters*, *Parings* of *Raw-hides*, &c. to a *Jelly*, and straining it: But the finer and more delicate *Work* is best fastned with *Fish-glew*, to be had of the *Druggist* by the Name of *Ichthyocolla*; you may find how the best is made of the *Skin* of *Sturgeon*, in the *Philos. Transf.* Vol. XI. Numb. 129.

36. And here I conclude, summing up all the good *Qualities*, and transcendant *Perfections* of *Trees*, in the harmonious *Poet's* Confort of *Elogies*.

2— Pines are for Masts an useful Wood,
Cedar and Cypress, to build Houses good:
Hence Covers for their Carts, and Spokes for Wheels
Swains make, and Ships do form their crooked Keels:
With Twigs the Sallows, Elms with Leaves are freight;
Myrtles stout Spears, and Cornel good for Fight:
The Yews into Ityrean Bows are bent;
Smooth Limes, and Box, the Turner's Instrument
Shaves into Form, and hollow Cups does trim;
And down the rapid Po light Alders swim;

2 ——— dant utile lignum
Navigiis Pinos, domibus Cedrosque Cupressosque;
Hinc radios trivere rotis, hinc tympana plaustris
Agricolæ, & Pandas ratibus posuere carinas.
Viminibus Salices, sæcundæ frondibus Ulmi:
At Myrtus validis hastilibus, & bona bello
Cornus: Ityreos Taxi torquentur in arcus.
Nec Tiliæ læves, aut torno rasile Buxum,
Non formam accipiunt ferroque cavantur acuto:
Nec non & torrentem undam levis innatat Alnus
Missa Pado, nec non & apes examina condunt
Corticibusque cavis, vitiosaque Illicis alvo.

*In hollow Bark Bees do their Honey stive,
And make the Trunk of an old Oak their Hive.*

And the most ingenious *Ovid*, where he introduces the miraculous
Groves raised by the melodious *Song* of *Orpheus*.

^b ——— nor *Trees* of *Chaony*,
The *Poplar*, various *Oaks* that pierce the *Sky*,
Soft *Linden*, smooth-rind *Beech*, unmarried *Bays*,
The brittle *Hasel*, *Ash*, whose *Spears* we praise,
Unknotty *Fir*, the solace shading *Planes*,
Rough *Chestnuts*, *Maple* fleck'd with different *Grains*,
Stream-bordering *Willow*, *Lotus* loving *Lakes*,
Tough *Box*, whom never sappy *Spring* forsakes,
The slender *Tamarisk*, with *Trees* that bear
A purple *Fig*, nor *Myrtles* absent were.
The wanton *Ivy* wreath'd in amorous *Twines*,
Vines bearing *Grapes*, and *Elms* supporting *Vines*,
Streight *Service-Trees*, *Trees* dropping *Pitch*, *Fruit-red*,
Arbutus, these the rest accompanied.
With limber *Palms*, of *Victory* the *Prize* ;
And upright *Pine*, whose *Leaves* like *Bristles* rise,
Priz'd by the *Mother* of the *Gods* ———

SANDYS.

as the incomparable *Poet* goes on, and is imitated by our Divine
Spencer, where he brings his gentle *Knight* into a shady *Grove*, praising

—— the *Trees* so streight, and high,
The failing *Pine*, the *Cedar* proud, and tall,
The *Vine-prop Elm*, the *Poplar* never dry,
The *Builder Oak*, sole *King* of *Forests* all ;
The *Aspine*, good for *Staves* ; the *Cypress* Funeral :
The *Laurel*, Meed of mighty *Conquerors*
And *Poets* sage ; The *Fir* that weepeth still ;
The *Willow*, worn of forlorn *Paramours* ;
The *Yew*, obedient to the *Bender's* Will ;
The *Birch* for *Shafts* ; the *Sallow* for the *Mill* ;
The *Myrrh* sweet bleeding in the bitter *Wound* ;
The War-like *Beech* ; the *Ash* for nothing ill ;
The fruitful *Olive* ; and the *Plantane* round ;
The *Carver Holm* ; the *Maple*, seldom inward found.

Canto I.

^b ——— non *Chaonis* absuit arbor,
Non nemus *Heliadum*, non frondibus *Æsculus* altis,
Nec *Tilia* molles nec *Fagus*, & innuba *Laurus*,
Et *Coryli* fragiles, & *Fraxinus* utilis hastis ;
Enodisque *Abies*, curvataque glandibus *Ilex*,
Et *Platanus* genialis, *Acerque* coloribus impar,
Amnicolæque simul *Salices*, & aquatica *Lotos*,
Perpetuoque virens *Buxus*, tenuisque *Myrica*,
Et bicolor *Myrtus*, & baccis cærulea *Ficus*.
Vos quoque flexi-pedes *Hederæ* venistis, & una
Pampinæ *Vites*, & amictæ *Vitibus* *Ulmj*,
Ornique, & *Piceæ*, Pomoque onerata rubenti
Arbutus, & lentæ victoris præmia *Palma* ;
Et succincta comas, hirsutaque vertice *Pinus*
Grata Deum matri, &c.

Met. x.

And

BOOK III. And in this *Symphony* might the noble *Tasso* bear likewise his Part ; but that these are sufficient, *Et tria sunt omnia.*

37. For we have already spoken of that modern *Art* of *tapping Trees* in the Spring, by which doubtless some excellent and *specific Medicines* may be attained, as (before) from the *Birch* for the *Stone* ; from *Elms* and *Elder* against *Fevers* ; so from the *Vine*, the *Oak*, and even the very *Bramble*, &c. besides the wholesome and pleasant *Drinks*, *Spirits*, &c. that may possibly be educed out of them all, which we leave to the *Industrious*, satisfying ourselves, that we have been among the *first* who have *hinted* and *published* the *Ways* of performing it.

What now remains, concerns only some general *Precepts*, and *Directions* applicable to most of that we have formerly touched ; together with a *Brief* of what farther *Laws* have been enacted for the *Improvement* and *Preservation* of *Woods* ; and which having dispatched, we shall with a short *Paranesis*, touching the present ordering and disposing of the *Royal Plantations* for the future Benefit of the *Nation*, put an End to this *rustick Discourse*.

CHAP. V.

Aphorisms, or certain General Precepts, of Use to the foregoing Chapters.

1. TRY all Sorts of *Seeds*, and by their *thriving* you shall best discern what are the most proper *Kinds* for Grounds,

Quippe solo natura subest—

and of these design the main of your *Plantation*. Try all Soils, and fit the *Species* to their Natures : *Beech*, *Hazel*, *Holly*, &c. affect *Gravel* and *Gritty* ; and if mixed with *Loam*, *Oak*, *Ash*, *Elm*, &c. In stiff Ground the *Ash*, *Horn-beam*, &c. and in light feeding Ground or *Loam*, any Sort whatsoever : In the lower and wetter Lands, the *Aquatics*, &c.

2. Keep your newly sown *Seeds* continually *fresh*, and in the *Shade* (as much as may be) till they peep.

3. All *curious* *Seeds* and *Plants* are diligently to be weeded, till they are strong enough to over-drop or suppress them : And you shall carefully *haw*, *half-dig*, and stir up the *Earth* about their *Roots* during the first *three Years* ; especially in the *Vernal* and *Autumnal Equinoxes* : This Work to be done in a moist Season for the *first Year*, to prevent the *Dust*, and the suffocating of the tender *Buds* ; but afterwards, in the dry Weather.

4. *Plants* raised from *Seed*, shall be *thinned* where they come up too *thick* ; and none so fit as you thus draw, to be *transplanted* into *Hedge-rows*, especially where Ground is precious.

Suffragines, *Nepotes* and *Traduces* come in here, for general Direction ; I begin with

5. *Succers*, that sprout from the farthest Part of the *Stem*, or *Body* of the *Mother-Tree*. are best, as easier plucked up without Detriment to the *Roots* and *Fibres*, or Violence to the *Mother* : It were good therefore first to *uncover* the *Roots* whence they spring, and to cut them close

close off, replanting them immediately : Those which grow at more Distance, may be separated, with some of the old *Root*, if you find the *Succer* not well furnished. CHAP. V.

To produce *Succers*, lay the *Roots* bare, and slit some of them here and there discreetly, and then cover them.

6. *Layers* are to be bent down and couched in rich Mould, and if you find them stubborn, you may slit a little in the *Bark* and *Wood*, but no deeper than to make it *ply*, without wounding the tender Heart. Putting forth *Root* is assisted by *pricking* the *Bark*, *slitting* or binding a Pack-thread about the Part you would have them spring from.

The proper Season is, from the *early Spring*, or *Mid-August*, &c. and in all dry Seasons to keep them diligently watered.

7. *Slips* and *Cuttings* (by which most *Trees* may be propagated) taken in moist Ground, from *August* to the End of *April* frequently moistned, should be separated at the *Burs*, *Joints*, or *Knobs*, two or three Inches beneath them : Strip them of their Leaves before you bury them, leaving no side Branches, or little Top. Some slit the End where it is cut off ; at two Years end is the soonest they will be fit to take up ; *Layers* much sooner.

8. In *transplanting*, omit not the placing of your *Trees* towards their accustomed *Aspect* : And if you have Leisure, make the *Holes* the *Autumn* before, the wider the better : Three Foot over and two deep, is little enough if the Ground be any thing stiff ; often stirring and turning the *Mould*, and mixing it with *better* as you may find Cause : This done, *dig* or *plough* about them, and that as near their Stems as you can come, without hurting them, and therefore rather use the Spade for the first two or three *Years* ; and preserve what you plant *steady* from the *Winds* and Annoyance of *Cattle*, &c.

9. Remove the *softest* Wood to the *moistest* Grounds, as in *Numb. i.*

Divisæ Arboribus patriæ—

Georg. ii.

10. Begin to transplant *Forest-trees* when the *Leaves* fall after *Michaelmas* ; you may adventure when they are *tarnished* and grow yellow : It is lost Time to commence later, and for the most Part of your *Trees*, early *Transplanters* seldom repent ; for sometimes a tedious Bind of *Frost* prevents the whole Season, and the *Baldness* of the *Tree* is a Note of Deceit ; for some *Oaks*, *Horn-beam*, and most *Beeches*, preserve their *dead Leaves* till new ones push them off.

11. Set deeper in the *lighter Grounds* than in the *strong* ; but shallowest in *Clay* : Five Inches is sufficient for the *driest*, and one or two for the *moist*, provided you establish them against *Winds*.

12. Plant forth in *warm* and *moist* Seasons ; the *Air* tranquil and serene ; the *Wind* westerly, but never whiles it actually *freezes*, *rains*, or in *misty* Weather ; for it moulds and infects the *Roots*.

13. What you gather and draw out of *Woods*, plant immediately, for their *Roots* are very apt to be mortified, or hardened and withered by the *Winds* and cold *Air*.

14. *Trees* produced from *Seeds*, must have the *Top-roots* abated (the *Walnut-tree*, and some others excepted, and yet if planted merely for the *Fruit*, some affirm it may be adventured on with Success) and the bruised Parts cut away ; but sparing the *fibrous*, for they are the

BOOK III. principal *Feeders* ; and those who cleanse them too much, are punished for the Mistake.

15. In *Spring*, rub off some of the *collateral* Buds, to check the Exuberancy of *Sap* in the *Branche*s, till the *Roots* be well established.

16. *Transplant* no more than you well *fence* ; for *that* neglected, *Tree-culture* comes to nothing : Therefore all young-set *Trees* should be defended from the *Winds* and *Sun* ; especially the *East* and *North*, till their *Roots* are fixed ; that is, till you perceive them *shoot* ; and the not exactly observing of this *Article*, is Cause of the perishing of the most tender *Plantations* ; for it is the *Invasion* of these two *Assailants* which does more *Mischief* to our new-set, and less hardy *Trees*, than the most severe and durable *Frosts* of a whole *Winter* : And here let me add this *Caution* again ; that in planting of *Trees* of *Stature*, for *Avenues* or *Shades*, &c. you set them at such *Distance*, as that they be not in *Reach* of the *Mansion-house*, in Case of being blown down by the *Winds*, for *Reasons* sufficiently obvious : See *History* of the *Storm*, 26 Nov. 1703.

17. The properest *Soil*, and most *natural*, apply to distinct *Species*, *Nec vero terræ ferre omnes omnia possunt*. Yet we find by *Experience*, that most of our *Forest-trees* grow well enough in the *coursest* *Lands*, provided there be a competent *Depth* of *Mould* : For albeit most of our *wild Plants* covet to run just under the *Surface* ; yet where there is not sufficient *Depth* to *cool* them, and entertain the *Moisture* and *Influences*, they are neither lasting nor prosperous.

18. *Wood* well planted, will grow in *moorish*, *boggy*, *beathy*, and the *stoniest* *Grounds* : Only the *white* and *blue Clay* (which is commonly the *best Pasture*) is the *worst* for *Wood*, and such good *Timber* as we find in any of these (*Oaks* excepted) is of an excessive *Age*, requiring thrice the *Time* to arrive at their *Stature*.

19. If the *Season* require it, all new *Plantations* are to be plied with *Waterings*, which is better poured into a *Circle* at some *Distance* from the *Roots*, which should continually be *bared* of *Grass*, and if the *Water* be *rich* or *impregnated*, the *Shoots* will soon discover it ; for the *Liquor* being *percolated* through a *Quantity* of *Earth*, will carry the *nitrous* *Virtue* of the *Soil* with it ; by no Means therefore *water* at the *Stem* ; because it washes the *Mould* from the *Root*, comes *too* crude, and endangers their *rotting* : But,

20. For the cooling and refreshing *Tree-roots*, the congeisting of rotten *Litter* sprinkled over with fine *Earth* is good, or place *Potsheards*, *Flints*, or *Pibbles* near the *Foot* of the *Stem*, for so the *Poet*.

^a *Lime-stones*, or *squalid Shells*, that may the *Rain*,
Vapours, and *gliding Moisture* entertain.

But remember you remove them after a competent *Time*, else the *Vermine* *Snails* and *Insects* which they produce and shelter, will gnaw, and greatly injure their *Bark* ; and therefore to lay a *Coat* of moist rotten *Litter* with a little *Earth* upon it, will preserve it moist in *Summer*, and warm in *Winter*, enriching the *Showers* and *Dews* that strain through it.

^a Aut lapidem bibulum, aut squalenteis infode conchas,
Inter enim labentur aquæ, tenuisque subibit
Halitus—

Georg. ii.

21. Young *Plants* will be strangled with *Corn*, *Oats*, *Pease* or *Hemp*, or any rankly growing *Grain*, if a competent *Circle* and *Distance* be not left (as of near a *Yard*, or so) of the *Stem*: This is a *useful Remark*; but whether the setting, or sowing of *Beans* near *Trees*, make them thrive the more (as *Theophrastus* writes, I suppose he means *Fruit-trees*) I leave to Experience. *Pythagoras* we know prohibited the eating of them to *Women*.

22. Cut no *Trees* (especially having an eminent *Pith* in them, being young and tender too) when either *Heat* or *Cold* are in Extreams; nor in very wet and snowy Weather; and in this Work it is profitable to discharge all *Trees* of unthriving, broken, Wind-shaken *Browse*, and such as our *Law* terms *Cablicia*, and to take them off to the Quick.

— ne pars sincera trabatur.

And for *Ever-greens*, especially such as are tender, *prune* them not after Planting, till they do *radicate*, that is, by some little fresh *Shoot*, discover that they have taken Root.

23. Cut not off the Top of the *leading Twig* or *Shoot* (unless very crooked, and then at the next erect *Bud*) when you transplant *Timber-trees*, but those of the *Collateral* you may shorten, stripping up the rest close to the *Stem*; and such as you do spare, let them not be the most opposite, but rather one above another, to preserve the Part from swelling, and hindring its taper Growth: Be careful also to keep your *Trees* from being over *Top-heavy*, by shortning the Side Branches competently near the *Stem*: Young *Plants* nipt either by the *Frost* or *Teeth* of *Cattle*, do commonly break on the Sides, which impedes both Growth and Spirring. In this Case, *prune* off some, and quicken the *leading Shoot* with your *Knife*, at some Distance beneath its Infirmary: But if it be in a very unlikely Condition at *Spring*, cut off all close to the very Ground, and hope for a new *Shoot*; continually suppressing whatever else may accompany it, by cutting them away in *Summer*.

24. *Walnut*, *Ash*, and *Pithy-trees* are safer *pruned* in *Summer* and warm Weather, than in the *Spring*, whatever the *Vulgar* fancy: And so,

I will conclude with the *Tecnical* Names, or dissimilar Parts of *Trees*, as I find them enumerated by the industrious and learned Dr. Merett. *Scapus*, *Truncus*, *Cortex*, *Liber*, *Malicorium*, *Matrix*, *Medulla* & *Cor*, *Pecten*, *Circuli*, *Surculi*, *Rami*, *Sarmenta*, *Ramusculi*, *Spadix*, *Vimen*, *Virgultum* & *Cremium*, *Vitalia*, *Talea*, *Scobs*, *Termes*, *Turiones*, *Frondes*, *Cachryas* & *Nucamentum*, *Julus* & *Catulus*, *Comæ*: The Species *Frutex*, *Suffrutex*, &c. to which add, *Alburnum*, *Capitulum*, *Cima*, *Echinus*, *Geniculum*, *Locusta*, *Pericarpium*, *Petiolus*, *Sugilta*, &c. All which I leave to be put into good and proper *English* (as our learned *Phytologist* Mr. Ray has done) by those who shall once oblige our Nation with a full and absolutely compleat *Dictionary*, as yet a *Desiderate* amongst us, however of late infinitely improved.

To this I shall add, the *Time* and *Season* of the flourishing of *Trees*, computing from the Entry of each Month as the *Figures* denote; that is, from *March* (where the *Doctor* begins) inclusively, *March*, *Acer* 3. (i.) from *March* to *May*, viz. one Month; & sic de cæteris) *Populus* 2. *Quercus* 5. *Sorbus* 2. *Ulmus* 2. *April*, *Alnus* 2. *Betula* 2. *Castanea* 4. *Euonymus* 2. *Fagus* 2. *Fraxinus* 2. *Nux-juglans* 3. *Salix* 2. *Sambucus* 2. *May*, *Cornus* 2. *Genista* 4. *Juniperus*, *Morus* 2. *Tilia* 4. *June*, *Aquifolium* 2. *July*, *Arbutus* 2. *Feb.* *Buxus* 2, &c.

Many

BOOK III. Many more useful *Observations* are to be collected and added to these, from the diligent Experience of *Planters*.

CHAP. VI.

Of the Laws and Statutes for the Preservation and Improvement of Woods and Forests.

TIS not to be passed by, that the very first *Law* we find which was ever promulged; was concerning *Trees*; and that *Laws* themselves were first * written upon them, or *Tables* composed of them; and after that Establishment in *Paradise*, the next we meet withal are as antient as *Moses*: You may find the *Statute* at large in *Deut. xx. 19, 20.* Which though they chiefly tended to *Fruit-trees*, even in an *Enemy's Country*, yet you will find a *Case of Necessity* only alledged for the *Permission* to destroy any other.

*The Laws of Numa first cut in Querns Tabulis, before they were engraven in Brass: See Dionysius Halicarnassus, Lib. iii.

2. To sum up briefly the *Laws* and *Civil Constitutions* of great *Antiquity*, by which *Cervinus* informs us 'twas no less than Capital, *alienas arbores incidere*; the *Lex Aquilia*, and those of the *xii. Tab.* mentioned by *Paulus*, *Cujas*, *Julianus*, and others of that *Robe*, repeated divers more.

It was by those sacred *Constitutions* provided, that none might so much as plant *Trees* on the *Confines* of his *Neighbour's Ground*, but he was to leave a *Space* of at the least *five Foot*, for the smallest *Tree*, that they might not injure him with their *Shadow*. *Si Arbor in Vicini agrum impenderit, eam sublucato*, &c. and if for all this, any hung over farther, 'twas to be stripped up *fifteen Foot*: And this *Law Balduinus*, *Olderdorpius* and *Hotoman* recite out of *Ulpian, Lib. i. F. de Arb. Cædend.* where we have the *Prætor's Interdict* expressed, and the impendent *Wood* adjudged to appertain to him whose *Field* or *Fence* was thereby damnified: Nay, the wise *Solon* prescribed *Ordinances* for the very *Distances* of *Trees*; as the divine *Plato* did against stealing of *Fruit*, and violating of *Plantations*: And the *Interdiction de Glande legenda* runs thus in *Ulpian, AIT PRÆTOR, GLANDEM, QUÆ EX ILLIUS AGRO IN TVUM CADIT, QUO MINUS ILLI TERTIO QUOQUE DIE LEGERE AUFERRE LICEAT, VIM FIERI VETO.* And yet, though by the *Prætor's Permission* he might come every *third Day* to gather it up without *Trespass*, his *Neighbour* was to share of the *Mast* which so fell into his *Ground*; and this *Chapter* is well supplied by *Pliny, Lib. xvi. Cap. v.* and *Cujas* upon the *Place*, interprets *Glandem* to signify not the *Acorns* of the *Oak* alone, but all sorts of *Fruit* whatsoever, *Lib. cxxxvi. F. de Verb. Signif. L. Unis ff. de Glande leg.* as by *Usage* of the *Greeks*, amongst whom *αργόσφρα* imports all kind of *Trees*.

There were also *Laws* concerning *Boundaries*, to be found at large in other learned *Authors*, *De Re Agraria*, of which we give this short *Extract*: Some admitting any sort of *Trees*, others of *peculiar Kinds*, for the fencing of their *Grounds*; others with *foreign Trees*, that the Difference of the *Wood* might serve as a *Mark*: Some by Agreement planted them in *common* upon the very *Borders*; some at their

their private Charge, a little within the *Margents* of their own *Fields*, CHAP. VI.
 &c. Amongst the different Sorts of *Trees*, we find *Pines* and *Cypress-trees* placed for *Bounds*, in others, *Ash*, *Elm*, or *Poplar*; which being near the *Limits*, with any cultivated Ground between, the intermediate Spaces were filled with *Shrubs*. In case the *Trees* were in common, some preserved them untouch'd on both Sides; others, the *Stems* only, *Lop*, *Tops*, and *Branches* (especially if they belonged to a particular Person) to cut or spare at their Pleasure, provided they planted others in their room. In *Trees marked*, it must be considered whether they are in common, which ought to be marked in the *Middle*, or on each *Side*; and if one Side of the Tree have *Leaves*, the other should be cut, to signify their belonging to those Persons, on the Border of whose Grounds they are left entire: To this for *Trees* eight Foot asunder: Those at twenty Foot Distance were marked with X, or Γ, to notify a *Flexure* or Turning there-about: Some permit them to stand till they arrive to such a Bulk and Stature, as to over-top the rest, distinguished also from those marked on both Sides, whether they stand in *Woods*, barren or uncultivated Land, as being supposed in common: The same Rule holds if marked in the *Middle*. If but one Side be marked, the unmarked Side is the *Boundary*: If the Mark be different on either Side (and none else to be seen) such *Trees* are not to be accounted *Boundaries*. If, as sometimes, *Briars* and such *Shrubs* grow on the antient *Limits*, it must be considered of what *Kind* they are, and should be enquired how it happens that they are often found in the Middle of the *Fields*. Lastly, in *champaign* and open Places, *foreign Trees* were usually planted. There are more of those nice *Rules* to be found among the *Lawyers*, whilst before any of these Instances, the *Images* of *Satyrs* bounded the *Confines*, and were counted as *Termini*, which none might remove, without being accounted as *Sacrilegious*, and the Person punished with *Death*. These, and the *Hermae*, were reputed *Protectors* of such *Boundaries*.

— — — — — Et te pater
 Silvane, tutor finium.

H O R.

In the mean Time, no *Trees* whatsoever might be planted near public *Aqueducts*, lest the *Roots* should insinuate into, and displace the *Stones*: Nor on the very Margent of navigable *Rivers*, lest the *Boats* and other *Vessels*, passing too and fro, should be hinder'd; and therefore such Impediments were called *Retæ*, quia *Naves retinent*, says the *Gloss*; and because the falling of the *Leaves* corrupted the *Water*. So nor within such a Distance of *High-ways* (which also our own *Laws* prohibit) that they might dry the better, and less cumber the *Traveler*. *Trees* that obstructed the *Foundation* of *Houses* were to be felled; *Barthol. Lib. i. Doct. c. de Interdict. Ulp. in L. priore ff. de Arborum cædend.* *Trees* spreading their *Roots* in Neighbour-ground, to be in common; see *Cujas* and *Paulus* in *L. Arb. ff. de Communi dividend.* where more of the *Alienation* of *Trees* fell'd, and not standing but with the *Funds*, as also of the *Usu-fruit* of *Trees*, and the Difference 'twixt *Arbores Grandes*, and *Cremiales* or *Cedua*, of all which *Ulpian*, *Baldus*, *Alciat*, with the *Laws* to govern the *Conlucatores* and *Sublucatores*, and *Pruners*; *vid. Pan. f. c. Sent. Lib. v. Festus*, &c. for we pass over what concerns *Vines* and *Olive-trees*, to be found in *Cato de R. R. &c.* Nor is it here that we design to en-

BOOK II. large, as those who have *philologiz'd* on this Occasion *de Sycophantis*, and other curious *Criticisms*; but to pass now on, and confine myself to the prudent *Sanctions* of our own *Parliaments*: For though, according to the old and best Spirit of true *English*, we ought to be more powerfully led by *Royal Example*, than to have need of more cogent and violent *Laws*; yet, that our *Discourse* may be as ample, and as little defective as we can render it, something 'tis fit should be spoken concerning such *Laws* and *Ordinances* as have been from Time to Time constituted amongst us for the Encouragement and Direction of such as do *well*, and for the *Animadversion* and Punishment of those who continue *refractory*.

But before we descend to our *Municipal*, and present *Laws* and *Constitutions*, let us enquire what was antiently meant by a *Forest* (waving those, I think, impertinent *Etymologies*, *quia foris est*, *Lumbard Gloss*, &c.) A *Forest* is properly an *Harbour* for *wild Beasts*: *Quasi ferarum statio*; for which, mighty Tracts and Portions of Land have been *afforded* (as the Term is) by the *Kings* and *Monarchs* of this *Nation*, beyond any other in *Europe*, and guarded with such strict, rigorous, and severe *Laws*, as did not extend to the Prohibition of Killing and Destruction of *Deer* and *Venison* alone, but even to that of killing little silly *Birds*; and that not only to the Forfeiture and Loss of *Goods*, but of *Limb* and *Life*. Such, among others, was that of *Richard I.* upon incurring the Loss of the Offender's *Eyes* and *Testicles*, &c. to the unsufferable Hindrance of great *Improvements*; whilst there might have been not only enough for *Royal Diversion*, but for the Increase of *Timber* and *People*, which are the true *Glory* and *Safety* of this *Nation*. In the mean Time, 'tis remarkable that *William Rufus* (Successor to the great *Conqueror*) chasing a *Stag* under a spreading *Oak*, was, by the Glance of an *Arrow*, levell'd at the *Beast*, deprived of his *Life*. The *Historian* recounts it as *God's* visiting the *Sin* of the *Father* upon the *Children*, for his demolishing so many *Churches* and *Villages*, and turning them into *Receptacles* and *Dens* of *wild Beasts*; there having, besides this *Prince*, been *two* more who met with their *Death* in *New-Forest*. There were in *Yorkshire* alone, in the Time of *Henry VIII.* *two hundred, seventy and five Woods* (besides the *Parks* and *Chases*) most of them containing *five hundred Acres*: See *Mr. Camden's Brit.* As to what we call *Wood-land*, I know not how to distinguish *Forest* from *Woods*, unless for its being applicable to all Sorts in *common*; for heretofore (which as *Strabo* tells us) the antient *Inhabitants* of this *Island's* Security, was their *Woods*, instead of *Cities* and *Towns*, as still they are among the People of the *uncultivated America*: Nor doubtless was our superb and stately *Metropolis* (the antient *Trinovant*) any other; from whence some derive its *Name*, turning *Den* only into *Don*; whilst, since our own *Remembrance*, the whole *City* was ('till the late dreadful *Conflagration*) a *wooden City*, almost entirely built of *Wood* and *Timber*.

Wood-land in *Warwickshire* (says the same learned *Antiquary*) was antiently called *Ardena*, importing the same in *British*, and still retaining the same, in what is left of that vast *Forest*, the *Ardenner-Wald* in the *Nether Germany*, which stretching thro' the *Culedonium* of *Luxemburg* to the *Confines* of *Champagne*, for more than an *hundred Miles* in Length, was no more than such as might compass a *Wood-land*; from whence our own *Danica Silva* (the *Forest* of *Deane*) might

might probably derive its Name contracted, and *Diana Nemorensis* CHAP. VI.
found under the *British Arduena* and *Arden*: But dismissing these
Conjectures, we now come to the Subject of this Chapter, as it more
immediately concerns our *Common Law* (and some of other *Nations*)
which we shall deduce in this Order.

3. From the Time of *Edward IV.* were enacted many excellent
Laws for the *planting, securing, cutting, and ordering of Woods,*
Coppices and *Under-woods*, as then they took Cognizance of them;
together with the several *Penalties* upon the *Infringers*; especially
from the 25 of *Hen. VIII.* 17, &c. confirmed by the 13 and 27 of
Q. Eliz. Cap. xxv, xix, &c. which are diligently to be consulted, re-
vived, put in Execution, and enlarged where any Defect is apparent;
as in particular the *Act* of exempting of *Timber* of twenty-two Years
Growth from *Tyth*, for a longer Period, to render it complete, and more
effectual to their *Improvement*: And that *Law* repealed, by which
Willows, Sallows, Oziers, &c. which they term *Sub-bois*, are re-
puted but as *Weeds*.

4. *Severer Punishments* have lately been ordained against our *Wood-*
stealers, Destroyers of young *Trees*, &c. By an antient *Law* of some
Nation, I read, he forfeited his *Hand*, who *beheaded* a *Tree* without
Permission of the *Owner*; and I cannot say they are sharp ones, when
I compare the Severity of our *Laws* against *Mare-stealers*; nor am I
by Inclination the least *cruel*; but I do affirm, we might as well live
without *Mares*, as without *Masts* and *Ships*, which are our *wooden*
but no less profitable *Horses*.

5. And here we cannot but perstringe those *riotous Assemblies* of
idle People, who, under Pretence of going a *Maying* (as they term it)
do oftentimes *cut down* and *carry away* fine freight *Trees*, to set up
before some *Ale-house*, or *Revelling-place*, where they keep their
drunken *Bacchanalia*: For though this *Custom* was, I read, introduced
by the Emperor *Anastasius*, to abolish the *Gentile Majana* of the
Romans at *Ostia*; which was to transfer a great *Oaken-tree* out of
some *Forest* into the *Town*, and erect it before their *Mistresses* Door;
yet I think it were better to be quite abolished amongst us, for many
Reasons, besides that of occasioning so much *Waste* and *Spoil* as we
find is done to *Trees* at that *Season*, under this wanton Pretence, by
breaking, mangling, and tearing down of Branches, and intire *Arms*
of *Trees*, to adorn their wooden *Idol*. The *Imperial Law* against such
Disorders we have in L. ob. id. ff. *ad legem Aquill.* & in ff. L. xliii.
Tit. vii. *Arborum furtim cesarum*: See also *Triphon. L. ig. de Bon.*
off. cont. tab. vel in ligna focaria, L. Ligni. ff. de Lege 3, &c.

To these I might add the *Laws* of our King *Ina*; or as the learned
Lambard reckons them in his *Ἀρχαιολογία de priscis Anglorum legibus*,
whose Title is, *Be þuþu bapþete*, of burning *Trees*: The *Sanction*
runs thus.

If any one set Fire of a fell'd Wood, he shall be punished, and be-
sides pay three Pounds; and for those who clandestinely cut Wood (of
which the very Sound of the Ax shall be sufficient Conviction) for
every Tree he shall be mulcted thirty Shillings. A Tree so fell'd, un-
der whose Shadow thirty Hogs can stand, shall be mulcted at three
Pounds, &c.

Severe Laws
against
Wood-steal-
ers, v. Gree-
neway, de
L. L. abrog.
in Holland
ad Tit. Ar-
bor. furt.
Caesar. Lib. ii.

One cruelly whipt for it. See also *Carpzovius* in *Prax. Crim. Par. ii. Quest. 83. Num. 2. Segg.* and several
others to that Purpose.

6. I have heard, that in the great *Expedition* of 88, it was expressly enjoin'd the *Spanish* Commanders of that signal *Armada*, that if, when landed, they should not be able to subdue our *Nation*, and make good their *Conquest*, they should yet be sure not to leave a *Tree* standing in the *Forest* of *Deane*. It was like the *Policy* of the *Philistines*, when the poor *Israelites* went down to their Enemies *Smiths* to sharpen every Man his *Tools*; for, as they said, *lest the Hebrews make them Swords or Spears*; so these, *lest the English build them Ships, and Men of War*. Whether this were so, or not, certain it is, we cannot be too *jealous* for the Preservation of our *Woods*; and especially of those eminent, and with *Care*, inexhaustible *Magazines*. In the Duke of *Luxemburg's* Country, no *Farmer* is permitted to fell a *Timber-tree* without making it appear he hath planted another. And we have already mentioned that inviolable *Custom* about *Frankfort*, where the young *Farmer* must produce a *Certificate* of his having set a Number of *Walnut-trees*, before he have leave to marry. But of these, and the like, *V. Follar* in *Constit. Rey. de Offic. Tract.* 11, 92, 93, &c. I dare not suggest the Encouragement of a yet farther Restraint, that even *Proprietors* themselves should not presume to make Havock of some of their own *Woods*, to feed their *Prodigality*, and heap *Fuel* to their *Vices*; but it is worthy of our Observation, that (in that inimitable *Oration*, the second *Philippic*) *Cicero* does not so sharply reproach his great *Antagonist* for any other of his *Extravagancies* (which yet he there enumerates) as for his wasteful Disposure of certain *Wood-lands* belonging to the *Common-wealth*, amongst his jovial *Bravo's*, and lewd Companions; *tua ista detrimenta sunt* (meaning his *Debauchees*) *illa nostra*; speaking of the *Timber*. And doubtless, the spoil and wasting of this necessary *Material* is no less than a publick Calamity: This *John Duke of Lancaster* knew well enough, when, to revenge the Depredations made upon the *English Borders*, 'tis said, he set four and twenty thousand *Axes* at Work at once, to destroy the *Woods* in *Scotland*.

7. But to the *Laws*: It were to be wished that our tender and improvable *Woods*, should not admit of *Cattle* by any Means, till they were quite grown out of reach; the *Statutes* which connive at it, in favour of *Custom*, and for the satisfying of a few clamorous and rude *Commoners*, being too indulgent; since it is very evident, that less than a fourteen or fifteen Years *Enclosure*, is in most Places too soon; and our most material *Trees* would be of infinite more Worth and Improvement, were the *Standards* suffered to grow to *Timber*, and not so frequently cut, at the next felling of the *Wood*, as the general Custom is. In 22 *Edw. IV.* the Liberty arrived but to seven Years after a felling of a *Forest* or *Purlieu*; and but three Years before, without special *License*: This was very narrow; but let us then look on *England* as an over-grown Country.

8. *Wood* in *Parks* was afterwards to be four Years fenced, upon felling; and yearling *Colts* and *Calves* might be put into inclosed *Woods* after two: By the 13 *Eliz.* five Years, and no other *Cattle* till six, if the Growth was under fourteen Years; or until eight, if exceeding that Age till the last felling. All which *Statutes* being by the *Act* of *Hen. VIII.* but temporal, this *Parliament* of *Elizabeth* thought fit to make perpetual.

9. Then, to prevent the destructive razing and converting of Woods CHAP. VI. to *Pasture*: No *Wood* of two *Acres*, and above two *Furlongs*, from the *Mansion-house*, should be indulged: And the *Prohibitions* are good against *Affairs* made in *Forests*, &c. without *License*: The *Penalties* are indeed great; but how seldom inflicted? And what is now more easy, than compounding for such a *License*?

In some Parts of *Germany*, where a single *Tree* is observed to be extraordinary fertile, a constant and plentiful *Mast-bearer*, there are *Laws* to prohibit their *falling* without special *Leave*: And it was well enacted amongst us, that even the *Owners* of *Woods* within *Chases*, should not cut down the *Timber* without *View* of *Officers*; this *Act* being in *Affirmance* of the *Common-law*, and not to be violated without *Prescription*: See the *Case* cited by my Lord *Coke* in his *Comment* on *Littleton. Tenure Burgage*, Lib. ii. Sect. 170. Or if not within *Chases*, yet where a common Person had *Liberty* of *Chase*, &c. and this would be of much *Benefit*, had the *Regarders* performed their *Duty*, as 'tis at large described in the *Writ* of the 12 *Articles*; and that the *Surcharge* of the *Forests* had been honestly inspected with the due *Perambulations*, and antient *Metes*. Thus should the *Justices* of *Eyre* dispose of no *Woods* without express *Commission*, and in convenient Places: *Minuti blaterones quercuum, culi, & curbi*, as our *Law* terms *Wind-falls*, *Dotterels*, *Scrags*, &c. and no others.

10. Care is likewise, by our *Laws*, to be taken that no unnecessary *Imbezilment* be made by Pretences of *Repair* of *Paling*, *Lodges*, *Browse* for *Deer*, &c. *Wind-falls*, *Root-falls*, dead and *Sear-trees*, all which is subject to the *Inspection* of the *Warders*, *Justices*, *Itinerants*, &c. and even *Trespases* done *de Viridi* on *Boughs* of *Trees*, *Thickets*, and the like; which (as has been shewed) are very great *Impediments* to their *Growth* and *Prosperity*, and should be duly looked after, and punished; and the great *Neglect* of *Swainmote-Courts* reformed, &c. See *Consuet. & Assis. Fores. Pannagium, or Pastura pecorum & de Glandibus, Fleta*, &c. *Manwood's Forest-laws*: *Coke pla. fol. 366. Lib. viii. fol. 138.*

11. Finally, that the *Exorbitance* and *Increase* of devouring *Iron-mills* were looked into, as to their *Distance* and *Number* near the *Seas*, or navigable *Rivers*; and what if some of them were even removed into another World? the *Holy-land* of *New-England* (there to build *Ships*, erect *Saw-Mills*, near their noble *Rivers*) for they will else ruin *Old-England*. 'Twere better to purchase all our *Iron* out of *America*, than thus to exhaust our *Woods* at *Home*, although (I doubt not) they might be so ordered, as to be rather a *Means* of conserving them. There was a *Statute* made by *Queen Eliz.* to prohibit the converting of *Timber-trees* to *Coal*, or other *Fuel*, for the *Use* of *Iron-mills*, if the *Tree* were of one *Foot square*, and growing within fourteen *Miles* of the *Sea*, or the greater *Rivers*, &c. 'Tis pity some of those Places in *Kent*, *Suffex* and *Surrey* were excepted in the *Proviso*, for the Reason expressed in a *Statute* made 23 *Eliz.* by which even the employing of any *Under-wood* as well as great *Trees*, was prohibited within twenty-two *Miles* of *London*, and many other navigable *Rivers*, *Creeks*, and other lesser *Distances* from some Parts of *Suffex-Downs*, *Cinque-Ports*, *Havens*, &c.

One *Simon Sturtivant* had a *Patent* from *K. James I.* 1612. pretending to save 300000 *l.* a *Year*, by melting *Iron Oar*, and other

BOOK III. *Metals, with Pit-coal, Sea-coal, and Brush-fuel*; 'tis pity it did not succeed.

There are several *Acres* of *Wood-land*, of no mean Circuit, near *Rocheſter*, in the County of *Kent*, extending as far as *Bexley*, and indeed for many Miles about *Shooter's Hill*, near the River of *Thames*, which, were his Majesty Owner of, might in few *Tears* be of an unvaluable Improvement and Benefit, considering how apt they are to grow *Forest*, and how opportune they lie for the Use of the *Royal Navy* at *Chatham*.

12. But yet to prove what it is to manage *Woods* discreetly; I read of one Mr. *Christopher Darell*, a *Surrey* Gentleman of *Nudigate*, that had a particular *Indulgence* for the cutting of his *Woods* at pleasure, though a great *Iron-master*; because he so ordered his *Works*, that they were a Means of preserving even his *Woods*, notwithstanding those unsatiable *Devourers*. This may appear a *Paradox*, but it is to be made out; and I have heard my own *Father* (whose *Estate* was none of the least wooded in *England*) affirm, that a *Forge*, and some other *Mills*, to which he furnished much *Fuel*, were a Means of maintaining and improving his *Woods*; I suppose, by increasing the *Industry* of *Planting*, and *Care*; as what he left standing of his own *planting*, *enclosing* and *cherishing*, lately in the *Possession* of my most honoured Brother *George Evelin* of *Wotton* in the same County (and now in mine) did (before the late *Hurricane*) sufficiently evince: A most laudable Monument of his *Industry*, and rare *Example*; for without such an *Example*, and such an *Application*, I am no *Advocate* for *Iron-works*, but a declared *Denouncer*. But *Nature* has thought fit to produce this waſting *Oar* more plentifully in *Wood-land*, than any other Ground, and to enrich our *Foreſts* to their own Destruction.

* O Poverty! still safe; and therefore found
Inſep'rably with Miſchiefs under Ground!
Woods tall and reverend, from all Time appear
Inviolable, where no Mine is near.

For ſo our ſweet *Poet* deplores the Fate of the *Foreſt* of *Deane*.

13. The ſame *Act* we have confirmed and enlarged in the twenty-feventh of Queen *Eliz. Chap. xix.* for the preſerving of *Timber-trees*, and the Penalties of impairing *Woods* much increaſed; the *Tops* and *Offal* only permitted to be made uſe of for this Employment.

Nay, our own *Law* makes it *Waſte*, to cut down high Trees (though they be not properly *Timber*) ſtanding for *Safe-guard* and Defence of a *Mansion-houſe*, though it be done for neceſſary *Repairs*; whiſt yet many (and with Reaſon) hold it *un-healthy* to ſuffer a Dwelling to be choaked with Trees, for want of free Paſſage to the *Air*. To remedy this, there needs only a competent Diſtance to be left void. But, as a Noble * *Perſon* obſerves, People in theſe Days are ſo diſpoſed to quarrel with *Timber*, as there ſhall need no Advice to demolish Trees about their *Houſes* upon this Account: In the mean Time, as to the Incroachment of Trees ſo near our *Dwellings*, for the freer

* Lord North.
Oeconom.

* O ſemper bona pauperies! & conditus altâ
Theſaurus tellure nocens! O ſemper ovantes,
Integræ, ſalvæque ſolo non divite Silyæ!

Intercourse of *Air*, the late dreadful *Silvifragi* Storms have cleansed those Places by a *Remedy* worse than the *Disease*, sufficient to deter us from planting not only too near our *Habitations*, but from priding ourselves in our more stately *Avenues*, the late *Boasts* of our *Seats*, as by sad *Experience* my self and thousands more have found, that there is nothing *stable* in this World, which *invisible Spirits* cannot subvert and demolish, when God permits them to do *Mischief*, and convince those who believe there are none, because they do not see, though they *feel* their Effects.

14. As to the Law of *Tythes*, I find *Timber-trees* pay none, but others do, both for *Body*, *Branches*, *Bark*, *Fruit*, *Root*, and even the *Suckers* growing out of them; and the *Tenth* of the *Body* sold, or kept: And so of *Willows*, *Sallows*, and all other *Trees* not apt for *Timber*: Also of *Silva Cædua*, as *Coppices* and *Under-woods* pay the *Tenth* whenever the *Proprietor* receives his *nine* Parts. But if any of these we have named un-exempted, are cut only for *Mounds*, *Fencing*, or *Plow-boot* within the *Parish* in which they grow, or for the *Fuel* of the *Owner*, no *Tythes* are due, though the *Vicar* have the *Tythe-wood*, and the *Parson* that of the Places so inclosed; nor are *Under-woods* grubbed up by the *Roots* *tythable*, unless for *this* and any of the former Cases there be *Prescription*. But for *Timber-trees*, such as *Oak*, *Ash*, *Elm* (which are accounted *Timber* in all Places after the first *twenty Years*) also *Beech*, *Horn-beam*, *Maple*, *Aspen*, and even *Hazel* (many of which are in some *Countries* reputed *Timber*) they are not to pay *Tythes*, unless they are fell'd before the said Age of *twenty Years* from their first *planting*.

See L. Bp. of Worcester concerning Tythes of Parochial Clergy, P. 268.

Some think, and pretend, that no *Tythe* is due where is no *Annual Increase*, as *Corn* and other *Grain*, *Hay*, and *Fruit* of *Trees*, and some *Animals*; and that therefore *Silva Cædua* (till it become *Timber*) is exempted: But a *Parliament* at *Sarum* did make it *tythable*, in which are named even *Willows*, *Alder*, *Beech*, *Maple*, *Hazel*, &c.

In the *Wild* of *Sussex*, *Tythe-wood* is not paid, as for *Faggots*; but in the *Downs* they pay for *both*, as I am told; at which I wonder, there being so little *Wood* at all upon them, or likely to have ever been.

Note here,

If the *Owner* fell a *Fruit-tree* (of which the *Parson* has had *Tythe* that *Year*) and convert the *Wood* into *Fuel*, the *Tythe* shall cease; because he cannot receive the *Tythe* of one Thing twice in one *Year*.

Beech, in *Countries* where it abounds, is not *tythable*; because in such Places 'tis not accounted *Timber*. 16 *Jac. Co. B. Pinder's Case*.

Cherry-trees in *Buckinghamshire* have been adjudged *Timber*, and *Tythe-free*. *Pasch. 17 Jac. B. R.*

If a *Tree* be lopped under *twenty Years* Growth, and afterwards be permitted to grow past *twenty Years*, and then be lopped again, no *Tythe* is due for it, though at the first cutting it were not so.

If *Wood* be cut for *Hedges*, which is not *tythable*, and any be left of it unemployed, no *Tythe* shall be paid for it.

If *Wood* be cut for *Hop-poles* (where the *Parson* or *Vicar* has *Tythe-bops*) in this Case he shall not have *Tythe* of *Hop-poles*.

If a great *Wood* consist chiefly of *Under-wood* *tythable*, and some great *Trees* of *Beech*, or the like grow dispersedly amongst them, *Tythe* is due, unless the *Custom* be otherwise, of all both great and lesser together: And in like manner, if a *Wood* consist for the most Part of

Timber-

BOOK III. *Timber-trees*, with some small Scatterings of *Under-wood* amongst them, no *Tytbe* shall be paid for the *Under-wood* or *Bushes*. *Frin.* 19 *Jac.* B. R. *Adjudg.* 16 *Jac.* in C. B. *Leonard's Case*.

No *Tytbe* is to be paid of Common of *Eftovers*, or the *Wood* burnt in one's *House*. Now as to the Manner of *Payment* :

To give the *Parson* the tenth *Acre* of *Wood* in a *Coppice*, or the tenth *Cord* (provided they are equal) is a good *Payment*, and setting forth of *Tytbe*, especially if the *Custom* confirm it.

The *Tytbe* of *Mast* of *Oak* or *Beech*, if sold, must be answered by the tenth *Penny* ; if eaten by *Swine*, the *Worth* of it. And thus much we thought fit to add concerning *Predial Tythes* ; who has desire to be farther informed, may consult *Charta de Foresta*, with *Manwood's Treatise of Forest-Laws* ; *Cromate* on my Lord *Coke's Rep.* 11, 48, 49, 81. *Plow.* 470. *Brownlow's Rep.* 1 Part 94. 2 Part 150. D. and St. 169, &c. and that very useful, as well as compendious *English Historical Library*, Part iii. Chap. iv. lately published by the worthy *Arch-Deacon*, now *Bishop* of *Carlisle*. But let us see what others do.

15. The King of *Spain* has, near *Bilboa*, sixteen times as many *Acres* of *Coppice-wood* as are fit to be cut for *Coal* in one *Year* ; so that when 'tis ready to be fell'd, an *Officer* first marks such as are like to prove *Ship-timber*, which are let stand, as so many *sacred* and *dedicate* *Trees* ; by which Means the *Iron-works* are plentifully supplied in the same Place, without at all diminishing the the Stock of *Timber*. Then in *Biscay* again, every *Proprietor* plants three for one which he cuts down ; and the *Law* obliging them, is most severely executed : See what we have already mentioned of the Duke of *Lunenburg* in this *Chapter*, and that of the *Walnut-tree*. There indeed are few or no *Coppices*, but all are *Pollards* ; and the very *Lopping* (I am assured) does furnish the *Iron-works* with sufficient to support them.

16. What the Practice is for the maintaining of these kind of *Plantations* in *Germany* and *France*, has already been observed to this *Illustrious Society* by the learned Dr. *Merret*, viz. that the *Lords* and (for the *Crown-lands*) the King's Commissioners, divide the *Woods* and *Forests* into eighty Partitions ; every Year felling one of the Divisions ; so as no *Wood* is felled in less than *four score* Years : And when any one *Partition* is to be cut down, the *Officer* or *Lord* contracts with the *Buyer*, that he shall at the Distance of every *twenty* Foot (which is somewhat near) leave a good, fair, sound and fruitful *Oak* standing : Those of 'twixt *forty* and *fifty* Years they reckon for the best, and then they are to fence these *Trees* from all sorts of *Beasts* and *Injuries* for a competent Time ; which being done at the Season, down fall the *Acorns*, which (with the *Autumnal* Rains beaten into the Earth) take Root, and in a short Time furnish all the *Wood* again, where they let them grow for *four* or *five* Years, and then grub up some of them for *Fuel*, or *Transplantations*, and leave the most *probable* of them to continue for *Timber*.

17. The *French* King permits none of his *Oak-woods*, though belonging (some of them) to *Monsieur* (his Royal Brother) in *Appenage*, to be cut down ; till his own *Surveyors* and *Officers* have first marked them out ; nor are any fell'd beyond such a Circuit : Then are they sufficiently fenced by him who buys ; and no *Cattle* whatsoever suffered to be put in, till the very *Seedlings* (which spring up of the *Acorns*)

are

are perfectly out of Danger. But *these*, and many other wholesome CHAP. VI.
Ordinances, especially as they concern the *Forest of Deane*, we have
 comprised in the late *Statute* of the *twentieth* of his *Majesty's* Reign,
 which I find enacted five Years after the first *Edition* of this *Treatise*:
 And these *Laws* are worthy our perusal; as also the *Statute* prescribing
 a *Scheme* of *Proportions* for the several Scantlings of *Building-*
Timber (besides what we have already touched, *Chap. iv. Book iii. &c.*)
 which you have 19 *Car. II.* entitled, *An Act for the Rebuilding*
of London; to which I refer the Reader.

In the mean Time, *Commissioners* made *Purveyors* for *Timber* (though
 for the *King's* Use) cannot, by that *Authority*, take *Timber-trees*
 growing upon any Man's *Free-hold*, it being prohibited by *Magna*
Charta, *Cap. xxi. Nos nec Ballivi nostri, nec alii, cupimus Boscum*
alienum ad Castra, vel ad alia agenda nostra, nisi per Voluntatem
cujus Boscus ille fuerit.

We might here enlarge this Title, by shewing how different the
Forest-Laws are from the *Common-Laws* of *England*, both as to their
Antiquity and extream Severity against all Offenders (of what Degree
 soever) till the Oppression was somewhat qualified by the *Charta de*
Foresta, and afterwards by yet more favourable * *Concessions*; since, * *Affises Fo-*
 indeed, our *Kings*, after the Rigour and Example of the Stern *Nor-*
thern Princes, rendered it intolerable: But because much of this con-
 cerned the preserving *Royal Game*; when as to *Timber-trees* (like
Germany) the whole Island was almost but one vast *Forest* and *Wood*,
 so abounding, that what People might have had almost for carrying off
 the Ground it grew on, is now grown so scarce in those very Places,
 as that *Fuel* is sold by weight: I think Mr. *Cambden* mentions *Oxford-*
shire, even so long since: And here I might mention that vast *Cale-*
donian Forest, heretofore in *Scotland* (whence the *Sea* has its Name)
 and the People *Caledonians*, having now not so much as a single *Tree*
 to shew for it. Have we not then the greatest Reason in the World to
 take all imaginable Care for the Preservation and Improvement of this
 precious *Material*?

We have said nothing of the *Laws* against *Wood-stealers* (especially
 those who cut up to the very *Roots* the most hopeful and thriving
 young *Oaks*, and sell Bundles of them for *Walking-staves*, &c.) se-
 verely * punished in other *Countries*, but leave the rest to our learn-
 ed in the *Laws*, craving Pardon for the *Errors* I may have fallen in-
 to, by presuming to discourse of Matters out of my *Element* and
Profession.

whipped at the Hague.) See also *Carpzovius in Praxi Crim.* Part ii. Quest. 83. Num. 2. Seqq. and several o-
 thers: The *German Law* concerning *Forests*, are in abundance, and at large recited by *Klochi* and *Pel-*
lerus.

* See Groen-
 zung de L. L.
 abrog. in Hol-
 landia ad Tit.
 Arbor furt
 Caesar. L. ii.
 (One cruelly

C H A P. VII.

The Parænesis and Conclusion, containing some Encouragements and Proposals for the Planting and Improvement of His Majesty's Forests, and other Amœnities for Shade and Ornament.

1. **S**INCE our *Forests* are undoubtedly the greatest *Magazines* of the *Wealth* and *Glory* of this *Nation*, and our *Oaks* the truest *Oracles* of its *Perpetuity* and *Happiness*, as being the only Support of that *Navigation* which makes us fear'd Abroad, and flourish at Home; it has been strangely wondered at by some good *Patriots*, how it comes to pass, that many *Gentlemen* have frequently repaired, or gained a sudden *Fortune*, with *plowing* part of their *Parks*, and setting out their fat Grounds to *Gardeners*, &c. and very wild *Wood-land* Parcels (as may be instanced in several Places) to Dressers of *Hop-yards*, &c. whiles the *Royal Portion* lies folded up in a *Napkin*, uncultivated and neglected, especially those great and ample *Forests*; where, though *plowing* and *sowing* have been forbidden, a *Royal Command* and *Design* may well dispense with it, and the breaking up of those *Intervals*, advance the Growth of the Trees to an incredible *Improvement*.

2. It is therefore insisted on, that there is not a cheaper, easier, or more prompt *Expedient* to advance *Ship-timber*, than to solicit, that in all his Majesty's *Forests*, *Woods* and *Parks*, the spreading *Oak*, &c. (which we have formerly described) be cherished, by *plowing* and *sowing* *Barley*, *Rye*, &c. (with due Supply of *Culture* and *Soil*, between them) as far as may (without danger of the *Plow-share*) be broken up. But this is only where these Trees are arrived to some Magnitude, and stand at competent Distances; a hundred, or fifty Yards (for their *Roots* derive Relief far beyond the Reach of any *Boughs*) as do the *Walnut-trees* in *Burgundy*, which stand in their best *Plow'd-lands*.

3. But, that we may particularise in his Majesty's *Forests* of *Deane*, *Sherewood*, *Enfield-Chase*, &c. and in some sort gratify the *Queries* of the Honourable the Principal *Officers* and *Commissioners* of the *Navy*; I am advised by such as are every way *judicious*, and of long Experience in those Parts, that to *enclose* would be an excellent Way: But it is to be considered, that the People, *viz.* *Foresters*, and *Bor-derers*, are not generally so civil and reasonable as might be wished; and therefore to design a solid *Improvement* in such Places, his Majesty must assert his *Power*, with a firm and high Resolution to reduce these Men to their due *Obedience*, and to a Necessity of submitting to their own and the publick Utility, though they preserved their *Industry* this Way, at a very tolerable Rate, upon that Condition; while some Person of Trust and Integrity did regulate and supervise the *Mounds* and *Fences*, and destine some Portions frequently set apart for the raising and propagating of *Wood*, till the whole *Nation* were furnished for *Posterity*.

4. Which Work if his *Majesty* shall resolve to accomplish, he will leave such an everlasting *Obligation* on his *People*, and raise such a *Monument* to his *Fame*, as the *Ages* for a thousand Years to come, shall have cause to celebrate his precious *Memory*, and his Royal Successors to emulate his *Virtue*. For thus (besides the future Expectations) it would in present, be no Deduction from his *Majesty's Treasure*, but some Increase, and fall in Time to be a fair and worthy *Accession* to it; whiles this kind of *Propriety* would be the most likely Expedient to civilize those wild and poor *Borderers*, and to secure the vast and spreading Heart of the *Forest*, which, with all this *Indulgence*, would be ample enough for a princely *Demefnes*: And if the Difficulty be to find out who *knows*, or *acknowledges* what are the *Borderers*; this *Article* were worthy and becoming of as serious an *Inquisition*, as the *Legislative Power* of the whole *Nation* can contrive.

5. The Sum of all is; get the *Bordures* well tenanted, by long *Terms*, and easy *Rents*, and this will invite and encourage *Takers*; whilst the *middle*, most secure, and interior Parts would be a *Royal Portion*. Let his *Majesty* therefore admit of any willing *Adventurers* in this vast *Circle* for such *Enclosures* in the *Precinct*; and rather of *more*, than of *few*, though an hundred or two should join together for any *Enclosure* of five hundred *Acres* more or less; that *Multitudes* being thus engaged, the Consideration might procure and facilitate a full *Discovery* of latter *Encroachments*, and fortify the Recovery by favourable *Rents*, *Improvements* and *Reversions* by *Copyhold*, or what other *Tenures* and *Services* his *Majesty* shall please to accept of.

6. Now for the planting of *Woods* in such Places (which is the main Design of this whole Treatise) the *Hills* and *rough Grounds* will do well; but they are the rich fat *Vales* and *Flats* which do best deserve the Charge of *Walls*, such as that *Spot* affords; and the *Hawthorn*, well plash'd (single or double) is a better and more natural *Fence* than *unmortar'd Walls*, could our *Industry* arrive to the making of such as we have described: Besides, they are lasting and profitable; and then one might allow sufficient *Bordure* for a *Mound* of any Thickness, which may be the first Charge, and well supported and rewarded by the Culture of the Land thus enclosed.

7. For *Example*, suppose a Man would take in five hundred *Acres* of good *Land*, let the *Mounds* be of the wildest Ground, as fittest for *Wood*: Two *Hedges*, with their *Vallations* and *Trenches*, will be requisite in all the *Round*, viz. one next to the *Enclosure*, the other about the Thicket, to fence it from *Cattle*: This, between the two *Hedges* (of whatsoever Breadth) is fittest for *Plantations*. In these *Hedges* might be tried the Plantation of *Stocks*, in the *Intervals* all manner of *Wood-seeds* sown (after competent *Plowings*) as *Acorns*, *Mast*, *Fir*, *Pine*, *Nuts*, &c. the first Year chasing away the *Birds*, because of the *Fir* and *Pine* Seeds, for Reasons given. The second Year loosening the Ground, and thinning the *Supernumeraries*, &c. this is the most frugal Way: Or by another *Method*, the waste Places of *Forests* and *Woods* (which by thorough Experience is known and tried) might be perfectly cleansed; and then allowing two or three *Plowings*, well rooted *Stocks* be set, cut and trimmed as is requisite; and that the *Timber-trees* may be excellent, those afterwards *Coppiced*, and the choicest *Stocks* kept threaded. If an *Enclosure* be sowed, the
Seeds

BOOK III. *Seeds* may be (as was directed) of all the *Species*, not forgetting the best *Pines*, *Fir*, &c. Whiles the yearly Removal of very Incumbrances only, will repay the *Workmen*, who fell the *Quick*, or reserve it to store other Enclosures, and soften the circumjacent Grounds, to the very great Improvement of what remains.

8. And how if in such *Fencing-works*, we did sometimes imitate what *Quintus Curtius*, *Lib. vi.* has recorded of the *Mardorum Gens*, near to the Confines of *Hyrkania*; who did, by the close planting of Trees alone upon the Bordures, give so strange a Check to the Power of that great Conqueror *Alexander*? They were a barbarous People indeed, but in this worthy our Imitation; and the Work so handsomely, and particularly described, that I shall not grieve to recite it. *Arbores densæ sunt de industria confitæ, quarum teneros adhuc ramos manu flectunt, quos intortos rursus in serunt terræ: Inde, velut ex alia radice latiores virent trunci: hos, qua natura fert, adolescere non sinunt; quippe alium alii, quasi nexu conferunt: qui ubi multa fronde vestiti sunt, operiunt terram. Itaque occulti ramorum velut laquei perpetuâ sepe iter, claudunt, &c.* The Trees (*saiþ he*) were planted so near and thick together of Purpose, that when the *Boughs* were yet young and flexible, bent and wreath'd within one another, their Tops were bowed into the Earth (as we *submerge our Layers*) whence taking fresh *Roots*, they shot up new Stems, which not being permitted to grow as of themselves they would have done, they so knit and perplex'd one within another, that when they were clad with Leaves, they even covered the Ground, and enclosed the whole Country with a kind of living Net, and impenetrable Hedge, as the *Historian* continues the Description. And this is not unlike what I am told is frequently practised in divers Places of *Devon*; where the *Oaks* being planted very near the Foot of those high *Mounds*, by which they separate their *Lands*, so root themselves into the *Bank*, that when it falls and crumbles down, the *Fence* continues still maintained by them with exceeding Profit. Such Works as these would become a *Cato* or *Varro* indeed, one that were *Pater Patriæ, non sibi soli natus*, born for Posterity; but we are commonly of another Mould,

——— & *fruges consumere nati.*

9. A fair Advance for speedy Growth, and noble Trees (especially for *Walks* and *Avenues*) may be assuredly expected from the *Grafting* of young *Oaks* and *Elms* with the best of their Kinds; and where the goodliest of these last are growing, the Ground would be *plow'd* and finely *raked* in the Season when the *Scales* fall; that the Showers and Dews fastning the Seed where the Wind drives it, it may take *Root*, and hasten (as it will) to a sudden Tree; especially, if seasonable *Shreading* be applied, which has sometimes made them arrive to the Height of twelve Foot by the first three Years, after which they grow amain. And if such were planted as near to one another as in the *Examples* we have alledged, it is almost incredible what a *Paling* they would be to our most exposed *Plantations*, mounting up their *wooden Walls* to the *Clouds*. And indeed the Shelving and natural Declivity of the Ground more or less to our unkind *Aspects*, and bleak *Winds*, does best direct to the *Thickening* of these Protections; and the Benefit of that soon appears, and recompences our Industry in the Smoothness and Integrity of the *Plantations* so defended.

10. That

10. That great Care be had of the *Seeds* which we intend to sow, CHAP. VII.
has been already advised ; for it has been seen, that *Woods* of the same
Age, planted in the same Soil, discover a visible Difference in the *Tim-*
ber and *Growth* ; and where this Variety should happen, if not from
the Seed, will be hard to interpret ; therefore let the *Place*, *Soil* and
Growth of such *Trees*, from whence you have your *Seeds*, be diligent-
ly examined ; and why not this, as well as in our Care of *Animals* for
our Breed and Store ?

11. As to the *Form*, obey the natural *Site*, and submit to the sever-
al Guises ; but ever declining to enclose *High-ways* and *Common-*
roads as much as possible. For the rest, be pleased to reflect on what
we have already said, to encourage the *planting* of the large spreading
Oak above all that *Species* ; the Amplitude of the *Distance*, which
they require, resigned to the Care of the *Verderer* for grazing *Cattle*,
Deer, &c. and for the great and masculine Beauty which a wild *Quin-*
cunx, as it were, of such *Trees* would present to your Eye.

12. But to advance the *Royal Forests* to this Height of Perfection,
I should again urge the Removal of some of our most mischievously
placed *Iron-mills* ; if that at least be true which some have affirmed,
that we had better *Iron*, and cheaper from *Foreigners*, when those
Works were Strangers amongst us. I am informed, that the *New-Eng-*
lish (who are now become very numerous, and hindred in their Advance
and Prospect of the *Continent* by their Surfeit of the *Woods*, which we
want) did, about twelve Years since, begin to clear their *High-ways*
by two *Iron-mills*. I am sure their *Zeal* has sufficiently wasted our
stately *Woods* and *Steel* in the Bowels of their *Mother Old-England* ;
and 'twere now but expedient, their *Brethren* should hasten thither to
supply us with *Iron* for the *Peace* of our Days ; whilst his *Majesty*
becomes the great *Sovereign* of the *Ocean*, free *Commerce*, *Nemorum*
Vindex & *Instaurator magnus*. This were the only Way to render both
our *Countries* habitable indeed, and the fittest *Sacrifice* for the *Royal*
Oaks, and their *Hamadryads*, to whom they owe more than a slight
Submission : And he that should deeply consider the prodigious *Waste*
which these voracious *Iron* and *Glass-works* have formerly made but
in one *County* alone, the *County* of *Suffex*, for one hundred and twenty
Miles in Length, and thirty in Breadth (for so wide and spacious was
the antient *Andradswald*, of old one entire *Wood*, but of which there
remains now little or no Sign) would be touched with no mean *Indig-*
nation : I named the *Suffex Glass-works* ; but what Spoil and pro-
digious Consumption the *Salt-works* had made in *Worcestershire*, see
the Complaint of Mr. *Cambden*, speaking of *Feckenham-Forest* in his
Days, now necessitated to use other *Coal* ; certainly, the goodly *Rivers*
and *Forests* of the other *World*, would much better become these de-
structive Works, our *Iron* and *Saw-mills*, than these exhausted Coun-
tries, and we prove Gainers by the timely Removal : I have said this
already, and I cannot too often inculcate it for the Concerns of a Nation,
whose only Protection (under *God*) are her *wooden Walls*.

13. Another thing to be recommended (and which would prove no
less than thirty Years, in some Places forty, and generally twenty Years
Advance) were a good (if well executed) *Act* to save our *Standards*,
and *bordering Trees* from the *Ax* of the Neighbourhood : And who
would not preserve *Timber*, when within so few Years the *Price* is al-
most

Book III. most quadrupled? I assure you *Standards* of twenty, thirty, or forty Years Growth, are of a long Day for the Concernments of a Nation.

14. And though we have in our general *Chapter* of *Coppices*, declared what by our *Laws* and common *Usage* is expected at every *Fell* (and which is indeed most requisite, till our Store be otherwise supplied) yet might much even of that Rigour be abated, by no unfrugal Permissions to take down more of the *Standards* for the Benefit of the *Under-woods* (especially where, by *over-dropping* and *Shade*, they interrupt the kindly *Dews*, *Rains* and *Influences* which nourish them) provided that there were a proportionable Number of *Timber-trees* duly and thoroughly planted and preserved in the *Hedge-rows* and *Bordures* of our Grounds; in which Case, even the total clearing of some *Coppices* would be to their great Advance, as by sad Experience has been taught some good *Husbands*, whose Necessities sometimes forced them to violate their *Standards*, and more grown *Trees*, during the late *Tyranny*.

15. Nor will it be here unseasonable to advise, that where *Trees* are manifestly perceived to decay, they be marked out for the *Ax*, that so the *younger* may come on for a Supply, especially where they are chiefly *Elms*; because their *Successors* hasten to their Height and Perfection in a competent Time; but beginning once to grow sick of *Age*, or other Infirmary, suddenly impair, and lose much of their Value yearly; besides, that the Increase of *this*, and other speedy *Timber*, would spare the more *Oak* for *Navigation*, and the sturdier Uses.

How goodly a Sight were it, if most of the *Demefnes* of our *Country Gentlemen* were crowned and incircled with such stately Rows of *Limes*, *Firs*, *Elms*, and other ample, shady and venerable *Trees* as adorn *New-Hall* in *Essex*, the Seat of that *Suffolk Knight* near *Tarmouth*, our neighbouring Pastures at *Barnes*, with what has been planted of later Years by the illustrious *Marquis of Worcester*, the most accomplished Earl of *Essex*, and even in less fertile Soils, though purer *Air*, at *Euston*, by the Right Honourable the Earl of *Arlington*, *Lord Chamberlain* of his Majesty's Household, and at *Cornbury* by the late *Lord Chancellor*, the *Earl of Clarendon*, and is done, nearer this Imperial City, by the *Earl of Danby*, late *Lord High Treasurer* of *England*, at *Wimbleton*, the noble *Earl of Rochester* (succeeding him in that supreme Office) at *New-Park*, the Duke of *Norfolk* at *Albery*, now the Lord *Guernsey's*, Sir *Robert Cooke* at *Durdence*, at *Epsom*, now my Lord *Barkley's*, at *Bedington* an antient Seat of the *Carews*, famous for the first *Orange-trees* planted in the naked Earth one hundred Years since, and still flourishing, *Row-hampton*, *Losely*, *Ashstead*, Seats, Parks and Plantations, the *Earl of Devonshire's* *Mores*, Sir *Robert Howard*, &c.

Besides what might have been seen (as to me they were in Perfection and with Admiration) the Royal Seats of *Oatland*, *Richmond*, and above all *Nonfuch*, described by the *Judicious Camden*, which deserved *Eulogies*.

All these, and more, in my own sweet County of *Surrey*, inferior to none for Pleasure and Salubrity of the *Air*: To which we add the princely *Sejourns* of the adjoining County, *Eltham* and *Greenwich*, for its *Park* and *Prospect*, not only *emulous*, but in many Respects exceeding that of the famous *Thrafsan Bosphorus* from *Constantinople*: That *Palace*, namely at *Greenwich*, now turned into a stately and capacious

cious *College* (the incomparable Work of that accomplished *Architect* Sir *Chris. Wren*) to which I had the Honour to lay one of the *First Foundation Stones*, as the *First Treasurer* of that *Royal Structure*, erected for the Reception and Encouragement of *emerited* and well deserving *Sea-men* and *Mariners*, for its glorious *Fabrick* and *Conveniences* exceeding any in *Europe*, dedicated to that excellent Purpose. To these also belongs a *Park*, as there did to that of *Eltam*. Nearer the *Metropolis* yet are those of *St. James's*, *Hide-Park*, and that sweet *Villa* (as now built, planted and embellished) of *Kensington*, deserving a particular Description; and for all that can be desirable of Magnificence, *Hampton-Court*, truly great, in a most beautiful *Flat*; the *Palace*, *Gardens*, *Canal*, *Walks*, *Groves* and *Parks*; the sweet and silent *Thames* gliding her silver Streams to the *triumphal Winsor-Temple*, raising its stately Head, and which alone has in View an *Hemisphere*, as far as *Eyes* and *Telescopes* can distinguish *Earth* from *Heaven*: Thus from the *Keape*, the *Terrace*, *Parks* and *Forests*, equaling, nay exceeding any Thing *Europe* can boast of.

Other sweet and delectable Country Seats and Villas of the *nobles*, *rich* and *opulent Citizens* (about our *Angusta*) built and environ'd with *Parks*, *Padocks*, *Plantations*, &c. adapted to Country and Rural Seats, dispersed through the whole Nation, conspicuous not only for the *Structure* of their *Houses*, built after the best Rules of *Architecture*, but for *Situation*, *Gardens*, *Canals*, *Walks*, *Avenues*, *Parks*, *Forests*, *Ponds*, *Prospect* and *Vistas*, *Groves*, *Woods*, and large *Plantations*, and other the most charming and delightful *Recesses*, natural and artificial: But to enumerate and describe what were extraordinary in these and the rest, would furnish *Volumes*: For who has not either seen, admired, or heard of

Audly-End, *Althorp*, *Awkland*, *Allington*, *Amphill*, *Astwell*, *Aldermaston*?

Bolsover, *Badminton*, *Breckly*, *Burghly* on the *Hill*, and the other *Burghly*; *Bockton*, *Buckhurst*, *Buckland*, *Bellroiro*, *Blechington*, *Bestwood*, *Broom-hall*?

Castle-Rising, *Castle-Ashby*, *Chatsworth*, *Charsley*, *Cornbery*, *Caslabery*, *Cobham*, *Cowdrey*, *Caversham*, *Cranburn-Park*, *Charlton*, *Copt-Hall*, *Claverton*? famous for Sir *W. Basset's* Vine-yard, producing forty *Hogheads* of *Wine* yearly. Nor must I forget that of *Deepden*, planted by the Honourable *Charles Howard* of *Norfolk*, my worthy Neighbour in *Surrey*.

Drayton, *Dorington-Park*, *Deane*?

Eastwell, *Euston*, *Ecleswold*, *Edscomb*, *Easton*, *Epping*?

Falston, *Flankford*?

Graystock, *Goodrick*, *Grooby*, *Grafton*, *Golden-Grove*?

Holdenby, *Haddon*, *Hornby*, *Hatfield*, *Haland*, *Hoathfield*, *Hinton*, *Holm-Pierpoint*, *Horstmounceaux*?

Ichingfield?

Kirby, *Knowesby*?

Longleat, *Latham*, *Lensal*, *Latimer*, *Lawnsborough*?

More-Park, *Mulgrave*, *Marlborough*?

Normanby, *North-hall*, *Norborough*, *Newenham*?

St. Ostlo, *Oxnead*?

Petworth, *Penshurst*, *Paston-Hall*?

Quarendon, *Quickwood*?

Ragland,

Ragland, Rutford, Ragbey, Ricot ?
Sherborn, Sherley, Swallowfield, Shasford, Shaftsbury, Stansted,
Scots-hall, Sands of the Vine ?
Theobalds, Thorn-kill, Thorny ?
Up-Park ?

Wilton, Wrest, Woburn, Welbeck, Worksop, Woodstock, which, as *Cambden* tells us, was the first Park in *England*; as it is like to be one of the most magnificent and princely *Palaces* and *Seats* of that illustrious *Hero*, his *Grace* the *Duke of Marlborough*, to whose *Courage* and *Conduct* not the *Safety* of the *Empire* alone, but of *Europe* is due, whilst the *Actions* at *Bleinheim* and *Schellemburg* may challenge equal *Trophies* with *Miltiades* and *Cæsar*, at *Marathon* and *Pharsalia*. But to proceed, *Wimburn, Writtle-Park ?*

And generally all those *Seats* which go under the Names of *Castles* and *Halls* (as in *Yorkshire, Essex, &c.*) were stored with noble *Parks* full of *Timber*, omitted here; which, but to have named, would overswell the *Alphabet*; without reckoning those of *Ireland*, which few Years since was an inexhaustible Magazine of *Timber*, destroyed by the *Cromwellian Rebels*, not only in that Kingdom, but through all *England*: As to *Parks*, there were more in this Nation than in all *Europe* beside: And most of all that *Catalogue* above-named, have yet their *Parks* full of good *Timber-trees*, industriously improved by the Owners, since the Spoil of the late *Usurpers* and *Sequestrators*.

To these should I add the vast *Forests* (most of them belonging to the *Crown*) as that of *Deane, New-Forest, Windsor, Ashdown, Leonard, Sherewood, Epping, Panbet, Chute, &c.* *Forests* for the most Part without *Trees*, and several of them together heretofore comprehended in that vast *Andradswald* already mentioned, of one County only. There were formerly twenty *Groves* in *Clarendon-Park* near *Salisbury*, celebrated by *Mesokerus*, cited by *Cambden*, that were every one of them a *Mile* in compass. In a Word, to give an *Instance* of what Store of *Woods* and *Timber* of prodigious Size, there were growing in our little County of *Surrey* (the nearest of any to *London*) and plentifully furnished both for *Profit* and *Pleasure* (with sufficient *Grief* and *Reluctancy* I speak it) my own *Grandfather* had standing at *Wotton*, and about that Estate, *Timber*, that now were worth 100000 *l.* Since of what was left my *Father* (who was a great *Preserver* of *Wood*) there has been 30000 *l.* worth of *Timber* fallen by the *Ax*, and the *Fury* of the late *Hurricane* and *Storm*: Now no more *Wotton*, stript and naked, and ashamed almost to own its Name.

All which considered (for there are many other Places and Estates which have suffered the like Calamity) should raise, methinks, a new *Spirit* of Industry in the *Nobility* and *Gentry* of the whole Nation, like that which *Nehemiah* inspired the *Nobles* as well as the *People* of the *Captivity* (than which nothing so much resembled that tedious *Slavery*, and *Return* from it, than did the *Restoration* of King *Charles II.*) *Let us arise up* (says the brave Man) *and build; and so they strengthened their Hand, for the People had a Mind to the Work.* And such an universal *Spirit* and *Resolution* to fall to planting, for the repairing of our wooden *Walls* and *Castles*, as well as of our *Estates*, should truly animate us: *Let us arise then and plant*, and not give it over till we have repaired the Havock our barbarous *Enemies* have made: Pardon then this *Zeal*, O ye *Lovers* of your Country,

try, if it have transported me! To you Princes, Dukes, Earls, Lords, Knights and Gentlemen, noble Patriots (as most concerned) I speak, to encourage and animate a Work so glorious, so necessary: A Spirit like this was that which so universally excited, and set forward the Repair of the decay'd Peer at Dover, built of Timber; Gentlemen and Persons of all Degrees setting their Hand to it, with a wonderful and unanimous Zeal and Alacrity, as it is described by our honest Hollingshed, in the Reign of Q. Elizabeth. And what has been done of later Date, in order to the Improvement of their Estates, and Ornament of their Seats, we have already shewed, leading the Way to those noble and honourable Attempts, the Fruit of their Hands and Industry, in so few Years, already beginning to exalt their stately Heads about their Estates and Dwellings.

To continue this then, let none be discouraged who have any generous Regard to the Good of their Country and Posterity: Let us hear the *Hessian Bard*:

*When either barren Sands have kill'd the Trees,
Or diligent Hewers fell'd them by Degrees;
Then, lest the Earth should waste, and bare remain,
They scatter Seeds, and leave them on the Plain:
Hence to proceed, young stalkless Leaves you'll find,
Next slender Stems, which with a stronger Rind
Invested, rise to Trees: Of these is made
A youthful Grove, yielding a lovely Shade;
Until, at last, their stately Heads they rear,
And tall (as those which they succeed) appear,
Ready again the Workmens Tools to mar.
This various Culture, by the Germans taught,
Most other Nations into Use have brought:
Such is the Love of Groves, that with Delight,
Or ample Profit may the Pains requite.*

Having before celebrated and described the famous Forest about *Norinberg*:

*Cum vel arena siti sterilis confecit iniqua
Vel labor excidit diurnus & arida facta est
Planities, tum ne jaceant loca vasta recisis,
Arboribus nova conficiunt, & semina mittunt
Sparsa solo vacuo, campisque injecta relinquunt:
Tum videas prodire novas sine stipite frondes,
Mox quoque cauliculos tenues, tum cortice robur
Ad nasci, parvosque umbram defendere ramos
Exiguam, teneramque novo de germine Sylvam
Surgere, & in patrias paulatim adolefcere formas;
Donec in antiquum redeat decus, altaque cælo
Attollat Capita, & concusso vertice nutet
Lassatura iterum patrias jam Silva secures,
Has aliæ innumeræ per tot jam secula, terræ
Rescivere artes reparandarum silvarum.
Inventrix docuit Germania, tanta cupido est,
Tantus amor Nemorum, quorum vel blanda Voluptus,
Vel gravis utilitas sit responsura labori.*

^b *A Wood with kind Embraces, five * Miles wide,
 Encompasses the Town on every side,
 No whit inferior to th' Hercinian Grove,
 Whether you Profit most, or Pleasure love.*

* *Celerus Oe-*
con. Lib. viii.
Cap. i, xi.

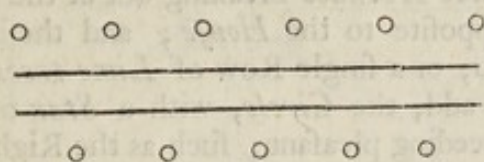
Of which noble *Forest* and *Privileges* such Care has been taken by many * *Emperors*, that the very *Models* of the *Plows* are still preserved, drawn by above an *hundred Horse*, when two hundred Years since this *Royal Plantation* was begun, wisely presaging what *Ravage* might be made by the Spoil which the *Wars* have since caused in that goodly *Country*; which being then an almost *continual Forest*, is now so sadly wasted. Nor has this been the Fate of *Germany* alone, but of all the most flourishing Parts of *Europe*, through the execrable and unsatiable *Ambition* of those who have been the Occasion of the Ruin not only of these *venerable Shades*, stately *Trees* and *Avenues* (the graceful Ornaments of the most princely Seats) but of the miserable Desolation of entire *Provinces*, which their *Legions* have left, with the *Murders* of so many *Christians*, inhumanly, and without Distinction or just Provocation! *Mischiefs* not to be repaired in many *Ages*, the *truculent* and savage *Marks* (among others) of a most *Christian King*, *Nomine non Re!* In the mean Time, what Provision this *Demolisher* of *Woods* in other Countries makes to furnish and store his *own* Dominions with so necessary a *Material*, we have mentioned in this *Chapter*; and how impolitick a Waste there was of *Timber* in *France* in *John Bodin's* Time, see *Repub. Lib. vi. Cap. i.*

But (leaving this sad and melancholy Prospect) I return to *Foreign Descriptions* (the Effects of *Peace*) and it shall be that Plantation of *Elms*, carried out of *England* by *Philip* the Second of *Spain*, to adorn his *Royal Palace* at *Aranjuez* (of which I have already spoken, *Cap. iv. Lib. i.*) near *Madrid* in *Spain*: The *Palace* is seated on the Bank of the famous River *Tagus*, and the Plantation on the *North*, where there is a Piece of Ground inclosed, formed into Walks of six hundred and eighty *Tards* long, and three hundred in Breadth, in Shape of a *Trapezium* or *Parallelogram*, about which the *Tago* is artificially drawn to fence it. Next the River-side are more *Walks*, not above twenty Foot in Breadth (for closer Shade) planted on each Side with double Ranks of *Elm*, some of which are forty *Tards* high, stript up to the Top, and so near set as fifteen Foot space: The second Row is about six Foot distant from the other; not planted exactly against its usual Opposite, but the *Interval* and Space through which

^b *Circuit inclusam pulchris amplexibus Urbem
 Silva patens passum per millia quinque recessu
 Interiore sui, vel paulo plura, nec ulli
 Hercinia nemorum cedens, si commoda spectes;
 Aut etiam quæ Silvarum solet esse Voluptas.
 Te juvet, atque animi tantum oblectamina quæras.*

glides a narrow shallow *Channel* of *Water*, to refresh the *Trees* upon occasion; thus,

CHAP. VII.



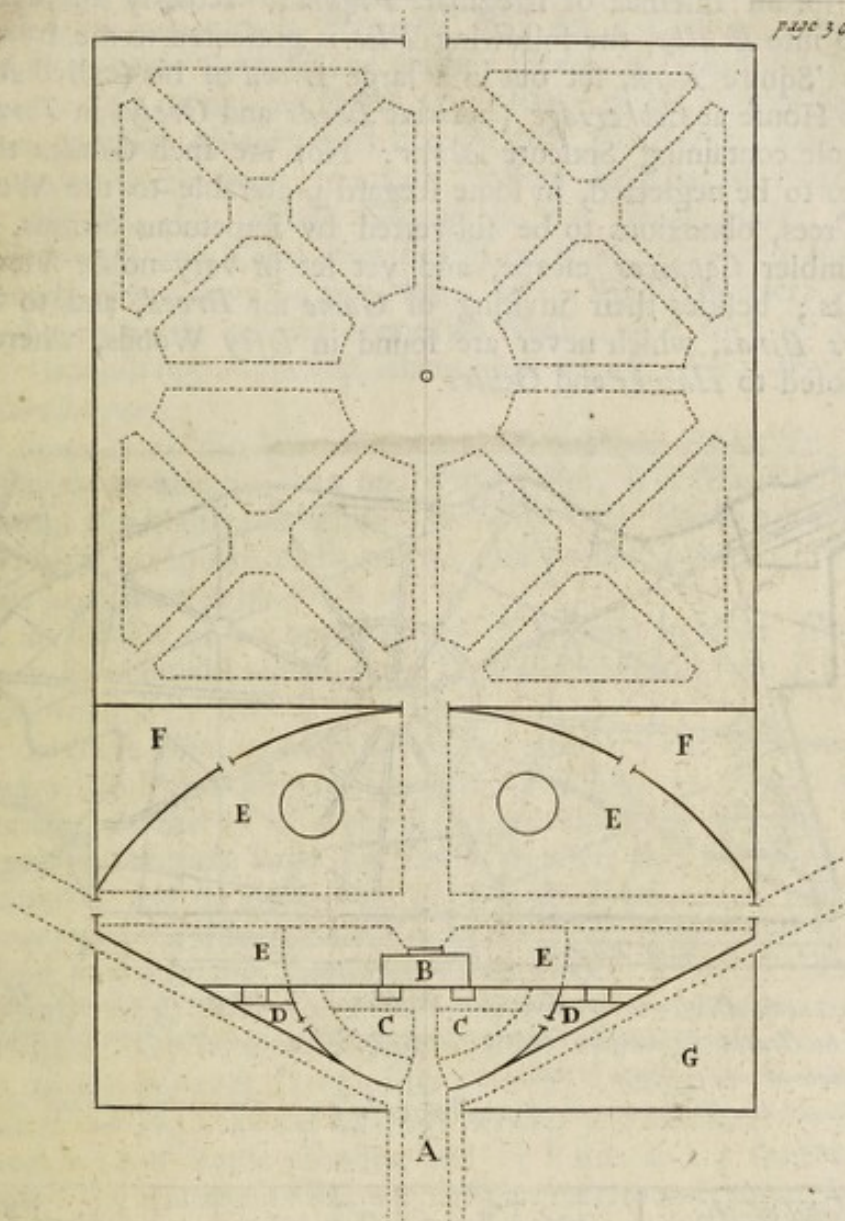
Which is the Method used in many *Ridings* of *Elm-walks*, some of which are a *League* in Length, adorning this *Seat* beyond any *Palace* (some think) in the World. Many of these indeed are on the *Decay*, prejudiced by their being planted so near one another: But for all that, it takes not much from the Beauty of the *Vista*, which is certainly the most surprizingly agreeable; to which the ample *Fountain*, and noble *Statues* in the *Cross-Walks*, make so glorious an Addition, as would require a particular Description.

And now do I not for all this so magnify it, as if not to be *parallel'd* in our own Country; where, I dare affirm, are many exceed it, both in *Form* and *Planting* (which has there several Defects) but as we said, for an *exotick* Example, so admired and celebrated by that boasting Nation, as if the *Universe* could not shew the like.

And what, in the mean Time, can be more delightful, than for noble Persons to adorn their goodly *Mansions* and *Demefnes* with Trees of *venerable Shade*, and profitable *Timber*? By all the Rules and Methods imaginable, to cut and dispose those ampler Inclosures into *Lawns* and *Ridings* for Exercise, Health and Prospect, and for which I should here presume to furnish some farther Directions, were it not already done to my Hand by the often-cited Mr. *Cooke*, in that useful Work of his; where, in *Chapter* the 38th, he has laid down all that I can conceive necessary, by *Measures* exactly taken from the *middle Line* of any *Front*, following the *Centre-stake*, if it be for a *Walk*: He there determines the *Wideness* of the *Walk*, according to its *Length*, as forty Foot to one of half a Mile; if more, fifty or sixty; and if you withal desire *Shade*, that then you should make three *Walks*, the two *Collaterals* twenty Foot broad, to a middle one of forty, twenty-five to fifty, so that the Middle be as wide as both the other: He likewise shews how proper it is that *Walks* should not terminate abruptly, but rather in some capacious or pretty Figure, be it *Circle*, *Oval*, *Semi-circle*, *Triangle* or *Square*, especially in *Parks*, or where they do not lead into other *Walks*; and even in that Case, that there may gracefully be a *Circle* to receive them: There he shews how to pierce a *Walk* through the thickest *Wood*, either by *Stakes* set up where they may be seen to direct, or by *Candle* and *Lanthorn* in a calm Night, &c. He also gives the *Distances* of the *Trees* in relation to each other, according to the *Species*, and shews how necessary it is to plant them nearer in those *Ovals*, *Circles* and *Squares*, &c. for the better Distinction of the *Figures*, suppose to half the Distance of that of the *Walks*, and proportionable to the Amplitude or Smallness thereof. As for *Lawns*, he advises that they should (if possible) be contrived on the *South* or *East* Side of the *Seat* or *Mansion*, for avoiding the Impetuoufness of *Western* Winds; and that your best *Rooms* may front those *Lawns* and Openings, and to skreen from the *Occidetal* and Afternoon's *Sun*, which also hinders *Prospect*: A *Lawn* on the *North*, exposes

BOOK III. exposes the *House* to that piercing Quarter, and therefore it would be well defended with the tallest *Trees*: For the Figure he commends the *Square*, with three *Avenues* breaking out at the three *Angles*, or one at the *Angle* opposite to the *House*; and these *Lawns* may be bounded with *Walks*, or a single Row of *Lime-trees* at competent Distance: To which I add, the *Circle*, with a *Star* of *Walks* radiating from it, likewise exceeding pleasant; such as the Right Honourable the *Earl* of *Winchelsea* has cut out at his noble Seat in *Kent*; and since (far exceeding the most) at *Long-Leats*, the stately *Palace* of the *Lord Viscount Weymouth*; at *Badminton*, the *Duke* of *Beaufort's* princely Seat in *Gloucestershire*; at *Ackdowne-Park* in *Berks*, a most delightful Solitude, from the *Centre* of a large *Wood* belonging to the *Lord Craven*; and in *Worcestershire* at *Westwood*, the *Mansion* of *Sir John Packington*; besides those mentioned by *Dr. Plot* in his *Nat. Hist.* of *Staffordshire*, with many others; most of which have been graphically plotted and designed (together with the *Seats*, *Gardens*, *Fountains*, *Piscinas*, *Plantations*, *Avenues*, *Vistas* and *Prospects* about them) by *Mr. Kniff*, in near an hundred *Copper-Plates*: A most laudable Undertaking, and becoming the Encouragement of those noble Persons, who would do Honour to themselves, their Family, and whole Nation. By these, and the like Examples, Gentlemen (Lovers of Improvements) may learn how to contrive and adapt a *Square*, *Oblong*, *Regular* or *Irregular Figure*, according as their *Woods*, *Groves* and *Parks* are disposed, and lie proper for *Avenues* and *Vistas*, radiating from their Seats in the Country; such especially as are situated in spacious *Flats*, or gentle *Declivities*. For Instance, suppose a large and spacious Square, contiguous to the *Gardens*, or some *Pasture-Fields* before it (not here set out) were divided into several Quarters, separated only by Walks and Ranks of Trees, and if need be, inclosed with low Hedges of *Holly*, *Yew*, or other hardy *Greens*: The Trees and Walks planted at competent Distance with *Forest-trees*, unmixed; that is, what were planted with *Oak*, should be set throughout with *Oak*; *Elm* with *Elm*, and so of the rest: That the Walks which lead to or from the Front of the *House*, be one hundred, or one hundred and fifty Foot in Breadth, others sixty, fifty, &c. in Proportion to the Length, and the Distance of the Trees as the *Species* require. But this is not so easily at first discerned by such as, being desirous of *speedy Shade* and *Ornament*, plant their Trees too near one another, which is a general Error. Thus much concerning the *Walks* and *Vistas*. The *Vacuties*, which are sixteen blunt *Triangles*, and considered as pretty large Fields, may be stored with several sorts of good *Timber-trees*, *Oak*, *Elm*, *Ash*, *Walnut*, *Beech*, *Chestnut*, *Lime*, *Service*, *Maple*, *Black-Cherry*, *Fir*, *Pines*, &c. some of them plowed for *Corn*, and left for *Meadow* and *Pasture*, *Cyder*, *Cherry*, and other *Ortyard-fruit*, than which nothing could be more profitable and graceful.

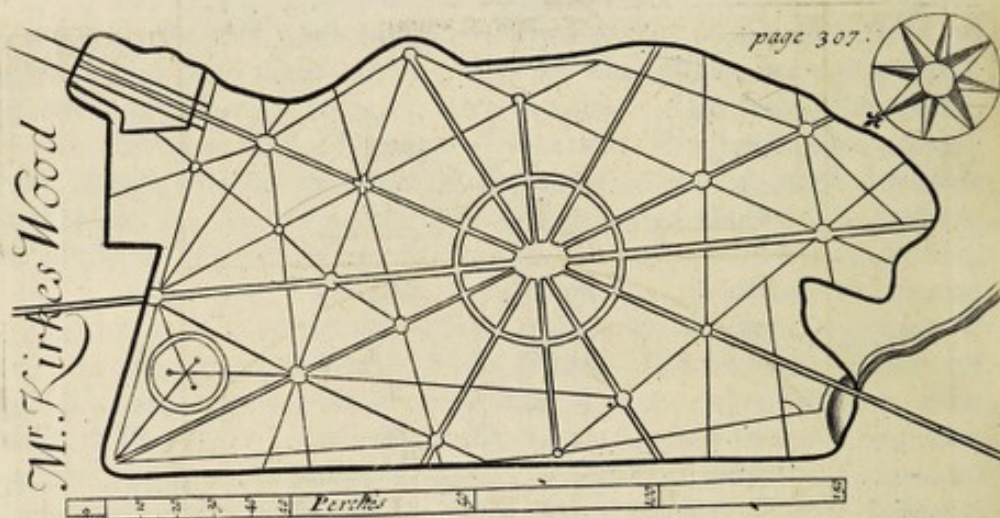
page 306.



- A, *The Principal Avenue.*
 B, *The House.*
 C, *The Court before it.*
 D, *Place for Stables, and other Offices.*
 E, *Gardens and Fountain.*
 F, *Hortyards and Fruit, &c.*
 G, *Pasture.*

I have omitted the *Basse-Court*, which may be added to the half Circle C ; nor have I given the Dimensions of any the Separations or necessary *Buildings* ; intending this as an *Idea* only of something which I conceive might be both convenient and graceful, or to be varied into other *Figures*, according to the Pleasure of the *Owner*. The black Lines are *Walks* ; the pointed, Ranks of *Trees* and *Walks*.

And for an Instance of irregular *Figures*, actually surveyed and disposed into *Walks*, the following *Plot* is presented to me by the ingenious 'Squire *Kirk*, set out in a large *Wood* of his (called *Mosely*) near his House at *Cookeridge* (betwixt *Leeds* and *Osley*) in *Yorkshire*; the whole containing Sixscore *Acres*: Nor are such *Glades* through *Coppices* to be neglected, in some Regard preferable to the Woods of taller Trees, obnoxious to be subverted by impetuous Storms, which the humbler *Coppices* escape, and yet let in very noble Views and Prospects; besides their inviting of *Game* for *Breed*, and to shelter *sonorous Birds*, which never are found in lofty Woods, where they are exposed to *Hawks* and *Owles*.



The lines in this Platform represents the Walks in *Mr. Kirk's Wood* (call'd *Mosely*) near his House at *Cookeridge* (betwixt *Leeds* and *Osley*) in *Yorkshire*. The whole containing about Sixscore *Acres*.

The Double line Walks are about 20 Feet wide, and y^e Single lines about 8 Foot wide.

Total of the Views	8	18	140	10	60	7	32	9	10	12	306
Number of Centers	4	6	32	2	10	1	4	1	1	1	65
Views.	2	3	4	5	6	7	8	9	10	12	Sum

This Table shews in the first Collumne the Number of Views in each Center, in the Second Collumne y^e Number of Centers, and in y^e third y^e total Number of all the Views.

And here should I shut up this *Section*, were I not most advantageously as well as obligingly prevented, by the *Improvement* following (sent me from the Reverend Mr. *Walker*) to shew how *Forest-trees* may be planted in Confort with *Fruit-trees*, at once answering both *Profit* and *Pleasure*: Take it as himself describes it, which cannot be better.

‘ In open *Fields*, where a Man happens to have only single broad *Lands* or *Leys* lying by themselves, or only two or three lying together, in every such Place he may set a Row of Trees near the Middle, every second Tree being a *Fruit-tree*, and the rest *Forest-trees*: Or, on narrow Pieces never likely to be *plowed* (as on *Meadow-ground*, *Hades*, &c.) betwixt two *Fruit-trees* may be set two or more *Forest-trees*, in a Line crossing the Row of *Fruit-trees*, as in *Fig. V.* On *Arable Ground* he may make *Balks*, which may be mowed, and Trees may be set on them. If upon *Balks* 4 Foot broad, *Fruit-trees* be set 4 Pole, or 22 Yards, asunder, and one *Forest-tree* be set betwixt every two *Fruit-trees*, then for every *Acre* of Ground left unplowed, there may be 160 *Fruit-trees*, and 160 *Forest-trees*.

‘ Some think the loss of Ground in making Holes for Trees and *Tumps*, to be more than really it is: For, if a *Mark* be paid yearly for an *Acre*, this comes to no more than one *Penny* for a square Pole, which is 30 square Yards and $\frac{1}{4}$; and he that pays 20 s. for an *Acre*, has 20 square Yards for 1 d.

‘ In *Closes*, or on broad Pieces of Ground in open *Fields*, Trees may be planted in some of the Orders described in the 4 first *Figures* following.

‘ In these *Figures* each Letter represents a Tree, viz. *a a a*, *Fruit-trees*, 30 Yards asunder in *equilateral Triangles*; and *o o*, *Forest-trees*. In the 1st *Fig.* the Rows are 15 Yards asunder, the *Fruit-trees* in the same Row 52 Yards asunder, the *Forest-trees* 8 Yards asunder, and 10 Yards from the nearest *Fruit-trees*. These *Forest-trees* may be often pruned up to the Top: The Rows may run the same way that the *Lands* or *Leys* shoot. In every *Acre* about 6 *Fruit-trees*, and 30 *Forest-trees* may be thus planted; or the Distance may be more or less, as the *Planter* thinks fit.

‘ In Places never likely to be *plowed*, Trees may be set as in the 2d or 3d *Fig.* In the 2d *Fig.* betwixt 3 *Fruit-trees* are set 3 *Forest-trees* 8 Yards asunder, and 15 Yards and $\frac{1}{2}$ from each *Fruit-tree*. A *Fruit-tree* has 12 *Forest-trees* round about it. About 6 *Fruit-trees*, and 36 *Forest-trees* may be thus set in one *Acre*.

‘ In the 3d *Fig.* betwixt 3 *Fruit-trees* are set 4 *Forest-trees*, 17 Foot and $\frac{1}{2}$ asunder. Here round about a *Fruit-tree* stand 18 *Forest-trees*, describing the Figure of a *Hexagon*, like one of the Holes in a *Honey-comb*. In each *Acre*, about 6 *Fruit-trees*, and 48 *Forest-trees* may be thus set.

‘ In the 4th *Fig.* all the Trees are 17 Yards and $\frac{1}{2}$ asunder: Betwixt 3 *Fruit-trees* stands 1 *Forest-tree*. In each *Acre* about 6 *Fruit-trees*, and 12 *Forest-trees* may be set thus.

Fig: 1.

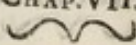
a *o* *o* *o* *o* *o* *a* *o* *o* *o* *o* *o* *a* *o* *o*
o *o* *o* *a* *o* *o* *o* *o* *o* *a* *o* *o* *o* *o* *o*
a *o* *o* *o* *o* *o* *a* *o* *o* *o* *o* *o* *a* *o* *o*

a *o* *o* *o* *o* *a* *o* *o* *o* *o* *a* *o* *o*
2^d *o* *o* *a* *o* *o* *o* *o* *a* *o* *o* *o* *o* *o*
a *o* *o* *o* *o* *a* *o* *o* *o* *o* *a* *o* *o*

a *o* *o* *o* *o* *a* *o* *o* *o* *o* *a* *o* *o*
3^d *o* *o* *a* *o* *o* *o* *o* *a* *o* *o* *o* *o* *o*
a *o* *o* *o* *o* *a* *o* *o* *o* *o* *a* *o* *o*

a *o* *o* *a* *o* *o* *a* *o*
4th *o* *a* *o* *o* *a* *o* *o*
a *o* *o* *a* *o* *o* *a* *o*

5th *o* *a* *o* *a*
a *o* *o*

And now to encourage this, *Gentlemen* may not only lawfully plant CHAP. VII.
Trees upon their own *Demefnes*, but in *Commons* alfo, and open 
Fields, in fpacious Rows, or otherwife; provided they fet them fo
far from other Mens Grounds, as that their Boughs hang not over them
(as we have fhewed was both by the *Imperial* and our own *Constitu-*
tion prohibited) or no nearer one another (in *Arable Land*) than
fuch Trees are ufually fet in Grounds inclofed; that is, fo as not to
hinder the *Plough*. Such Trees, if of *Fruit*, fo difpofed and fet, be-
long intirely to the *Planter* (*Tythes* excepted) without that the *Com-*
moner can challenge any Part thereof.

It would therefore be a moft *charitable* Work, to plant *Fruit* and
Forest-trees, for the Benefit of the *Poor*, upon *Commons* and other
wafte Grounds, and fuch Places where they would thrive; and where
Persons are willing to give Money to be thus employed for the Ufe of
the Indigent, among the fundry Ways of difpofing of it to that End,
as in the *Figures* above described.

16. But thefe incomparable *Amenities* and Undertakings, will beft of
all become the *Infpection* and Care of the noble *Owners*, *Lieutenants*,
Rangers, and ingenious *Gentlemen*, when they delight themfelves as
much in the Goodlinefs of their *Trees*, as other Men generally do in
their *Dogs* and *Horfes*, for *Races* and *Hunting*; neither of which *Re-*
creations is comparable to that of *Planting*, either for Virtue or Plea-
fure, were Things juftly confidered according to their true Eftimation:
Not that I am of fo morofe a Humour, that I reprove any of thefe noble
and manly Diverfions, feafonably ufed; but becaufe I would court the
Induftry of great and opulent Persons, to profitable and permanent
Delights: For, fuppofe that Ambition were changed into a laudable
Emulation, who fhould beft, and with moft Artifice, raife a *Planta-*
tion of *Trees*, that fhould have all the proper Ornaments and Perfecti-
ons their Nature is fufceptible of, by their Direction and Encourage-
ment; fuch as *Ælian* fums up, *Lib. iii. Cap. xiv.* εὐγενὲς ἐν κλάδοις, καὶ
ἡ κόμην πολλήν, &c. kind and gentle *Limbs*, plenty of *large Leaves*,
an ample and fair *Body*, profound, or fpreading *Roots*, ftrong againft
impetuous Winds (for fo I affect to read it) extenfive and venerable
Shade, and the like: Methinks there were as much a Subject of *Glory*
as could be fancied of the Kind; and *comparable*, I durft pronounce
preferable, to any of their Recreations; and how goodly an Ornament
to their *Demefnes* and *Dwellings*, let their own *Eyes* be the Judges.

17. One *Encouragement* more I would reinforce from an *History* I
have read, of a certain frugal and moft induftrious *Italian Nobleman*,
who, after his *Lady* was brought to Bed of a *Daughter* (confidering
that *Wood* and *Timber* was a Revenue coming on whilft the *Owners*
were afleep) commanded his Servants immediately to plant in his *Lands*
(which were ample) *Oaks*, *Afhes*, and other profitable and marketable
Trees, to the Number of an *hundred Thoufand*; as undoubtedly cal-
culating, that each of thefe Trees might be worth *twenty Pence*, be-
fore his *Daughter* became *marriageable*, which would amount to
100000 *Francs* (which is near *ten Thoufand Pounds Sterling*) intend-
ed to be given with his *Daughter* for a *Portion*. This was good *Phi-*
lofophy, and fuch as I am affured was frequently practifed in *Flanders*
upon the very fame Account: Let us fee it once take effect amongft our
many flothful *Gentry*, who have certainly as large *Demefnes*, and yet
are fo deficient in that decent Point of timely providing for their nu-

BOOK III. merous *Children* : And those who have none, let them the rather Plant : *Trees* and *Vegetables* have perpetuated some *Names* longer and better than a *Pedigree* of a numerous *Off-spring* (as I have already shewed ;) and it were a *Pledge* of a noble Mind, to oblige the future *Age* by our particular Industry, and by a long lasting Train, with the living Work of our own Hands. But I now proceed to more general *Concerns*, in order to the *Queries*, and first to the *Proportion*.

18. It were but just, and infinitely befitting the miserable *Needs* of the whole *Nation*, that every twenty *Acres* of Pasture made an Allowance for half an *Acre* of Timber ; the Ground dug about *Christmas*, casting the *Grassy-side* downwards till *June*, then dug again, and about *November* stirred afresh, and sown with *Mast*, or planted in a *Clump*, well preserved and fenced for fourteen or fifteen Years ; unless that *Sheep* might haply graze after four or five Years : And where the young *Trees* stand too thick, there to draw and transplant them in the *Hedge-rows*, which would also prove excellent *Shelter* for the *Cattle* : This *Husbandry* would more especially become *Northamptonshire*, *Lincolnshire*, *Cornwal*, and such other of our *Countries* as are the most naked of *Timber*, *Fuel*, &c. and unprovided of *Covert* : For it is rightly observed, that the most fruitful *Places* least abound in *Wood*, and do most stand in need of it.

1. Example by *Leicestershire* ;

What Soil can be better than that
For any Thing Heart can desire ?

And yet doth it want ye see what,
Mast, Covert, close Pasture, and Wood,
And other Things needful, as good.

2.
More plenty of Mutton and Beef,
Corn, Butter and Cheese of the best,
More Wealth any where (to be brief)
More People, more handsome, and prest,
Where find ye (go search any Coast)
Than there where Inclosure is most ?

3.
More Work for the labouring Man,
As well in the Town as the Field ;
Or thereof (devise, if ye can)
More Profit what Countries do yield ?
More seldom where see ye the Poor ?
So Begging from Door to Door ?

4.
In Wood-Land the poor Men that have
Scarce fully two Acres of Land,
More merrily live, and do save
Than t'other with twenty in hand :
Yet pay they as much for the two
As t'other for twenty must do.

If this same be true, as it is,
Why gather they nothing by this ?

Thus

Thus honest *Tusser*, above an hundred Years since, and the whole Age has justified it ; since 'tis evident, that by *Inclosure*, and this diligent *Culture*, the very worst Land of *England* would yield ten-fold more Profit, than that which is here celebratad for the best and richest Spot of it.

19. Such as are ready to tell ye their *Lands* are so wet, that their *Woods* do not thrive in them, let them be converted to *Pasture* ; or bestow the same Industry on them which good *Husbands* do in *Meadows* by *draining* ; which instead of those narrow *Rills* (and *Gutters* rather) might be reduced to a proportionable *Canal*, cut even and strait ; the *Earth* taken out, spread upon the weeping and *uliginous* Places : Nor would the Charge be so much, as that of the yearly and perpetual renewing and cleansing of those numerous and irregular *Sluices* ; beside the *Profit* of storing the *Canal* with *Fish*.

It is a Slothfulness to do otherwise, since it might be effected in few Years, by continually, and by Degrees making the *middle Cut* large, where it cannot be so conveniently done at once, and the Pains would certainly be as fully recompenced in the Growth of their *Timber*, as in that of their *Grass* : Where poor hungry *Woods* grow, rich *Corn*, and good *Cattle* would be more plentifully bred ; and it were beneficial to convert some *Wood-land* (where the proper Virtue is exhausted) to *Pasture* and *Tillage* ; provided that fresh *Land* were improved also to *Wood* in recompence, and to balance the other.

20. Where we find such *uliginous* and starved Places (which sometimes obey no Art or Industry to *drain*, and of which our pale and fading *Corn* is a sure Indication) we are as it were courted to obey *Nature*, and improve them from the Propagation of *Sallows*, *Willows*, *Alders*, *Abele*, *Black-Cherry*, *Sycamore*, *Aspene*, *Birch*, and the like hasty and profitable Growers, by ranging them, casting of *Ditches*, *Trenches*, &c. as before has been taught.

21. In the mean while, 'tis a Thing to be deplored, that some Persons bestow more in *grubbing*, and dressing a few *Acres*, which have been excellent *Wood*, to convert them into wretched *Pasture*, not worth a Quarter of what the *Trees* would have yielded, well ordered, and left standing ; since it is certain, that *barren Land* planted with *Wood*, will trebble the Expence in a short Time. Of this, the Right Honourable the Lord *Viscount Scudamore* may give fair Proof, who having *fell'd* (as I am credibly informed) a decayed *Wood*, intended to be *set* to *Tenants* ; but upon second Thoughts (and for that his *Lordship* saw it apt to cast *Wood*) inclosed and preserved ; it yielded him, before thirty Years were expired, near 1000 *l.* upon *Wood-falls* ; whereas the utmost *Rent* of the whole Price of *Land* yearly, was not above 8 *l.* 10 *s.* The like I am able to confirm by instancing a noble *Person*, who (a little before our unhappy *Wars*) having sown three or four *Acres* with *Acorns*, the fourth Year *transplanted* them, which grew too thick all about his *Lordship* : These *Trees* are now of that *Stature*, and so likely to prove excellent *Timber*, that they are already judged to be almost as much worth as the whole *Demefnes* ; and yet they take off nothing from other *Profits*, having been discreetly disposed of at the first *Designment*. And supposing the *Longevity* of *Trees* should not extend to the *Periods* we have (upon so good Account) produced ; yet, neither is their arrival to a very competent *Perfection*, so very discouraging ; since I am credibly informed, that several Persons have

BOOK III. have built of *Timber* (and that of *Oak*) which were *Acorns* within this *forty Years*; and I find it credibly reported, that even our famous *Forest of Deane*, hath been utterly *wasted* no less than *three* several times, within the Space of *nine hundred Years*. The Prince *Electör*, *Frederic IV.* in the Year 1606. sowed a Part of that most barren *Heath* of *Lambertheim* with *Acorns* after *plowing*, as I have been informed: It is now likely to prove a most goodly *Forest*, though all this while miserably neglected by reason of the Wars. For the Care of *planting Trees* should indeed be recommended to *Princes* and *great Persons*, who have the *Fee* of the *Estate*; *Tenants* upon the *Rack*, by reason of the tedious Expectation, and Jealousy of having their *Rents* enhanced, are, for the most part, averse from this *Husbandry*; so that unless the *Landlord* will be at the whole Charge of *planting* and *fencing* (without which as good no *planting*) little is to be expected; and whatsoever is proposed to them above their usual Course, is looked upon as the *Whim* and *Fancy* of *speculative Persons*, which they turn into *Ridicule* when they are applied to *Action*; and *this* (says an ingenious and excellent *Husband*, whose *Observations* have afforded me no little Treasure) might be the Reason, why the prime *Writers* of all Ages endeavoured to involve their *Discourses* with *Allegories*, and *Enigmatical Terms*, to protect them from the Contempt and Pollution of the *Vulgar*, which has been of some ill Consequence in *Husbandry*; for that very few *Writers* of Worth, have adventured upon so plain a Subject; though doubtless to any considering Person, the most delightful Kind of *Natural Philosophy*, and that which employs the most useful Part of the *Mathematicks*.

The Right Honourable the late Lord *Viscount Mountague* has planted many thousands of *Oaks*, which, I am told, he drew out of *Coppices*, big enough to defend themselves; and that with such Success, as has exceedingly improved his *Possessions*; and it is a worthy *Example*. To conclude, I could have shewn an *Avenue* planted to a House standing in a barren *Park*, the Soil a cold *Clay*; it consisted totally of *Oaks*, one hundred in Number: The Person who first set them (dying very lately) lived to see them spread their *Branches* 123 Foot in Compass, which, at Distance of 24 Foot, mingling their shady *Tresses* for above 1000 in Length, formed themselves into one of the most venerable and stately *Arbor-walks* that in my Life I ever beheld: This was at *Baynards* in *Surrey*, and belonging lately to my most honoured Brother (a most industrious *Planter* of Wood) *Richard Evelyn*, Esq; since transplanted to a better World: The Walk is 56 Foot broad, and one Tree with another containing, by Estimation, *three Quarters* of a Load of *Timber* in each Tree, and in their *Lops* three Cords of *Fire-wood*: Their *Bodies* were not of the tallest, having been *topped* when they were young, to reduce them to an uniform Height; yet was the *Timber* most excellent for its Scantling; and for their *Heads*, few in *England* excelling them: Where some of their Contemporaries were planted single in the *Park* without Cumber, they spread above *four score* Foot in *Arms*; all of them since cut down and destroyed by the Person who continued to detain the just Possession of that *Estate* from those to whom of *Right* and *Conscience* it belonged. Since then it is disposed of, I am glad it is fallen into the Hands of the present *Possessor*.

22. But I have some few Instances to superadd, of no mean *Encouragement*, before I dismiss my Reader, because they are so very pregnant

nant and authentick. Sir *Tho. Southwell*, after he had sold and fell'd all the *Timber* and *Under-wood* in a certain Parcel of *Land* lying in *Carbrook*, in the County of *Norfolk*, called by the Name of *Latimer-Wood*, containing eighty *Acres* (now, as I understand, belonging to Sir *Rob. Clayton*, Knight) granted a *Lease* of the said Ground, with other Land, to one *Tho. Wastney* (the Father) with Liberty to grub and stub-up all the Wood and Stub-shoots remaining, and to clear the said Ground for *Pasture* or *Tillage*, as he should think to be most for his Profit and Advantage : Accordingly he puts out the same to *Labourers* to stub and clear ; but was, it seems, persuaded by one of them, to preserve some of the young *Stands* or *Saplings* then growing there, as that which might be of greater Emolument to him before the Expiration of the *Lease*, than if he should quite extirpate them, and convert the said Ground to *Tillage* : These *Saplings* were then so small, as when it happened that any of the *Labourers* did break the *Haft* of his *Mattock*, he could hardly find one amongst them, big enough to make another of for his present Use : Nay, when the said *Labourers* had made an End of clearing the Ground of the old *Stub-shoots*, upon which the *Timber* and *Under-wood* did grow (which is now fifty Years since) there was not a *Tree* left growing in it, that could be valued at above *Three-pence*, to be fell'd for any Use or Service : About the Year 1650, the Estate being then come (after the Death of Sir *Rich. Crane*, Knight) to *William Crane*, Esq; and the *Lease* of the same to *Tho. Wastney* (the Son) he offered 500 of the best of the said young *Oak-saplings* to one *Daniel Hall* (a Dealer in *Timber*) for two *Shillings* and *Six-pence* the *Tree* ; which he refusing to give, the said *Tho. Wastney*, making his Application to Mr. *Crane* above-mentioned (then Owner of the Estate) and desiring *Daniel Hall* to acquaint him what pity it was to cut down such young and thriving *Trees* ; Mr. *Crane* was persuaded to allow the said *Tho. Wastney* fourscore Pounds, and to let them stand ; since which Time, the said Mr. *Crane* sold as many of those *Trees* and *Saplings*, as came to about forty Pounds, and left growing, and remaining on the Ground about 1380 *Trees* ; which, in August 1675, being (upon the desire of Mr. *Crane*) valued by the said *Daniel Hall*, were estimated to be worth 700 *l.* himself since offering for some of the said *Trees* 40 or 50 *Shillings* a *Tree* ; 500 of them being better worth than 500 *l.* Now the said *Latimer-Wood*, were it cleared of the *Timber*, would not be let for above four or five *Shillings per Acre* at the most. The Particulars of this History I received under the Hands and Certificates of the above-mentioned *Daniel Hall*, who is the *Timber-Merchant*, and two of the *Stubbers* or *Labourers* (yet living) that were employed to clear the Ground. I have likewise transmitted to me this Account from Mr. *Sharp*, under the Hand of *Robert Daye*, Esq; one of his Majesty's *Justices* of the Peace for the County of *Norfolk*, as followeth.

There were in 1636, an hundred *Timber-trees* of *Oak*, growing on some Grounds belonging then to *Thomas Daye* of *Scopleton*, in the County of *Norfolk*, Esq; which were that Year sold to one *Rob. Bowgeon* of *Hingham*, in the said County, for 100 *l.* which Price was believed to be equal, if not to surmount, their intrinsic Worth and Value ; for, after Agreement made for them, a *Refusal* happening (which continued the *Trees* standing till the Year 1671.) those very *Trees* were sold to *Tho. Ellys* of *Windham* (*Timber-Master*) and one *Hen. Mor-*

BOOK III. *ley, Carpenter*, by Mr. *Daye* (Son of the said *Thomas Daye, Esq;*) for 560 *l.* And this comes to me attested under the Hand of 'Squire *Day* himself, dated 4 *May* 1678.

From the same Mr. *Sharp* I receive this Instance of an *Ash* planted by the Hands of one Mr. *Edm. Salter* in that *County*, which he sold for 40 *s.* before his Death; but this is frequent.

I am likewise assured that three *Acres* of *barren Land*, sown with *Acorns* about sixty *Years* since, are now become a very thriving *Wood*: The Improvement of those few *Acres* amounts to 300 *l.* more than the *Rent* of the *Land*, and what it was before worth to be sold. Once more, and I have done.

Upon the Estate of *George Pitt, Esq;* of *Stratfeildsea*, in the *County* of *Southampton*, a *Survey* of *Timber* being taken in the Year 1659, it came to 10300 *l.* besides near 10000 *Samplers* not valued, and growing up naturally: Since this, there hath been made by several Sales 5600 *l.* and there has been fell'd for *Repairs, Building* and necessary *Uses* to the Value (at the least) of 1200 *l.* so as the whole Falls of *Timber* amount to 6800 *l.* The *Timber* upon the same Ground being again surveyed Anno 1677, appears to be worth above 21000 *l.* besides 8 or 9000 *Samplers* and young *Trees* to be left standing, and not reckoned in the *Survey*: But what is yet to be observed, most of this *Timber* above-mentioned, being *Oak*, grows in *Hedge-rows*, and so as that the standing of it does very little Prejudice to the *Plough* or *Pasture*.

It is likewise affirmed, that upon a *Living* in the same Place, of about 40 *l. per Ann. Rent*, there was (by an *Estimation* taken in the Year 1653.) three hundred thirty-eight young *Timber-trees*, valued at 59 *l.* the *Saplings* at 31 *l.* 14 *s.* And upon a later *Survey*, taken the last Year 1677, the Worth of the *Timber* on that *Living* is valued at above 800 *l.* besides four or five hundred young thriving *Trees*, which have, since the *Survey* in 1653, grown naturally up, not reckoned in this *Account*. With such, and the like *Instances*, coming to me from *Persons* and *Gentlemen* of unquestionable *Credit* (dispersed through several other *Counties* of this *Nation*) I might furnish a just *Volume*; and I have produced these *Examples*, because they are conspicuous, full of *Encouragement*, worthy our *Imitation*; and that from these, andundry others which I might enumerate, we have made this Observation, that almost any Soil is proper for some profitable *Timber-trees* or other, which is good for very little else.

23. Besides common *Pasture*, which has long been fed, and is the very best *Meadow*, that is *up-land* and rich, and such as we find to be naturally *Wood-seere* (as they term it) the Bottoms of *Downs*, and like Places well plow'd and sown, will bear lusty *Timber*, being broken up, and let lie till *Midsummer*, and then stirred again before sowing about *November*.

Mr. *Cooke's* Directions are these: Prepare as for sowing of *Barley*; about *February* scatter your *Seeds*: If you plow your Ground into great *Ridges*, the Thickness of the Earth on the Top will afford more Depth and Nourishment for the *Roots*, and the *Furrows* being filled up with Leaves, when rotten, will lead the *Roots* from one *Ridge* to another: In dry Ground plow the *Ridges* cross the Descent, not to drain, but keep the *Water* on the Ground, but in wet Lands, contrary:

This

This I hold to be an excellent Note : He conceives the *Barley* Season CHAP. VII. to be of the latest to sow your *Seeds*, but with *Oats* it does well, so you sow them not too thick ; but 'tis best of all to sow them by themselves, without any *Crop* of *Grain* at all.

A more expeditious Way is to plant with *Sets*, making *Holes* or *Fosses* (which are best) two Foot wide, and deep, and about half a *Rod* distant, viz. four in every *Rod* square, two *Sets* in each Hole, sowing your *Keys* and *Seeds* among them the ensuing *Spring*, and that continued as oft as you find *Stampings* and *Keys* to be had, even till your *Wood* be perfectly furnished, only taking Care that they lie not long too thick, because it will heat and burn the *Kernels* ; and therefore let them be put into the Ground as soon as they are pressed, or else lay them thin, or parted with *Straw*.

In case your Land be poor, and wanting Depth, or but indifferent, observing the Posture of your Ground, divide it into four Yards distance at both Extrems, by small *Stakes*, making Rows of them, by setting up some few between them, to direct, and lay your Work streight, ploughing one Yard of each Side of the *Stakes*, if the Ground be *Green-sward*, for the easier running of the *Roots* : Having thus plowed two Yards, and left two unploughed through your whole Piece, some short Time before planting Season, so soon as the Fall of the Leaf begins, dig up the unploughed *Interstices*, laying one half of the Earth on the unploughed Pieces, and the other half upon the rest ; and as you do this, plant your prepared *Sets* about a Yard distant, with Store of *Sallow* or other *Cuttings* with them, digging that Ground which you laid on the ploughed Part a good *Spade* deep, which will make it near a Foot thick to plant your *Sets* in : Thus proceed from one unplough'd Ground to another, till all of it is planted : Two Men on each Side of the *Ridges* will soon dispatch the Work, which would be finished by the latter End of *January*, which is the best Time for the sowing your *Keys*, *Nuts*, and other *Seeds*, unless the Weather be frosty, in which Case you may a little defer it : And when all is sowed, cover them a little with the Shovelings of some Ditches, Pond, or other Stuff, as an assured good Way to improve such Grounds to considerable Advantage.

For the planting of *Walnuts*, *Chestnuts*, *Cyder-Apples*, or any other *Forest* or *Fruit-trees*, in open Fields, Mr. *Cooke* directs how the *triangular* Form exceeds all the rest for Beauty and Advantage : I refer you to his 33^d Chap.

An old and judicious Planter of *Woods*, prescribes us these *Directions*, for improving of *Sheep-walks*, *Downs*, *Heaths*, &c. Suppose on every such *Walk*, on which five hundred *Sheep* might be kept, there were ploughed up twenty *Acres* (plough'd pretty deep, that the *Roots* might take hold, and be able to resist the *Winds*) this should be sowed with *Mast* of *Oak*, *Beech*, *Chats* of *Ash*, *Maple-Keys*, *Sloes*, *Service-Berries*, *Nuts*, *Bullis*, &c. bruised *Crabs* and *Haws*, mingled and scattered about the Sides and Ends of the Ground, near a Yard in Breadth. On the rest sow no *Haws*, but some few *Crab-kernels* : Then begin at a *Side*, and sow five Yards broad, plowing under the *Mast*, &c. very shallow ; then leave six Yards in Breadth, and sow and plow five Yards more, and so from Side to Side, remembering to leave a Yard and half at the last Side ; let the rest of the *Head-lands* lie,

BOOK III. lie, till the Remainder of the *Clofe* be sown in *March* with *Oats*, &c. to preserve it from hurt of *Cattle*, and potching the Ground : When the *Spring* is of two Years Growth, draw part of it for *Quick-sets* ; and when the rest of the *Trees* are of six Years *Shoot*, exhaust it of more, and leave not above *forty* of either Side, each *Row* *five Yards* distant, and here and there a *Crab-stock* to *graff* on, and in the environing *Hedge* (to be left thick) let the *Trees* stand four Yards asunder ; which if *forty-four* were spared, will amount to above four thousand *Trees* : At twenty Years end, stock up two thousand of them ; lop a thousand more every ten Years, and reserve the remaining thousand for *Timber* : Judge what this may be worth in a short Time, besides the *Grass*, &c. which will grow the first six or seven Years, and the Benefit of Shelter for Sheep in ill Weather, when they cannot be folded ; and the *Pasture* which will be had under the *Trees*, now at eleven Yards interval, by reason of the *stocking* up those two thousand we mentioned, excepting the *Hedges* ; and if in any of these Places any considerable *Waters* fortune to lie in their Bottoms, *Fowl* would abundantly both *breed* and harbour there. These are admirable Directions for *Park-lands*, where *Shelter* and *Food* is scarce.

But even this *Improvement* yet does no way reach what I have met withal in the most accurate, and no less laborious Calculation of Captain *Smith* upon this very *Topic* ; where he demonstratively asserts, that a *thousand Acres* of *Land*, planted at one *Foot* interval in 7201 *Rows*, taking up 51854401 *Plants* of *Oak*, *Ash*, *Chestnut* (or to be sown) taking up 17284800 of each Sort, and fit to be *transplanted* at three Years Period (if set in good Ground) are worth *Eighteen-pence* the *Hundred* ; and there being 345696 *Hundred*, it amounts to no less than 25927 *l.* 4 *s.* besides the *Chestnuts*, of which there being 1728480 *l.* (valued at, and worth *half* a *Crown* the *Hundred*) they come to 21606 *l.* and the *Total* of all, to 47533 *l.* 4 *s.*

This being made out, consider what an immense Sum *great Trees* would amount to, and in a large Quantity of *Land* ; such as were worthy a *Royal* Undertaking : It is computed, that at *three Foot* distance, the first *Felling* (that is, eight or nine Years after their *planting*) would be worth in *Hoops*, *Poles*, *Firing*, &c. 55015 *l.* and the second *Fell*, 28657 *l.* 19 *s.* 5 *d.* And the fourth (which may be about thirty-two Years from their *Semination*) 90104 *l.* 17 *s.* and so forward.

At *four Foot* interval, and *Felling*, according to the same Proportion, you may likewise reckon ; and in eleven Years, with three Years *Crop* of *Wheat* (sow'd at first between) it will amount to 34001 *l.* 9 *s.* 4 *d.* and the next, very much more ; in regard the *Wood* will spring up thicker : So as at the fifth *Fell*, the Account stands 126992 *l.* 10 *s.* 2 *d.* &c. and at the seventh (whoever lives to it) 200000 *l.* And, if planted at wider Distance, *viz.* eighteen *Foot* (according to the *Captain's* Method) at thirty or forty Years Growth, you may compute them worth 192961 *l.* 6 *s.* and in seventy Years, 201001 *l.* besides the three Years *Crop* of *Wheat* ; in all 410312 *l.* 16 *s.* which at thirty-six *Foot* interval (accounted the utmost for *Timber*) takes up (for one thousand *Acres*) 40401 *Trees* for the first hundred Years. Then,

To make room, as they grow larger, grubbing up every middle Tree, at 9 *l.* per Tree, 19800 Trees amount to 99000 *l.* and the remaining 20601 at two hundred and twenty Years growth, at but 8 *l.* per Tree, comes to 164808 *l.* besides the inferior Crop of Meadow, or Corn in all this Time, sown in the Distances; reckoning for three Years Product 90000 Bushels at 5 *s.* per Bushel, which will amount to 22500 *l.* besides the Straw, Chaff, &c. which at 5 *s.* a Load, and 3 *d.* a Bushel Chaff, comes to 2025 *l.* So as the total Improvement (besides the 217 Years Emolument arising from the Corn, Cattle, &c.) amounts to 288333.

And these Trees (as well they may) coming to be worth for Timber, 20 *l.* an Oak; the twenty thousand six hundred and one Trees amount to 412020 *l.* and the total Improvement of the thousand Acres (the Corn Profits not computed) ascends to 675833 *l.* So as admit there were in all England (and which his Majesty might easily compass, even for his own Proportion, and for Posterity) twenty thousand Acres thus planted, at two Foot diameter (and, as may be presumed, thirty Foot high, which in one hundred and fifty Years they might well arrive to) they would be worth 13516660 *l.* an immense and stupendous Sum, and an everlasting Supply for all the Uses both of Sea and Land. But it is to Captain Smith's laborious Works (to which I wish all Encouragement) that we have the total Charge of this noble Undertaking from the first Semination, to their Maturity; by which it will be easy to compute what the Gains will be for any greater or lesser Quantity.

But now to return to the Place of Planting (from whence this Calculation has more than a little diverted) we shall find, as we said, that even in the most craggy, uneven, cold and exposed Places, not fit for Arable, as in Biscay, &c. and in our very Peaks of Derbyshire, and other rocky Places, Ashes grow about every Village, and we find that Oak, Beech, Elm and Ash will prosper in the most flinty Soils. And it is truly from these Indications, more than from any other whatsoever, that a broken and decaying Farmer is to be distinguished from a substantial Free-holder, the very Trees speaking the Conditions of the Master. Let not then the Royal Patrimony bear a Bankrupt's Reproach. But to descend yet lower.

24. Had every Acre but three or four Trees, and as many of Fruit in it as would a little adorn the Hedge-rows, the Improvement would be of fair Advantage in a few Years; for it is a Shame that Turnip-planters should demolish and undo Hedge-rows near London, where the Mounds and Fences are stripp'd naked, to give Sun to a few miserable Roots, which would thrive altogether as well under them, being skilfully prun'd and lopp'd: Our Gardeners will not believe me, but I know it to be true, though Pliny had not affirmed it: As for Elms (saith he) their Shade is so gentle and benign, that it nourishes whatsoever grows under it: And (Lib. xvii. Cap. xxii.) it is his Opinion of all other Trees (very few excepted) provided their Branches be pared away, which being discreetly done, improves the Timber, as we have already shewed.

Indeed where *Elms* are planted either about very small *Crofts* or *Avenues* reserved for *Pasture*, the *Roots* are apt to spring up and annoy the *Grass*: But I speak of the larger *Field*, and even in the former, that Part of the *Root* which spreads into the *Field*, may (as I have shewn) be hindered from infecting it, by cutting away those *Fibres* which run into the *Field*, without any Impeachment to the Growth of the *Trees*; of which I have some whose *Roots* are cut off very near the main *Stems* at one Side, thriving almost altogether as well as those which have their *Roots* entire.

25. Now let us *calculate* a little at adventure, and much within what is both *feasible*, and very *possible*; and we shall find, that *four Fruit-trees* in each *Acre* throughout *England*, the Product sold but at *Six-pence* the *Bushel* (but where do we now buy them so *cheap*?) will be worth a *Million* yearly: What then may we reasonably judge of *Timber*, admit but at the Growth of *four Pence per Acre* yearly (which is the lowest that can be estimated) it amounting to near half a *Million*? if (as 'tis supposed) there may be *five* or *six* and *twenty Millions* of *square Acres* in the *Kingdom* (besides *Fens*, *High-ways*, *Rivers*, &c. not counted) and without reckoning in the *Mast*, or *Loppings*; which whosoever shall *calculate* from the annual *Revenue*, the *Mast* only of *Westphalia* (a small and wretched Country in *Germany*) does yield to that *Prince*, will conclude to be no despicable *Improvement*.

26. In this poor *Territory*, every *Farmer* does by antient *Custom* plant so many *Oaks* about his *Farm*, as may suffice to feed his *Swine*. To effect this, they have been so careful, that when of late Years the *Armies* infested the poor *Country*, both *Imperialists*, and *Protestants*; the only *Bishoprick* of *Munster* was able to pay *One hundred thousand Crowns per Menssem* (which amounts of our *Money* to about *25000 l. Sterling*) besides the ordinary *Entertainment* of their own *Princes* and *private Families*. This being incredible to be practised in so extreme barren a *Country*, I thought fit to mention, either to encourage, or reproach us. *General Melander* was wont to say, The good Husbandry of their *Ancestors* had left them this Stock *pro sacra Anchorâ*; considering how the People were afterwards reduced to live even on their *Trees*, when the *Soldiers* had devoured their *Hogs*; redeeming themselves from great *Extremities*, by the *Timber* which they were at last compelled to cut down, and which, had it continued, would have proved the utter *Desolation* of that whole *Country*.

I have this *Instance* from my most worthy and honourable Friend *Sir William Cursius* (late his Majesty's *Resident* in *Germany*) who received this Particular from the Mouth of *Melander* himself: In like manner, the *Princes* and *Freedoms* of *Hesse*, *Saxony*, *Thuringia*, and divers other Places there, make vast *Incomes* of their *Forest-fruit* (besides the *Timber*) for *Swine* only: So as in a certain *Wood* in *Hassia* only, *twenty thousand* have been fatted, yielding the *Prince* *30000 Florins*.

I say then, whosoever shall duly consider this, will find planting of *Wood* to be no contemptible *Addition*, besides the *Pasture* much improved, the *cooling* of *fat* and heavy *Cattle*, keeping them from injurious *Motions*, *Disturbance*, and running as they do in *Summer*, to find *Shelter* from the *heat* and *vexation* of *Flies*. CHAP. VII.

27. But I have done, and it is now time to get out of the *Wood*, and to recommend this, and all that we have propos'd, to his most Sacred Majesty, the Honourable Parliament, and to the Lord High-Treasurer, Principal Officers, and Commissioners of the Royal Navy; that where such *Improvements* may be made, it be speedily and vigorously prosecuted; and where any *Defects* appear, they may be duly reformed.

28. And what if for this purpose there were yet some additional *Office* constituted, which should have a more universal *Inspection*, and the charge of all the *Woods* and *Forests* in his Majesty's *Dominions*? This might easily be performed by *Deputies* in every *County*; Persons judicious and skilful in *Husbandry*; and who might be repair'd to for advice and direction: And if such there are at present (as indeed our *Laws* seem to provide) that their *Power* be sufficiently *amplified* where any thing appears *deficient*; and as their *Zeal* excited by worthy *Encouragements*, so might *Neglects* be encounter'd by a vigilant and industrious *Check*. It should belong to their *Province*, to see that such *Proportions* of *Timber*, &c. were *planted* and set out upon every hundred, or more of *Acres*, as the Honourable *Commissioners* have suggested; or as might be thought convenient, the *quality* and *nature* of the *places* prudently considered: It should be their *Office* also to take notice of the *growth* and *decay* of *Woods*, and of their *fitness* for publick *uses* and *sale*, and of all these to give *Advertisements*, that all defect in their ill governing may be speedily remedied; and the Superior *Officer* or *Surveyor*, should be accountable to the Lord *Treasurer*, and to the *principal Officers* of his Majesty's Navy for the time being: And why might not such a *Regulation* be worthy the establishing by some *Solemn* and Publick *Act of State*, becoming our Glorious *Prince*, SOVEREIGN OF THE SEAS; and his prudent *Senate*, this present *Parliament*?

But to shew how this *Xilotropiæ Studium* for the preservation of *Timber* was honour'd,

29. We find in *Aristotle's Politicks*, the Constitution of *Extra-urban Magistrates* to be *Silvarum Custodes*; and such were the *Consulares Silvæ*, which the Great *Cæsar* himself (even in a Time when *Italy* did abound in *Timber*) instituted; and was one of the very first things which he did, at the settling of that vast *Empire*, after the *Civil Wars* had exceedingly wasted the *Country*: *Suetonius* relates it in the Life of *Julius*; and *Peter Crinitus* in his Fifth Book *De Honestâ Disciplina*, c. 3. gives this Reason for it, *Ut materies* (saith he) *non deesset, qua videlicet Navigia publica possent à præfecturis fabrum, confici*. True it is, that this *Office* was sometimes called *Provincia minor*; but for the most part annex'd and joined to some of the greatest *Consuls* themselves; that facetious *Sarcasm* of the *Comedian*

De colligiis
Fabrorum,
Centonario-
rum, & Den-
drophoro-
rum, Navi-
cularior. rati-
um exercitor.
& Caudicario-
rum, plurima
extant Inscrip-
tiones apud
Lipsum in
lib. Inscript.
antiq. quales
Bergomeri-
um, Brixianor.
Comensium,

Lugdunens. Aravicorum & Rhodanicor. eorumque corporum, & Collegiorum patronis curatoribus. Vide etiam Hieron. Ruben. lib. 1. Hist. Ravennat. Item de Dendrophoris Lod. Theodof. lib. 1. & 2. iisdem verbis inscripto: Morisut. Orb. Marit. lib. 1. cap. 24.

BOOK III. (where *Plantus* names it *Provincia caudicaria*) referring only to some under-Officer, subservient to the other: And such a *Charge* is at this day extant amongst the noble *Venetians*, who have near *Trivisi* (besides what they nourish in other places) a goodly *Forest* of *Oaks*, preserved as a *Jewel*, for the only use of the *Arsenal*, called the *Montello*, which is in length *twelve Miles*, large *five*, and near *twenty Miles* in compass; carefully supervised by a certain *Officer*, whom they name *il Capitano*: The like have the *Genoëzes* for the care of the goodly *Forests* of *Aitona*, in the *Island* of *Corfica*, full of goodly *Oaks*, and other *Timber*; which not only furnish that State with sufficient *Materials* to build their own *Gallies*, and other *Vessels*, but so many for sale to other Nations, that since the late *Insult* the *French* made upon that *Glorious City*, he has haughtily forbid them to *Traffick* any more with Strangers, by supplying them as heretofore, to their great Detriment and Loss: This *Timber* is of such a *Grain* and *Quality*, as though felled in the *New Moon*, it is not at all impair'd.

We might, besides all these, instance in many other prudent States; not to importune you with the express *Laws* which *Ancus Martius* the *Nephew* of *Numa*, and other *Princes* long before *Cæsar*, did ordain for this very purpose; since, indeed, the care of so publick and honourable an *Enterprize* as is this of *Planting* and *Improving* of *Woods*, is a right *Noble* and *Royal Undertaking*; as that of the *Forest* of *Dean*, &c. in particular, (were it bravely manag'd) an *Imperial Design*; and I do pronounce it more worthy of a *Prince*, who truly consults his *Glory* in the highest *Interest* of his *Subjects*, than that of gaining *Battels*, or subduing a *Province*.

And now after all this, and the *Directions* and *Encouragements* enumerated in this *Chapter*, together with the most important Concerns of these *Dominions*, and (next to *God's* immediate *Protection*) the only and most necessary Expedient to preserve them: By whose Negligence so little *Effects* appear of these *Improvements*, which might by this time have been made in the *Royal Magazines*, ever since the *First Edition* of this *Treatise* (and of so fair a growth of useful *Timber*) I list not to declare; though the *Officers* then intrusted, and whose duty it was, be now no more: I cannot, however, but call to mind, how seemingly solicitous and earnest the *Commissioners* were, I should digest and methodize the Papers I laid before them on this Subject, with a Zeal becoming *Publick Spirits* (as under their Hands I have to shew) whilst the putting it in practice to any laudable degree, was soon cast by as a *Project* scarce worth the while. I again affirm, That had these *Advantages* of *Forest Culture* been then vigorously encouraged and promoted, there had now been of those *Materials* infinite store, even from the very *Acorn* and *Seminary*, a competent advance of the most useful *Timber* for the building of *Ships*, (as I think is sufficiently made out) since his late Majesty's *Restoration*: The want of *Timber*, and the necessity of being supply'd by *Foreign* Countries, if not prevented by better and more industrious Instruments, may prove in a short time a greater mischief to the Publick, than the late diminution of the *Coin*. I wish I prove no *Prophet*, whilst I cannot for my life but often think of what the learned *Melancthon* above a hundred Years since was wont to say (long before those barbarous *Wars* had made these Devastations in *Germany*), That the Time was coming, when the want of *three* Things would be the *Ruin* of *Europe*; *Lignum*,

num, probam Monetam, probos Amicos; Timber, Good Money and Sincere Friends. How far we see this *Prediction* already verify'd, let others judge: And if what I here have touch'd with some *Resentment* in behalf of the *Publick* and my *Country*, in this *Rustick Discourse*, and us'd the freedom of a plain *Forester*, seems too rude; it is the *Person* I was commanded to *put on*, and my *Plea* is ready,

Δρυὶς παρρούσης, πᾶς ἀνὴρ ἐυλεύεται.

Præfente Quercu, ligna quivis colligit.

For who could have spoken *less* upon so ample a *Subject*? And therefore I hope my *Zeal* for it in these *Papers*, will excuse the prolixity of this *Digression*, and all other the *Imperfections* of my *Services*.

Si canimus Silvas, Silvæ sunt Consule dignæ.



D E N D R O:

D E N D R O L O G I A.

The F O U R T H B O O K.

An *Historical Account of the Sacredness and Use of standing Groves, &c.*

1. **A**ND thus have we finish'd what we esteem'd necessary for the Direction of *Planting*, and the *Culture of Trees and Woods* in general; whether for the raising of *New*, or preservation of the more *ancient* and venerable *shades*, crowning the Brows of lofty *Hills*, or furnishing and adorning the more fruitful and humble *Plains, Groves and Forests*, such as were never prophan'd by the Inhumanity of *Edge-Tools: Woods*, whose *Original* are as unknown as the *Arcadians*; like the goodly *Cedars of Libanus*, *Psalms* 104. *Arbores Dei*, according to the *Hebrew*, for something doubtless which they noted in the *Genius* of those *Venerable Places* besides their meer Bulk and Stature: And verily, I cannot think to have well acquitted my self of this useful *Subject*, till I shall have in some sort vindicated the Honour of *Trees and Woods*, by shewing my *Reader* of what Estimation they were of *old* for their *Divine*, as well as *Civil Uses*; at least refresh both *Him*, and my *Self*, with what occurs of *Historical* and *Instructive* amongst the *Learned* concerning them. And first, *standing Woods and Forests* were not only the *Original Habitations* of *Men*, and for *Defence and Fortresses*, but the first occasion of that *Speech, Polity and Society* which made them differ from *Beasts*. This, the Architect * *Vitruvius* ingeniously describes, where he tells us that the violent percussing of one Tree against another forc'd by an impetuous *Wind*, setting them on fire, the Flame did not so much surprize and affright the salvage *Foresters*, as the *Warmth*, which (after a little gazing at the unusual Accident, they found so comfortable: This (says he) invited them to approach it nearer, and as it spent and consum'd, by Signs and barbarous Tones (which in process of time were form'd into significant *Words*) to encourage one another to supply it with fresh *Combustibles*: By this Accident the wild People, who before were afraid of one another, and dwelt asunder, began to find the benefit and sweetness of Society, mutual Assistance, and Conversation; which they afterwards improv'd, by building *Houses* with those Trees, and dwelling nearer together: From these mean and imperfect beginnings they arriv'd in time to be Authors of the most polish'd *Arts*, establish'd *Laws*, peopled *Nations*, planted *Countries*, and laid the Foundation of all that *Order and Magnificence* which the succeeding *Ages* have enjoy'd. No more then let us admire the enormous *Moles* and *Bridges* of *Caligula* across to *Baia*; or that of *Trajan* over the *Danubius*, stupendous Work of *Stone and Marble*, to the adverse Shores; whilst our *Timber* and our *Trees* making us *Bridges* to the

* Vitruv. l.
2. c. 1.

furthest *Indies* and *Antipodes*, land us into *New Worlds*: In a word, (and to speak a bold and noble truth) *Trees* and *Woods* have twice sav'd the whole *World*; first by the *Ark*, then by the *Cross*; making full amends for the *Evil Fruit* of the Tree in *Paradise*, by that which was born on the Tree in *Golgotha*. But that we may give an account of their *sacred*, and other *Uses* of these venerable *Retirements*, we will next proceed to describe what those *Places* were.

2. Though *Silva* was the more general *Name*, denoting a large Tract of *Wood*, or *Trees*, the *incidua* and *cadua*; yet there were several other Titles attributed to greater or lesser Assemblies of them: *Domus Silvæ* was a *Summer-House*; and such was *Solomon's* *Orchard*. *Reg. vii. 2.* As when they planted them for Pleasure and Shade only, they had their *Nemora*; and as we our *Parks*, for the preservation of *Game*, and particularly *Venison*, &c. their *Saltus*, and *Silva invia*, secluded for the most part from the rest, &c. But among *Authors* we meet with nothing more frequent, and indeed more celebrated, than those *Arboreous Amenities* and *Plantations* of *Woods*, which they call'd *Luci*; and which, though sometimes, we confess, were restrain'd to certain peculiar places, for *Devotion*, (which were never to be fell'd); yet were they also promiscuously both used, and taken for all that the wide *Forest* comprehends, or can signify. To dismiss a number of *Critics*, The Name *Lucus* is deriv'd by *Quintilian* and others who delight to play with *Words* (by *Antiphrasis*) à *minime Lucendo*, because of its density,

———nulli penetrabilis astro.

Vide Just. Lipsium in Germaniam Taciti prolixè satis.

whence *Apuleius* us'd *Luco sublucido*; and the *Poets*, *Sublustrum umbra*: Others (on the contrary) have taken it for *Light* in the *Masculine*; *umbra non quia minime, sed quia maxime Luceat*; by so many *Lamps* suspended in them before the *Shrine*; or because they kindled *Fires*, by what Accident unknown:

^a ———Whether it were

By Lightning sent from Heaven, or else there
The Salvage Men in mutual Wars and Fight,
Had set the Trees on Fire, their Foes t' affright.

Or whether the Trees set Fire on themselves,

^b When clashing Boughs thwarting, each other fret.

For such Accidents, and even the very heat of the *Sun* alone has kindled wonderful *Conflagrations*: Or haply (and more probably) to consume their *Sacrifices*, we will not much insist. The *Poets* it seems, speaking of *Juno*, would give it quite another *Original*, and tune it to their Songs invoking *Lucina*, whilst the main and principal difference consisted not so much in the *Name*, as the *Use* and *Dedication*, which was for silent, awful, and more solemn *Religion*, (*silva, quasi silens locus*); to which purpose they were chiefly *manu consiti*, such as

^a ————Seu Cæli fulmine misso,
Sive quod inter se bellum Silvestria gentes
Hostibus intulerant ignem, formidinis ergo, &c.

LUCRET. l. 5.

^b Mutua dum inter se rami stirpesque teruntur.

BOOK IV. we have been treating of, *entire*, and never *violated* with the *Axe*: *Fabius* calls them *Sacros ex Vetustate*, venerable for their *Age*; and certain it is, they had of very great *Antiquity* been consecrated to holy *Uses*, not only by superstitious Persons to the Gentile *Deities* and *Heroes*, but to the true *God*, by the *Patriarchs* themselves, who *ab initio* (as is presum'd) did frequently retire to such Places to serve him in, compose their *Meditations*, and celebrate sacred *Mysteries*, *Prayers*, and *Oblations*; following the Tradition of the *Gomerites* or Descendants of *Noah*, who first peopl'd *Galatia* and other Parts of the World after the universal † *Deluge*. From hence some presume that even the ancient *Druids* had their *Origin*: But that *Abraham* might imitate what the most Religious of that *Age* had practis'd before him, may not be unlikely; for we read he soon planted himself and Family at the *Quercetum* of *Mambre*, *Gen. xiii.* where, as * *Eusebius*, *Eccles. Hist. l. i. c. 18.* gives us the account, He spread his *Pavilions*, erected an *Altar*, offer'd and perform'd all the Priestly *Rites*; and *there*, to the immortal Glory of the *Oak*, or rather *Arboreous Temple*, he entertain'd *God* himself. *Isidore*, *St. Hierom*, † and *Sozomen* report confidently, that one of the most eminent of those *Trees* remained till the Reign of the great *Constantine*, (and the *Stump* till *St. Hierom*) who founded a || venerable *Chappel* under it; and that both the *Christians*, *Jews*, and *Arabs*, held a solemn *Anniversary* or *Station* there, and believed that from the very time of *Noah*, it had been a Consecrated Place: Sure we are, it was about some such Assembly of *Trees*, that *God* was pleas'd first of all to appear to the *Father* of the *Faithful*, when he established the *Covenant* with him; and more expressly, when removing thence (upon confirming the League with *Abimelech*, *Gen. xxi.* and settling at *Beersheba*) he design'd an express Place for *God's Divine Service*: For *there*, says the Sacred Text, *He planted a Grove, and called upon the Name of the Lord*. Such another *Tuft* we read of (for we must not always restrain it to one single *Tree*) when the *Patriarch* came to אֵילֵן מֹרֶה *Elon Moreh*, *ad Convallem illustrium*: But whether that were the same in which the *High-Priest* repositied the famous *Stone*, after the Exhortation mention'd, *Joshua xxiv. 26.* we do not contend; under an *Oak* says the *Scripture*, and it grew near the *Sanctuary*, and probably might be that which his *Grand child* consecrated with the Funeral of his beloved *Rebecca*, *Gen. xxxv.* For 'tis apparent by the *Context*, that *There God* appeared to him again: So *Grotius* upon the Words (*subter quercum*,) *Illam ipsam* (says he) *cujus mentio*, *Gen. xxxv. 4. in historia Jacobi & Judæ*; and adds, *Is locus in honorem Jacobi diu pro Templo fuit*. That the very *Spot* was long after us'd for a *Temple* in honour of him; and that Place which *Zozomen* calls *Terebinthum*, from certain *Trees* growing there as ancient as the World it self, says *Josephus de Bell. Jud. l. 5.* Others report that this *Tree* sprung from a *Staff*, which one of the *Angels*, who appear'd to the *Patriarch*, fixed in the Ground: So *Geor. Syncellus in Chronico*. *Mirum verò est* (says *Valesius* on this Passage of *Eusebius*) *cum quercus ibidem fuerit, sub qua Abraham Tabernaculum posuerit, (ut legitur in Cap. xviii. Gen.) cur locus ipse à Terebintho potius quam a Quercu nomen accepit*. In the mean time, as to the Prohibition, *xvi. Deut. 21.* whether this *Patriarchal Devotion* in Groves, and under *Arboreous Shades*, was approv'd by *God*, till there was a fixed *Altar*, and his Ceremonial

† See the Learned Pezron *Antiq. Juse.*

* *Euseb. Lib. v. cap. 19. Demonstr. Evang. ubi de Terebintho. Hieronymus, de locis Hebraicis, &c.*

† *Hierom in Epitaph Paul. vide & Eras. Schol in Ep. ad Pamachium.*

|| See the Emperor's Rescript to *Bisb. Macarius*, &c. for the Demolition of the Idol worshipp'd there; and the building of a Magnificent Church.

Euseb. de vit. Constant. Lib. iii. Cap. 50.

Ceremonial Worship confin'd to the *Tabernacle* and *Temple*, I think CHAP. I.
needs be no * question.

3. If we therefore now would track the Religious Esteem of *Trees* and *Woods*, yet farther in *Holy Writ*, we have that glorious *Vision* of *Moses* in the *fiery Thicket*; and it is not to abuse or violate the *Text*, that *Monceus* and others, interpret it to have been an *entire Grove*, and not a single *Bush* only, which he saw as burning, yet unconsum'd. *Puto ego* (says my Author) *rubi vocabulo non quidem rubum aliquem unicum & solitarium significari, verum rubetum totum, aut potius fruticetum, quomodo de Quercu Mambre pro Querceto toto Docti intelligunt.* Now that they worshipped in that Place soon after their coming out of *Egypt*, the following Story shews; and the *Feast of Tabernacles* had some resemblance of *Patriarchal Devotion* under *Trees*, though but in temporary *Groves* and *Shades* in manner of *Booths*, yet celebrated with all the refreshings of the *Forest*; and from the very Infancy of the *World*, in which *Adam* was entertain'd in *Paradise*, and *Abraham* (as we noted) receiv'd his Divine Guests, not in his *Tent*, but under a *Tree*, an *Oak*, (*Triclinium Angelicum*, the *Angels Dining-Room*) all intelligent Persons have embrac'd the Solace of shady *Arbours*, and all devout Persons found how naturally they dispose our Spirits to Religious Contemplations; For *this*, as some conceive, they much affected to plant their *Trees* in *Circles*, and gave that capacious Form to the first *Temples*, observ'd not only of old, but even at this day by the *Jews*, as the most accommodate for their Assemblies; or, as others, because that Figure most resembl'd the *Universe*, and the *Heavens*: *Templum à Templando*, says a knowing *Critic*; and another, *Templum est nescio quid immane, atque amplum*; such as *Arnobius* speaks of, that had no *Roof* but *Heaven*, till that sumptuous Fabric of *Solomon* was confin'd to *Jerusalem*, and the goodliest *Cedars*, and most costly *Woods* were carried thither to form the *Columns*, and lay the *Rafters*; and *then*, and not till then, was it so much as *Schism* that I can find, to retire to *Groves* for their *Devotion*, or even to *Bethel* it self.

2. In such *Recesses* were the ancient *Oratories* and *Proseuche*, built *Thearte-wise*, *sub dio*, at some distance from the *Cities*, xvi. *Acts*; and made use of even amongst the *Gentiles*, as well as the People of *God*; (nor is it always the less authentic for having been the guise of *Nations*); hence that of *Philo*, speaking of one who *πῶς ἰσθαιὼν περὶ αὐτῶν ἐδίδουρτο*, &c. had fell'd all the *Trees* about it; and such a Place the *Satyrist* means, where he asks, *In quate quero proseucha?* because it was the *Rendezvous* also, where poor People us'd to frequent to beg the *Alms* of devout and charitable Persons; so as it was esteem'd *piacular* for any to cut down so much as a stick about them, unless it were to build them; when with the *Psalmist*, Men had *Honour* according to their forwardness of repairing the *Houses* of *God* in the *Land*; upon which account it was lawful to lift up *Axes* against the goodliest *Trees* in the *Forest*. But those zealous days are past;

* Now Temples shut, and Groves deserted lie:
All Gold adore, and neglect Piety.

* Et nunc desertis cessant sacraria Lucis:
Aurum omnes victa, jam Pietate colunt.

BOOK IV. In the mean time, that which came nearest to the *Schænopegia* of the Jews, and other Solemnities, call'd by the Romans, *Umbrae*; as those in *Neptunalibus* are describ'd by the Poet:

*b All sorts together flock; and on the Ground
Display'd, each Fellow with his Mate drinks round.
Some sit in open Air, some build their Tents;
And some themselves in branchy Arbors fence.*

* See Cap.
vii. Lib. iii.
Sect. 3.

Vid. Seldenum
de Jure Nat.
& Gent. Heb.
L. 2. c. 6.
Lil. & Gre.
Gyraldum de
diis gent. Syn-
tag. 17.

Vid. Sancti-
um, Piscat.
Grotium.

Plutarch speaking of the *Anniversary Feast* of *Bacchus*, plainly resembles it to that of the *Tabernacles*, carrying about *Θύραυς φεινῶν*, Branches of *Palm*, *Citron*, and other Trees, as *Josephus* describes the *Jewish Festival*: The Custom (for ought I know) still kept up in many Places of our Country, and abroad, on *May-Day* (and about the time of the year) when the young *Men* and *Maidens*, like the *Pagan* *ἄνθρωποι φειῶν*, go out into the *Woods* and *Copp'ces*, cut down and * *ipsoil* young *Springers*, to dress up their *May-Booth*, and dance about the *Pole*, as in *Pictures* we see the wanton *Israelites* about the *Molten Calf*. For thus, as we noted, those *Rites* commanded by *God* came to be prophaned, and the *Retiredness* of *Groves* and *Shades* for their *Opacousness*, abus'd to abominable Purposes, and Works of Darknes. But what good or indifferent thing has not been subject to Perversion? It is said in the end of *Isaiah*, *Exprobratur Hebraeis quod in Opisthonais Idolorum horti essent in quorum medio februebantur*; but how this is applicable to *Groves*, does not appear so fully; though we find them interdicted, *Deut. xvi. 21. Judg. vi. 26. 2 Chron. xxxi. 3, &c.* and forbidden to be planted near the *Temple*. And an impure *Grove* on *Mount Libanus*, dedicated to *Venus*, was by an Imperial *Edict* of *Constantine* extirpated: But from the *Abuse* of the thing to the *Non-use*, the *Consequence* is not always valid; and we may note as to this very Particular, that where in divers Places of *holy Writ* the Denunciation against *Groves* is so express, it is frequently to be taken but *Catachrestically*, from the *Wooden Image* or *Statue* call'd by that Name, as our Learned *Selden* makes out by sundry Instances in his *Syntagma de Diis Syris*. Indeed the Use of *Groves* upon account of *Devotion* was so antient, and seem'd so universal, that they consecrated not only real and natural *Groves*, but *lucos pictos*, artificial *Bos-tage* and Representations of them.

The Sum of all is, *Paradise* itself was but a kind of *Nemorous Temple*, or *Sacred Grove*, planted by *God* himself, and given to *Man*, *tanquam primo sacerdoti*; the word is עֵבֶר, which properly signifies to serve or administer *res divinas*; a Place consecrated for sober Discipline, and to contemplate those *Mysterious* and *Sacramental* Trees, which they were not to touch with their Hands; and in Memory of them, I am inclin'd to believe, holy Men (as we have shew'd in *Abraham* and others) might plant and cultivate *Groves*, where they traditionally invoc'd the *Deity*; and *St. Hierom*, *Chrysostom*, *Cyprian*, *Augustin*, and other *Fathers* of the *Church*, greatly magnified these pious Advantages; and *Cajetan* tells us, that from *Isaac* to *Jacob*, and

*b Plebs venit, ac virides passim disjecta per herbas
Potat & accumbit cum pare quisque sua:
Sub jove pars durat, pauci tentoria ponunt;
Sunt quibus è ramis frondea facta calu est.*

OVID. Fast. Lib. iii. Mar.

their Descendants, they followed *Abraham* in this Custom. *Solomon* CHAP. I. was a greater Planter of them, and had an *House of Pleasure* or *Lodge* in one of them for *Recess*. In such Places were the Monuments of their *Saints*, and the Bones of their *Heroes* deposited; for which *David* celebrated the Humanity of the *Galadites*, in *Nemora Jabes*, as most sacred and inviolable. In such a Place did the *Angel* appear to *Gideon*; and in others, *Princes* were inaugurated; so *Abimelech*, *Judg.* ix. And the *Rabbins* add a Reason why they were reputed so venerable; because more remote from Men and Company, more apt to compose the Soul, and fit it for divine Actions, and sometimes *Apparitions*; for which the first Enclosures and *Sacra Septa* were attributed to *Groves*, * *Mountains*, *Fountains of Water*, and the like solemn Objects, as of peculiar Sanctity, and as the old Sense of all Words denoting Sanctity did import *Separateness*, and uncommon *Propriety*: See our Learned *Mede*. For though since the *Devil's* Intrusion into *Paradise*, even the most holy and devoted Places were not free from his Temptations and ugly Stratagems; yet we find our *Blessed Saviour* did frequently retire into the Wilderness, as *Elijah* and *St. John Baptist* did before him, and divers other holy Men; particularly the Θεραπευτικοί, whom *Philo* mentions; a certain religious Sect, who addicting themselves to *Contemplation*, chose the solitary *Recesses* of *Groves* and *Woods*; as of old the *Rechabites*, *Essenes*, *Primitive Monks*, (and other *Institutions*) retired amongst the *Thebaïd Desarts*: And perhaps the *Air* of such retired Places may be assistant and influential, for the inciting of penitential Expressions and Affections; especially where one may have the additional Assistances of solitary *Grotts*, murmuring *Streams*, and desolate *Prospects*. I remember that under a *Tree* was the Place of that admirable *St. Augustin's* solemn *Conversion*, after all his importunate Reluctances: I have often thought of it; and it is a melting Passage, as himself has recorded it, *Con. l. 8. c. 8.* and he gives the reason, *Solitudo enim mihi ad negotium flendi aptior suggerebatur*. And that indeed such Opportunities were successful for *Recollection*, and to the very Reformation of some ingenuous Spirits, from secular Engagements to excellent and mortifying Purposes, we may find in that wonderful Relation of *Pontianus's* two Friends, great *Courtiers* of the Time, as the same holy *Father* relates it, previous to his own Conversion. And here I cannot omit an Observation of the learned *Dr. Plot*, in his (often-cited) *Nat. Hist. of Oxfordshire*; taking notice of two eminent *Religious Houses*, whose Foundations were occasion'd by *Trees*; the first, *Osney-Abbey*; the second, by reason of a certain *Tree* standing in the *Meadows* (where after was built the *Abbey*) to which a Company of *Pyes* were wont to repair, as oft as *Edithe*, the Wife of *Robert d'Oyly*, came to walk that way to solace herself; for the clamorous *Birds* did so affect her, that consulting with one *Radulphus* (*Canon* of *St. Fridiswid*) what it might signify, the subtle Man advis'd her to build a *Monastery* where that *Tree* stood, as if so directed by the *Pyes* in a miraculous manner: Nor was it long e'er the *Lady* procur'd her *Husband* to do it, and to make *Radulphus* (her Confessor) first *Prior* of it.

Such another Foundation was caus'd by a tripple *Elm* having three *Trunks* issuing from one *Root*. Near such a *Tree* as this, was *Sir Thomas White*, Lord Mayor of *London*, warn'd by a *Dream* to erect a *College* for the Education of Youth: which he did; namely, *St. John's*

BOOK IV. in *Oxford*; which with the very *Tree* still flourishes in that famous *University*. But of these enough, and perhaps too much.

6. We shall now, in the next place, endeavour to shew, how this innocent Veneration to *Groves* passed from the *People of God* to the *Gentiles*, and by what degrees it degenerated into dangerous Superstitions: For the *Devil* was always *God's Ape*, and did so ply his *Groves*, *Altars*, and *Sacrifices*, and almost all other Rites belonging to his Worship, that every *green Tree* was full of his Abominations, and Places devoted to his impure Service: *Hi fuere* (says *Pliny*, speaking of *Groves*) *quondam Numinum templa*, &c. "These were of old the *Temples* of the *Gods*; and after that simple (but antient Custom) Men at this day consecrate the fairest and goodliest *Trees* to some *Deity* or other; nor do we more adore our glittering *Shrines of Gold* and *Ivory*, than the *Groves*, in which with a profound and awful Silence we worship them". *Quintilian* speaking of the Veneration paid an old *Umbragious Oak*, adds, *In quibus grandia, & antiqua robora jam non tantum habeat speciem, quantum Religionem*: For in truth, the very *Tree* itself was sometimes deified, and that *Celtic Statue of Jupiter* no better than a prodigious tall *Oak*, whence 'tis said the *Chaldean Theologues* deriv'd their Superstition towards it; and the *Persians*, we read, us'd that *Tree* in all their mysterious *Rites*. And as for *Wood* in general, they paid it that Veneration for its maintaining their *Deity*, (represented by their *Perennial Fire*) that they would not suffer any sort of *Wood* to be us'd for *Coffins* to inclose the *Dead* in, (but in *Plates of Iron*) counting it a *Prophanation*. In short, so were People given up to this *devilish* and unnatural *Blindness*, as to the offering of *human Sacrifices*, not to the *Tree-Gods* only, but to the *Trees* themselves as real *Gods*.

Oyvil. Alexand.
in Hos. iv. 13.
Deut. xvi. 4.
2 Reg. xvi. 4.

Melchior Ada-
mus Hist Eccl.
de Sueconibus,
c. 234.

Mariana in
2. Paralip. 28.
4.

* Each Tree besprinkled us with human Gore.

Procopius tells us plainly, that the *Sclavij* worshipped *Trees*, and whole *Forests* of them. See *Jo. Dubravius*, l. 1. *Hist. Bohem.* and that formerly the *Gandenses* did the like; (so *Surius* the *Legendary*, 6 Feb. reports in the life of *St. Amadus*.) So did the *Vandals*, says *Albert Crantz*; and even those of *Peru*, as I learn from *Acosta*, l. 5. c. 11. But one of the first *Idols* which procur'd particular Veneration in them, was the *Sidonian Ashteroth*, who took her name à *Lucis*, as the *Jupiter* à *divo*, &c. amongst the *Rhodians*, the *Nemorensis Diana* or *Arduenna*, a celebrated *Deity* of this our *Island*, for her Patronage of *Wood* and *Game*;

Diva potens nemorum, terror silvestribus Apris, &c.

as *Gildas* an antient *Bard* of ours has it; so soon had Men it seem'd degenerated into this irrational and stupid Devotion, that Arch-Fanatic Satan (who began his Pranks in a *Tree*) debauching the contemplative Use of *Groves*, and other Solitudes. Nor were the *Heathens* alone in this Crime; the *Basilidians*, and other *Hereticks*, even amongst the *Christians*, did consecrate to the *Woods* and the *Trees*, their Serpent-footed and barbarous *ABOPAΞΑΣ*, as it is yet to be seen in some of their *Mysterious Talismans* and *Periapta's* which they carried about.

* Omnis & humanis lustrata cruoribus arbos.

LUCAN. l. 3.

But the *Roman* Madneſs (like that which the *Prophet* derides in the *Jews*) was well perſtring'd by *Sedulius* and others, for implo-
ring theſe *Stocks* to be propitious to them, as we learn in *Cato de R. R.*
c. 113. 134, &c. Nor was it long after, (when they were generally
conſecrated by *Faunus*) that they boldly ſet up his *Oracles* and *Re-*
ſponſes in theſe *memorous* Places: Hence the Heathen *Chapels* had
the Name of *Fana*, and from their wild and extravagant Religion, the
Profeſſors of it *Fanaticks*; a Name well becoming ſome of our late
Enthuſiaſts amongſt us; who, when their *Quaking Fits* poſſeſs
them, reſemble the giddy Motion of *Trees*, whole Heads are agitated
with every *Wind of Doctrin*.

7. Here we may not omit what learned Men have obſerv'd concern-
ing the Cuſtom of *Prophets*, and Perſons inspir'd of *old*, to ſleep upon
the Boughs and Branches of *Trees*; I do not mean on the *tops* of
them, (as the *Salvages* ſomewhere do in the *Indies*, for fear of *Wild*
Beaſts in the Night-time) but on *Matraſſes* and *Beds* made of their
Leaves, *ad Conſulendum*, to ask Advice of *God*. *Naturaliſts* tell us,
that the *Laurus*, and *Agnus Caſtus*, were *Trees* which greatly com-
poſ'd the *Fancy*, and did facilitate true *Viſions*; and that the *fiſt* was
ſpecifically efficacious *ωὅς τὰς ἐνδυναμὺς*, (as my Author expreſſes it)
to inſpire a *Poetical* Fury: Such a *Tradition* there goes of *Rebekah*
the Wife of *Iſaac*, in imitation of her *Father-in-Law*: The Inſtance
is recited out of an ancient *Eccleſiaſtical* Hiſtory by *Abulenſis*; and
(what I drive at) that from hence the *Delphick Tripod*, the *Dodona-*
an Oracle in *Epirus*, and others of that nature had their Originals:
At this *decubation* upon *Boughs* the *Satyrift* ſeems to hint, where he
introduces the *Gypſies*,

CHAP. I.
In opere Paſ-
chali.

See Fulgent.
Mythol. cap.
13. & Mun-
ſterum in Com-
ment.

See Hier. in
Trad. Heb.
3 Reg. c. iv.

With fear
A cheating Jeweſs whiſpers in her Ear,
And begs an Alms: An High-Prieſt's Daughter ſhe,
Verſ'd in their Talmud, and Divinity;
And propheſies beneath a ſhady Tree.

DRYDEN.

For indeed the *Delphic Oracle* (as *Diodorus* l. 16. tells us) was
fiſt made *è Lauri ramis*, of the Branches of *Laurel* transferr'd from
Theſſaly, bended, and arch'd over in form of a *Bower* or *Summer-*
houſe; a very ſimple Fabrick you may be ſure: And *Cardan*, I re-
member, in his Book *de Fato*, inſiſts very much on the Dreams of
Trees for Portents and Prefages, and that the uſe of ſome of them do
diſpoſe men to Viſions.

8. From hence then began *Temples* to be erected and fought to in
ſuch Places; nay, we find * *Sanction* for it among the *Laws* of the
XII Tables: So as there was hardly a *Grove* without its *Temple*, ſo
had every *Temple* almoſt a *Grove* belonging to it, where they plac'd
Idols, *Altars* and *Lights*, endowed with fair Revenues, which the
Devotion of ſuperſtitious Perſons continually augmented: Such were

Vide Annium
Viterb. l. 17.
fol. 158.
* Cic. de Lege.
l. 2.

* Arcanam Judæa tremens mendicat in aurem
Interpres Legum Solymarum, & magna Sacerdos
Arboris, ac ſummi fida internuncia Cœli.

BOOK IV. those † *Arbores obumbratrices*, mention'd by *Tertullian* (*Apol. Cap. ix.*) on which they suspended their *Ἀναθήματα* and devoted Things: And I remember to have seen something very like this in *Italy*, and other Parts; namely, where the *Images* of the *B. Virgin*, and other *Saints*, have been enshrined in hollow and umbragious Trees, frequented with much veneration. Which puts me in mind of what that great Traveller *Pietro della Valle* relates, where he speaks of an extraordinary *Cypress*, yet extant, near the Tomb of *Cyrus*, to which at this day many *Pilgrimages* are made, and speaks of a *Gummy* Transudation which it yields, that the *Turks* affirm to turn every *Friday* into drops of *Blood*: The Tree is hollow within, adorn'd with many *Lamps*, and fitted for an *Oratory*; and indeed some would derive the Name *Lucus*, a *Grove*, as more particularly to signify such enormous and cavernous Trees, *quod ibi lumina accenderentur Religionis causa*: But our *Author* adds, The *Ethnics* do still repute all great Trees to be *Divine*, and the Habitation of *Souls* departed: These the *Persians* call *Pir* and *Imam*. Perhaps such a hollow Tree was that *Asylum* of our *Poet's Hero*, when he fled from his burning *Troy*.

a ——— an Ancient Cypress near,
Kept by Religious Parents many a Tear.

For that they were places of Protection, and privileg'd like Churches and Altars, appears out of *Livy*, and other good Authority: Thus where they introduce *Romulus* encouraging his new Colony,

b So soon as e'er the Grove he had immur'd,
Haste hither (says he) here you are secur'd.

Such a Sanctuary was the *Aricina*, and Suburban *Diana*, call'd the *Nemorale Templum*, and divers more which we shall reckon up anon. *Lucian* in his *dea Syri*, speaks of these Temples and Dedications in their Groves among the *Egyptians*: *Lucus in urbe fuit*, &c. and what follows? *Hic Templum*—and since they could not translate the Grove with the *Idol*, they * carv'd out something like it, which the superstitious People bought, carried home, and made use of, representing those venerable Places, in which they had the Images of some feign'd Deity (suppose it *Tellus*, *Baal*, or *Priapus*); and such was the *Jupiter* Ἰδαίος of the *Rhodians*, *Bacchus* of the *Boetians*, Ἰδαίος the *Sidonian Ashteroth*: And the *Women* mentioned 2 Reg. xxiii. 7. who are said to weave Hangings and Curtains for the Grove, were no other than Makers of Tentories, to spread from Tree to Tree, for the more opportune and secret perpetration of those impure Rites and Mysteries, which (without these Coverings) even the opacousness of the Places were not obscure enough to conceal.

9. The famous *Druids*, or || *Saronides*, whom the learned *Bochart* from *Diodorus*, proves to be the same, derived their *Oak-Theology*,

a ——— juxtaq; antiqua Cupressus
Religione Patrum multos servata per annos.

Æn. 2.

b ——— Ur saxo Lucum circumdedit alto
Quilibet, huc dicat, Confuge, tutus eris.

namely,

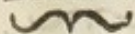
namely, from that spreading and gloomy shading Tree, probably the *Grove* at *Mambre*, xiii. *Gen.* 2. How their *Mysteries* were celebrated in their *Woods* and *Forests*, is at large to be found in *Cæsar*, *Pliny*, *Strabo*, *Diodorus*, *Mela*, *Apuleius*, *Ammianus*, *Lucan*, *Aventinus*, and innumerable other Writers; where you will see that they chose the *Woods* and the *Groves*, not only for all their *Religious Exercises*, but their *Courts* of *Justice*; as the whole Institution and Discipline is recorded by *Cæsar*, l. 6. and as he, it seems, found it in our Country of *Britain*, from whence it was afterwards translated into *Gallia*: For he attributes the first rise of it to this once happy *Island* of *Groves* and *Oaks*; and affirms, that the ancient *Gauls* travelled hither for their initiation. To this *Tacitus* assents, 14. *Annal.* and our most learned *Criticks* vindicate it, both from the *Greeks* and *French* impertinently challenging it: But the very *Name* it self, which is purely *Celtick*, does best decide the Controversy: For though $\delta\pi\upsilon\varsigma$ be *Quercus*; yet *Vossius* skilfully proves that the *Druids* were altogether Strangers to the *Greeks*; but what comes yet nearer to us, *Dru*, *fides* (as one observes) begetting our now antiquated *Trou*, or *True*, makes our Title the stronger: Add to this, that amongst the *Germans* it signified no less than *God* himself; and we find *Drutin*, or *Trudin* to import *Divine*, or *Faithful*, in the *Othfridian Gospel*, both of them *Sacerdotal* Expressions. But that in this *Island* of ours, Men should be so extremely devoted to Trees, and especially to the *Oak*, the Strength and Defence of all our Enjoyments, environ'd as we are by the Seas, and martial Neighbours, is less to be wonder'd:

^a Our British Druids not with vain intent,
Or without Providence did the Oak frequent;
That Albion did that Tree so much advance
Nor Superstition was, nor Ignorance.
Those Priests divining even then, bespoke
The mighty Triumphs of the Royal Oak:
When the Sea's Empire with like boundless Fame,
Victorious CHARLES the Son of CHARLES shall claim.

as we may find the *Prediction* gloriously followed by our ingenious *Poet*, where his *Dryad* consigns that sacred *Depositum* to this *Monarch* of the *Forest*, the *Oak*; than which nothing can be more sublime and rapturous, whilst we must never forget that wonderful *Providence* which saved this forlorn and persecuted *Prince*, after his Defeat at *Worcester*, under the shelter of this auspicious and hospitable Tree alone; when

— All the Countries fill'd
With Enemies Troops, in every House and Grove,
His Sacred Head is at a Value held,
They seek, and near, now very near they move.

^a Non igitur Dryadæ nostrates pectore vano,
Nec sine consulto coluerunt Numine Quercum;
Non illam Albionis jam rum celebravit honore
Stulta Superstitio, venturive inscia seculi,
Angliaci ingentes puto prævidisse triumphos
Roboris, Imperiumque maris quod maximus olim
CAROLIDES vastâ Victor ditione teneret.



What should they do? They from the Danger take
Rash, hasty Counsel; yet from Heav'n inspir'd,
A spacious *Oak* he did his Palace make,
And safely in its hollow Womb retir'd.

The *Loyal Tree* its willing Boughs inclin'd,
Well to receive the climbing *Royal Guest*,
(In Trees more Pity than in Men we find)
And its thick Leaves into an Arbour press'd.

A rugged Seat of *Wood* became a Throne,
The obsequious Boughs His Canopy of State:
With bowing Tops the Tree their King did own,
And silently ador'd Him as he fate.

But to return to the Superstition we were speaking of (since utterly abolish'd) till the Reign of *Claudius*, as appears by *Suetonius*; yet by *Tacitus* they continued here in *Britain* under *Nero*, and in *Gaul* till *Vitellius*, as is found by *St. Gregory* writing to *Q. Brunebant*, about the prohibiting the Sacrifices and Worship which they paid to Trees: Which *Sir John Ware* affirms continued in *Ireland* till *Christianity* came in.

10. From these *Silvan Philosophers* and *Divines* (not to speak much of the *Indian Brachmans*, or ancient *Gymnosophists*) 'tis believed that the great *Pythagoras* might institute his silent *Monastery*; and we read that *Plato* entertained his Auditors amongst his *Walks of Trees*, which were afterward defac'd by the inhumanity of *Sylla*, when, as *Appian* tells us, he cut down those venerable Shades, to build Forts against *Pyraus*: And another we find he had planted near *Anicerides* with his own Hands, wherein grew that celebrated *Platanus*, under which he introduces his Master *Socrates* discoursing with *Phaedon de Pulchro*: Such another Place was the *Athenian Cephisia*, as *Agellius* describes it: We have already mention'd the stately *Xysta*, with their Shades, in *cap. 23*. *Democritus* also taught in a *Grove*, as we find in that of *Hippocrates* to *Damagetus*, where there is a particular Tree design'd *ad Otium literarum*; and I remember *Tertullian* calls these Places *Studia opaca*: Under such Shades and Walks, was at first the Famous *Academia*, esteem'd so venerable, as it was by the old *Philosopher* prophane so much as to laugh in it, see *Laertius*, *Ælian*, &c. I could here tell you of *Palæmon*, *Timon*, *Apollonius*, *Theophrastus*, and many more that erected their Schools in such *Colleges of Trees*, but I spare my Reader; I shall only note, that 'tis reported of *Thucydides*, that he compiled his noble *History* in the *Scaplan Groves*, as *Pliny* writes; and in that matchless Piece *de Oratore*, we shall find the Interlocutors to be often under the *Platanus* in his *Tusculan Villa*, where invited by the freshness and sweetness of the Place, *Admonuit* (says one of them) *me hæc tua Platanus quæ non minus ad opacandum hunc locum patulis est diffusa ramis, quam illa, cujus umbram secutus est Socrates, quæ mihi videtur non tam ipsa aquila, quæ describitur, quam Platonis oratione crevisse*, &c. as the *Orator* brings it in, in the Person of one of that Meeting.

Ad Mart.

I confess *Quintilian* seems much to question whether such places do not rather perturb and distract from an *Orator's* * Recollection, and the depths of Contemplation: *Non tamen* (says he) *protinus audiendi, qui credunt aptissima in hoc nemora, silvasque, quod illa cæli libertas, locorumque amœnitas, sublimem animum, & beatiorum spiritum parent: Mibi certè jucundus hic magis, quam studiorum hortator videtur esse secessus: Namq; illa ipsa quæ delectant, necesse est avocent ab intentione operis destinati: He proceeds, — Quare Silvarum amœnitas, & præter labentia flumina, & inspirantes ramis arborum auræ, volucrumque cantus & ipsa latè circumspiciendi libertas, ad se trahunt; ut mihi remittere potius voluptas ista videatur cogitationem, quam intendere.* But this is only his singular suffrage, which as conscious of his *Error*, we soon hear him retract, when he is by and by as loud in its Praises, as the *Places* in the World the best fitted for the diviner *Rhetoric* of *Poetry*: But let us admit another to cast in his *Symbol* for *Groves*: *Nemora* (says he) *& Luci, & secretum ipsum, tantam mihi afferunt voluptatem, ut inter præcipuos Carminum fructus numerem, quod nec in strepitu, nec sedente ante ostium litigatore, nec inter sordes & lacrymas reorum componuntur: Sed secedit animus loca pura, atque innocentia, fruiturque sedibus Sacris.*

CHAP. I.

Lib. 10.

* See this most elegantly discuss'd in a Greek Epistle of Budens to his Brother, Ep. 1.

Tacitus.

Whether this were the effect of the incomparable younger *Pliny's* Epistle to this noble *Historian*, I know not; but to shew him by his own Example how *Study* and *Forest-sport* may consist together, he tells him how little the Noise of the *Chafers* and bawling *Dogs* disturbed him, when at any time he indulged himself that healthful Diversion: "So far was he from being *idle*, and losing time, that beside his " *Javelin* and *Hunting-Pole*, he never omitted to carry his *Style* and " *Table-Book* with him, that upon any intermission, whilst he now and " then sat by the *Toil* and *Nets*, he might be ready to note down any " *Noble Thought*, which might otherwise escape him: The very motions (says he) and agitation of the Body in the *Wood* and *Solitude*, " *Magna cogitationis incitamenta sunt*: I know, my Friend (says he) " you'll smile at it, however take my Counsel; Be sure never to carry your *Bottle* and *Bisque* into the Field, without your *Pugillares* " *and Tablet*; you'll find as well *Minerva* as *Diana* in the *Woods* and " *Mountains*.

Plin. Ep. vi.
Lib. i. Cornelio Tacito.

And indeed the *Poets* thought of no other *Heaven* upon Earth, or elsewhere; for when *Anchises* was setting forth the Felicity of the other Life to his Son, the most lively Description he could make of it was to tell him,

^a ——— *We dwell in shady Groves.*

And that when *Aeneas* had travelled far to find those happy Abodes,

^b *They came to Groves, of happy Souls the Rest,
To Ever-greens, the Dwellings of the Blest.*

Such a Prospect he gives us of his *Elysium*; and therefore wise and great Persons had always these sweet Opportunities of Recess, their

^a ——— *Lucis habitamus opacis.*

^b *Devenere locos lætos, & amœna vireta
Fortunatorum Nemorum, Sedesque beatas,*

BOOK IV. *Domos Silvæ*, as we read, 2 *Reg.* vii. 2. which were thence called *Houses of Royal Refreshment*, or as the *Septuagint*, οἶκος δρυμῶν, not much unlike the *Lodges* in divers of our *Noblemens Parks* and *Forest-Walks*; which minds me of his choice in another *Poem*,

^a *In lofty Towers let Pallas take her Rest,
Whilst shady Groves 'bove all things please us best.*

And for the same Reason *Mæcenæ*s

^b ——— *Chose the Broad Oak* ———

And as *Horace* bespeaks them,

^c *Me the cool Woods above the rest advance,
Where the rough Satyrs with the light Nymphs dance.*

And *Virgil* again,

^d *Our sweet Thalia loves, nor does she scorn
To hunt umbragious Groves* ———

Or as thus expressed by *Petrarch*,

^e ——— *The Muse her self enjoys
Best in the Woods; Verse flies the City noise.*

So true is that of yet as noble a *Poet* of our own;

As well might *Corn*, as *Verse* in *Cities* grow:
In vain the thankless *Glebe* we plow and sow:
Against the unnatural *Soil* in vain we strive:
'Tis not a *Ground* in which these *Plants* will thrive.

COWLEY.

When it seems they will bear nothing but *Nettles* and *Thorns* of *Satyrs*, and as *Juvenal* says, by *Indignation* too; and therefore “almost
“all the *Poets*, except those who were not able to eat Bread without
“the Bounty of great Men; that is, without what they could get
“by flattering them (which was *Homer's* and *Pindar's* Case) have not
“only withdrawn themselves from the Vices and Vanities of the great
“*World*, into the innocent Felicities of *Gardens*, and *Groves*,
“and *Retiredness*, but have also commended and adorned nothing so
“much in their never-dying *Poems* *. Here then is the true *Parnas-*
“*sus*, *Castalia*, and the *Muses*; and at every call in a *Grove* of venerable
“*Oaks*, methinks I hear the Answer of an hundred old *Druids*, and
“the *Bards* of our inspir'd Ancestors.

* *Juvenal Sat.*
vii. 1. *Perf.*
Sat.

In a word, so charm'd were *Poets* with those Natural Shades, especially that of the *Platanus*, that they honour'd *Temples* with the

————— ^a *Pallas quas condidit arces,
Ipsa colat, nobis placeant ante omnia Silvæ.*

ECLOG. 2.

^b *Maluit umbrosam Quercum* ———

^c ——— *Me gelidum nemus
Nympharumq; leves cum Satyris Chori,
Secernunt populo* ———

^d *Nostra nec erubuit Silvæ habitare Thalia.*

^e *Silva placet Musis, urbs est inimica Poetæ.*

Names

names of † *Groves*, though they had not a *Tree* about them: Nay sometimes, one stately *Tree* alone was so rever'd: And of such a one there is mention in a Fragment of an *Inscription* in a *Garden* at *Rome*, where there was a *Temple* built under a spreading *Beech-Tree*, sacred to *Jupiter*, under the Name of *Fagutalis*.

CHAP. I.
† Ἀλσὶν χα-
λάρτες πρὶ ἱερῶν
πάντων, καὶ ἡ
ψῆλα, οἱ ποιεῖ-
ται κοσμήσιν.
Strab. l. 9.

Innumerable are the Testimonies I might produce in behalf of *Groves* and *Woods* out of the *Poets*, *Virgil*, *Gratius*, *Ovid*, *Horace*, *Clau- dian*, *Statius*, *Silius*, and others of later times, especially the Divine *Petrarch*: (for *Scriptorum Chorus omnis amat Nemus*) were I minded to swell this *Charming* Subject, beyond the limits of a *Chapter*: I think only to take notice, that *Theatrical* Representations, such as were those of the *Ionian* call'd *Andria*; the *Scenes* of *Pastorals*, and the like innocent Rural Entertainments, were of old adorned and trim- med up *é ramis & frondibus, cum racemis & corymbis*, and frequently represented in *Groves*, as the learned *Scaliger* shews: And here the most beloved and coy *Mistress* of *Apollo* rooted; and the noblest Raptures have been conceiv'd in the Walks and || Shades of *Trees*, and *Poets* have compos'd *Verses* which have animated Men to heroic and glorious Actions; here *Orators* (as we shew'd) have made their *Panegyrics*, *Historians* grave *Relations*, and the profound *Philoso- phers* loved here to pass their Lives in Repose and Contemplation; and the frugal Repasts ——— *mollesque sub arbore somni*, were the natural and chaste Delights of our *Fore-fathers*, so sweetly describ'd by *Papi- nius*,

Poetices, Lib.
1. cap. 21.
|| See Wower.
de Umbra, cap.
26 Bisciola
Hore subcis.
cap. 9.

*Subter opaca quies vacuusque silentia servat
Horror, & exclusæ pallet mala Lucis Imago
Nec caret Umbra Deo———
Arboribus suis horror inest, quin ipse Sacerdos
Accessus, Dominumque timet deprehendere luci.*

12. Nor were *Groves* thus only frequented by the great *Scholars*, and the great *Wits*, but by the greatest *Statesmen* and *Politicians* also. Thence that of *Cicero* speaking of *Plato*, with *Clinias* and *Megillus*, who were us'd to discourse *de rerum publicarum institutis, & optimis le- gibus*, in the *Groves* of *Cypress*, and other umbrageous Recesses: It was under a vast *Oak* growing in the Park at *St. Vincent's*, near *Paris*, that *St. Louis* was us'd to hear Complaints, determine Causes, and do Justice to such as resorted thither: And we read of solemn Treaties of Peace held under a flourishing *Elm* between *Gisors* and *Trier*, which was afterwards fell'd by the *French King Philip* in a rage against King *Henry II.* not agreeing to it. Nay, they have sometimes been known to *Crown* their *Kings* under a goodly *Tree*, or some venerable *Grove*, where they had their Stations and Conventions; for so they chose *Abimelech*; see *Tostatus* upon *Judg.* ix. 6. and I read (in *Chronicon Jo. Bromton*) that *Augustin* the Monk (sent hither from the Pope) held a kind of *Council* under a certain *Oak* in the *West* of *England*, and that concern- ing the Great *Question*, namely the right Celebration of *Easter*, and the state of the *Anglican-Church*, &c. where also 'tis reported he did a great Miracle. In the mean time I meet with but one Instance where this goodly *Tree* has been (in our *Country*) abus'd to cover impious Designs, as was that of the Arch-Rebel *Kett*, who in the Reign of King *Edw. VI.* (becoming *Leader* to that *Fanatick Insur- rection* in *Norfolk*), made an *Oak* (under the specious Name of * *Re- formation*), the *Court*, *Council-house*, and place of *Convention*, whence

* *Quercus Re- formationis.*

BOOK IV. he set forth his traiterous *Edicts*: The *History* and Event of which, to the Destruction of the *Rebel* and his Followers, together with the *Sermon* (call it Speech, or what you please) which our then young *Matthew Parker* (afterward the venerable and learned Archbishop of *Canterbury*) boldly pronounced on it, to reduce them to Obedience, is most elegantly described in *Latin*, and in a Stile little inferior to the Antients, by our Countryman *Alexander Nevyl*, in his *KETTUS*, five, *De furoribus Norfolciensium KETTO Duce*. But to return: The *Athenians* were wont to consult of their graveſt Matters, and publick Concernments, in *Groves*. Famous for theſe *Aſſemblies* were the *Ceraunian*, and at *Rome* the *Lucus Petilinus*, the *Farentinus*, and others, in which there was held that renowned Parliament after the Deſeat of the *Gauls* by *M. Popilius*: For it was ſuppoſed that in Places ſo ſacred, they would faithfully and religiously obſerve what was concluded amongſt them.

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*In ſuch green Palaces the firſt Kings reign'd,
Slept in their Shades, and Angels entertain'd;
With ſuch-old Counſellors they did adviſe,
And by frequenting ſacred Groves, grew wiſe:
Free from th' Impediments of Light and Noiſe,
Man thus retir'd, his nobler Thoughts employs.*

MR. WALLER.

As our excellent *Poet* has deſcribed it. And amongſt other weighty Matters, they treated of *Matches* for their *Children*, and the young People made *Love* in the cooler Shades, and engraved their *Miſtreſſes* Names upon the *Bark*; *Tituli arcis literis inſculpti*, as *Pliny* ſpeaks of that antient *Vatican Ilex*, and *Euripides* in *Hippolyto*; where he ſhews us how they made the *Incision* whiſper their ſoft Complaints like that of *Ariſtænetus*, Τὴν δὲ εἰς δὲ εὐδαιμονίαν, &c. and wiſh that it had but a Soul and Voice to tell *Cydicpe*, the fair *Cydicpe*, how ſhe was beloved: And doubtleſs this *Character* was ancients than that in *Paper*. Let us hear the amorous *Poet* leaving his young Couple thus courting each other:

L. 16. c. 44.
Ariſt. l. Ep. 10.

Vid. Symmac.
l. 4. Ep. 28.

*My Name on Bark engrav'n by your fair Hand,
Oenone, there, cut by your Knife, does ſtand;
And with the Stock my Name alike does grow:
Be't ſo, and my advancing Honour ſhow.*

Which doubtleſs he learnt of *Maro*, deſcribing the unfortunate *Gallus*.

*There on the tender Bark to carve my Love;
And as they grow, ſo may my Hopes improve.*

And theſe pretty Monuments of Courtſhip I find were much uſed on the *Cherry-tree* (the *Wild* one, I ſuppoſe) which has a very ſmooth *Rind*, as the witty *Calphurnius*:

*Incisæ fervant à te mea nomina fagi,
Et legor, Oenone, falce notata tua,
Et quantum trunci, tantum mea nomina creſcunt,
Creſcite, & in titulos furgite ritè meos.*

OVID. Ep.

*tenerisque meos incidere amores
Arboribus: Creſcent illa, creſcetis amores.*

ECLOG. 10.

Repeat,

^a Repeat, thy Words on Cherry-bark I'll take,
And that red Skin my Table-Book will make.

Let us add the sweet * *Propertius* :

*Ab quoties teneras resonant mea Verba sub umbras,
Scribitur & vestris Cynthia, Corticibus.*

* Lib. i. Elegia xviii.

And so deep were the *Incisions* made, as that of † *Helena* on the *Platan*, (*ὡς πλάτων τις Ἀργυρῶν*) that one might run and read them. And thus forsaken *Lovers* appeal to *Pines*, *Beeches*, and other *Trees* of the *Forest*. But we have dwelt too long on these *Trifles*; omitting also what we might relate of *Feasting*, *Banqueting*, and other splendid *Entertainments* under *Trees*, nay, sometimes in the very *Bodies* of them: But we will now change the *Scene*, as the *Egyptians* did the *Mirth* of their *Guests*, when they served in a *Scull* to make them more serious. For thus,

† Theocrit. Epithal. Helenæ Idyll. 18.

13. Amongst other *Uses* of *Groves*, I read that some *Nations* were wont to hang, not *Malefactors* only, but their departed *Friends*, and those whom they most esteemed, upon *Trees*, as so much nearer to *Heaven*, and dedicated to *God*, believing it far more honourable than to be buried in the *Earth*; and that some affected to repose rather in these woody *Places*, *Propertius* seems to bespeak :

^b The Gods forbid my Bones in the high Road
Should lie, by every wandering Vulgar trod.
Thus buried Lovers are to Scorn expos'd;
My Tomb in some by-Arbor be inclos'd.

The same is affirmed of other *Septentrional* People by *Chr. Cilicus de Bello Dithmarsico*, l. i. It was upon the *Trunk* of a knotty and sturdy *Oak*, the antient *Heroes* were wont to hang the *Arms* and *Weapons* taken from the *Enemy*, as *Trophies*; as appears in the yet remaining *Stump* of *Marius* at *Rome*, and the *Reverses* of several *Medals*. Famous for this was the pregnant *Oleaster* which grew in the *Forum* of *Megara*, on which the *Heroes* of old left their *Shields* and *Bucklers*, and other warlike *Harness*, till in process of time it had cover'd them with successive *Coats* of *Bark* and *Timber*, as it was afterwards found when *Pericles* sack'd the *City*; which the *Oracle* predicted should be impregnable, till a *Tree* should bring forth * *Armour*. We have already mention'd *Rebekah*, and read of *Kings* themselves that honoured such *Places* with their *Sepulchres*: What else should be the meaning of 1 *Chron.* x. 12. when the valiant Men of *Jabesh* interr'd the *Bones* of *Saul* and *Jonathan* under the *Oak*? Famous was the *Hyrnethian Cemetery* where *Daiphon* lay. *Ariadne's Tomb* was in the *Amathusian Grove* in *Crete*, now *Candy*; for they believed that the *Spirits* and *Ghosts* of Men delighted to expatiate, and appear in such solemn *Places*, as the learned *Grotius* notes from *Theophylact*, speaking of the *Demons*, upon *Matth.* viii. 20. for which cause *Plato*

* Diod. Sic. lib. 12.

^a Dic age, nam Cerasi tua cortice verba notabo.
Et decisa feram rutilanti carmina libro.

^b Dī faciant mea ne terrā locet ossa frequenti
Quā facit assiduo tramite vulgus iter;
Post mortem tumuli sic infamantur amantum,
Me tegat arboreā devia terra comā.

BOOK IV. gave permission, that Trees might be planted over Graves, to obumbrate and refresh them. The most antient *Conditoria* and Burying-places were in such *secluded* Solitudes. The *Hypogæum* in *Macpela*, purchas'd by the *Patriarch Abraham* of the Sons of *Heth*, Gen. xxiii. for *Sarah*, his own *Dormitory*, and Family's Sepulchre, was convey'd to him with particular mention, *ver.* 3. of all the *Trees* and *Groves* about it; and the very first *Precedent* I ever read, of conveying a *Purchase* by a formal *Deed*.

Our blessed *Saviour* (as we shall shew) chose the *Garden* sometimes for his *Oratory*, and *dying*, for the Place of his *Sepulchre*; and we do avouch for many weighty Causes, that there are none more fit to bury our Dead in, than in our *Gardens* and *Groves*, or airy *Fields*, *sub dio*; where our *Beds* may be decked and carpeted with verdant and fragrant *Flowers*, *Trees*, and *Perennial* Plants, the most natural and instructive *Hieroglyphics* of our expected *Resurrection* and *Immortality*: besides what they might conduce to the Meditation of the *living*, and the taking off our Cogitations from dwelling too intently upon more vain and sensual Objects, that *Custom* of *burying* in *Churches*, and near about them (especially in great and populous *Cities*) being both a *novel* Presumption, undecent, sordid, and very prejudicial to health; and for which I am sorry it is become so customary. *Graves* and *Sepulchres* were of old made and erected by the sides of the most frequented *Highways*, which being many of them magnificent *Structures* and *Mausoleums*, adorn'd with *Statues* and *Inscriptions*, (planted about with *Cypress* and other *Ever-greens*, and kept in Repair) were not only graceful, but a noble and useful Entertainment to the Travellers, putting them in mind of the Virtues and glorious Actions of the Persons buried: of which, I think, my Lord *Verulam* has somewhere spoken. However, there was certainly no Permission for any to be buried within the *Walls* of *Rome*, almost from the very Foundation of it; for so was the *Sanction*, *Tab.* XII. IN URBE NE SEPELITO NEVE URITO, *Neither to bury or burn the Dead in the City*. And when long after they began to violate that Law, *Antoninus Pius*, and the *Emperor* succeeding, did again prohibit it. All we meet of antient to the contrary, is of *Cestius* the *Epulus Tomb*, which is a thick clumsy *Pyramid* yet standing, *nec in Urbe, nec in Orbe*, as it were, but half in, and half without the *Wall*. If then it were counted a thing so prophane to bury in the *Cities*, much less would they have permitted it in their *Temples*: Nor was it in use among *Christians*, who in the *Primitive* Ages had no particular *Cemetery*; but when (not long after) it was indulg'd, it was to *Martyrs* only *ad Limina*, and in the *Porches*, even to the *Deposita* of the *Apostles* themselves. *Princes* indeed, and other illustrious Persons, *Founders* of *Churches*, &c. had sometimes their *Dormitories* near the *Basilica* and *Cathedrals*, a little before St. *Augustin's* Time; as appears by his Book *de cura pro Mortuis*, and the Concession not easily obtain'd. *Constantine* (Son to the Great *Constantine* himself) did not without Leave, *inhume* his *Royal Father* in the *Church-Porch* of that *august Fabrick*, though built by that famous *Emperor*; and yet after this, other great Persons placed their *Sepulchres* no nearer than towards the *Church-Walls*; whilst in the *Body* of the *Church*, they presum'd no farther for a long time

* See that Passage of the famous Civilian Baldwin, *ad leg.* *Tab.* xii.

Chrys. Hom. xxvi. *Epist.* *ad Corinth.*

after; as may be proved from the *Capitula* of *Charle-Magni*; nor hardly in the *City*, till the time of *Gregory the Great*; and when con-
niv'd at, it was complain'd of: And we find it forbidden (as to *Churches*) by the *Emperors*, *Gratian*, *Valentinian* and *Theodosius*; and so in the *Code*, where the *Sanction* runs thus, *Nemo Apostolorum vel Martyrum sedem humanis Corporibus existimet esse + Concessam*, &c. And now after all this, would it not raise our Indignation, to suffer so many *Extortioners*, *Luxurious*, *Profane*, and very mean Persons, without Merit, not only affecting, but permitted to lay their *Carcasses*, not in the *Nave* and *Body* of the *Church* only, but in the very *Chancel*, next the *Communion-Table*; ripping up the *Pavements*, and removing the *Seats*, &c. for some little Gratification of those who should have more respect to *Decency* at least, if for no other.

† Grotzer. l. 2.
de Fun. Chrif.
c. 8. Onuphr.
de Ritu Sepul.

The *Fields*, the *Mountains*, the *High-way-fides*, and *Gardens*, were thought enough honourable for those *Funeral* Purposes: *Abraham* and the *Patriarchs* (as we have shew'd) had their *Caves* and *Crypta* in the *Fields*, set about with *Trees*: The *Kings* of *Judah*, their *Sepulchres* in their *Palaces*, not the *Sanctuary* and *Temple*: And our most *Blessed Saviour's* was in a *Garden*; which indeed seems to me to be the most proper and eligible, as we have already shew'd; nor even to this day, do the *Greeks* and *Eastern Christians* bury in *Churches*, as is well known. A remarkable Instance of this, we have of a worthy Person of our own Country; Mr. *Burton*, Great Grandfather of the learned *Author* who writ the *Commentary* on *Antoninus's Itinerary*; which for its *laudable singularity*, I present my Reader the Description of: *In agro Salopiensi Lagnora ad sabrinam, Fl. ad Piscinas in Horto Juxta Aedes Patruelis mei Francisci Burtoni Proavi mei Epitaphium*, with the following elegant Title, 1558.

*Quod scelus? Aut Christi nomen temerare quod ausus,
Hinc vetitum sacro condere membra solo?*

*Dij melius; sincera fides, nec tramite veri
Devia, causa; illo tempore grande nefas.*

Urbibus insultat nostris, dum turbida ROMA;

Rasque gens sacris dat sua jura locis:

Nec sacri ritus, nec honores funeris; intra

Moenia Christicolis, heu male sancta! Pij:

At referens Dominum inculpta munera vitæ,

Ad Domini Exemplar funera nactus erat

Ille ut odorifero tumulatus marmore in Horto:

Ossa etiam redolens hortus & hujus habet.

Hic ubi & expectat, Felix! sonantia verba;

Ergo age! Mercedem jam; Bone serve, Cape.

Thus with the incomparable *Sannazarius*; *Non mihi fornicibus Pariis. Sculptures* and *Titles* preferable to the proudest *Mausoleums* I should chuse.

The late elegant and accomplished Sir *W. Temple*, tho' he laid not his whole *Body* in his *Garden*, deposited the better Part of it (his *Heart*) there; and if my *Executors* will gratify me in what I have desir'd, I wish my *Corps* may be *Interr'd* as I have bespoke them: Not at all out of *Singularity*, or for want of a *Dormitory*, (of which there is an ample one annex'd to the *Parish-Church*) but for other Reasons, not here necessary to trouble the Reader with; what I

BOOK IV. have said in general, being sufficient: However, let them order it as they think fit, so it be not in the *Church* or *Chancel*.

Plato (as we noted) permitted *Trees* to be planted over *Sepulchres*, to *Obumbrate* the departed: But with better reason; with *Flowers* and *redolent* Plants, Emblems of the Life of Man, compar'd in *Holy Scripture* to those fading Beauties, whose *Roots* being buried in *Dis honour*, rise again in *Glory*; and of such *Hortulan* Instances, *Greuter* gives us this *Inscription*,

*Hi horti ita uti optimi maximique sunt,
Cineribus serviant meis.
Hanc Curatores substitutam,
Qui Vesenatus
Ex horum Hortorum Reditu
Natali meo.
Et praeleant Rosam in perpetuum.*

This sweet Flower, born on a Branch full set with *Thorns*, and accompany'd with the *Lilly*, natural *Hieroglyphicks* of our *Fugitive*, *Umbratile*, anxious and transitory Life, making so fair a shew for a Time, is not without its *Thorn* and *Crosses*: These they therefore planted on their *Turfy Hillocks*; like what is yet extant in *Propylion D. Ambrosii a Porto Vercelli*.

There is a
white Amara-
cus, ὁ λευκός
ἰσχυρὸς ἰσχυρὸς
cus, used in
Funerals.
V. Theoph.
de Plant.
Athenæus,
l. 15. c. 7.

PETRONIO JUCN VI. VIR.
SENI
PETRONIA MIRA L. F.
PATRONO QUÆ H. S.
CCCC LES POSSORIB
VICIBERDOMAS IN HERM.
TUENDO, ET ROSA QUOTANNIS.
ORNANDUM.

Of these and the like Antiquity, we could multiply Instances, the Custom not yet altogether extinct in my own native County of *Surrey*, and near my Dwelling, where the *Maidens* yearly plant and deck the *Graves* of their defunct *Sweet-hearts* with *Rose-bushes*; of which I have given account in the learned Mr. *Gibson's* Edition of *Camden*; and for the rest, see Mr. *Sumner* of *Garden-Burial*, and the learned Dr. *Cave's* *Primitive Christianity*.

And now let not what I have said concerning the pious Dr. *Hammond's* *Paraphrase* in the *Text*, of *Hortulan Burial*, be thought foreign to my Subject; since it takes in the Custom of it in the *Groves*, and shady and solemn Places, as I have already shew'd: And thus the *Tew-Trees* at present growing, and planted in our Country *Church-Yards*, *Cypress*, and other *Perennial* Greens, Emblems of *Immortality*, and a flourishing State to come, were not less proper to shade our natural Bed, (would our *Climate* suffer it) growing so like a *Shrowd*, as does that *Sepulchral* Tree.

To return then to that of *Groves*, and for *Diversion* let us add a short Recital of the most famous *Groves* which we find celebrated in *Histories*; since those, besides many already mention'd, were such, as being consecrated both to *Gods* and *Men*, bore their Names. Amongst these are reckoned the sacred to *Minerva*, *Isis*, *Latona*, *Cybele*, *Osiris*, *Æsculapius*, *Diana*, and especially the *Aricinian*, in

which

which there was a goodly *Temple* erected, placed in the midst of an *Island*, with a vast *Lake* about it, a *Mount*, and a *Grotto* adorn'd with *Statues*, and irrigated with plentiful *Streams*: And this was that renowned *Recess* of *Numa*, where he so frequently conversed with his *Ageria*, as did *Minos* in the *Cave* of *Jupiter*; and by whose pretended *Inspirations* they gain'd the deceived *People*, and made them receive what *Laws* they pleas'd to impose upon them. To these we may join the *Groves* of *Vulcan*, *Venus*, and the little Youth *Cupid*; * *Mars*, *Bellona*, *Bacchus*, *Silvanus*, the *Muses*, and that near *Helicon* from the same *Numa*, their great *Patron*; and hence had they their Name *Camænæ*. In this was the noble *Statue* of *Eupheme*, Nurse to those *Poetical Ladies*; but so the *Feranian*, and even *Mons Parnassus*, were thick shaded with *Trees*. Nor may we omit the more impure *Lupercal Groves*, sacred, or prophan'd rather, yet most famous for their affording Shelter and Foster to *Romulus*, and his Brother *Remus*.

* *Mars Silvanus* in ancient *Inscriptions*.
Vide *Catronem* de R. R. c. xxxiii.

That of *Vulcan* was usually guarded by *Dogs*, like the Town of *St. Malo's* in *Bretagne*: The *Pinea Silva* appertain'd to the *Mother* of the *Gods*, as we find in *Virgil*. *Venus* had several *Groves* in *Agypt*, and in the *Indian Island*, where once stood those famous *Statues* cut by *Praxiteles*; another in *Pontus*, where (if you'll believe it) hung up the *Golden-Fleece* Meed of the bold *Adventurer*. Nor was the Watry-King *Neptune* without his *Groves*, the *Helicean* in *Greece* was his: So *Ceres*, and *Proserpine*, *Pluto*, *Vesta*, *Castor*, and *Pollux*, had such shady *Places* consecrated to them; add to these the *Lebadian*, *Arsinoan*, *Paphian*, *Senonian*, and such as were in general dedicated to all the *Gods*, for

a ——— *Gods have dwelt in Groves.*

And these were as it were *Pantheons*. To the Memory of famous *Men* and *Heroes* were consecrated the *Achilleian*, *Aglauran*, and those to *Bellerophon*, *Hector*, *Alexander*, and to others, who disdained not to derive their Names from *Trees* and *Forests*; as *Silvius* the *Posthumus* of *Aeneas*; divers of the *Albanian Princes*, and great Persons; *Stolon*, *Laura*, *Daphnis*, &c. And a certain Custom there was for the *Parents* to plant a *Tree* at the Birth of an *Heir* or *Son*, presaging by the growth and thriving of the *Tree* the prosperity of the *Child*: Thus we read in the *Life* of *Virgil*, and how far his *Natalitial Poplar* had out-stripp'd the rest of its *Contemporaries*. And the Reason doubtless of all this was, the general Repute of the Sanctity of those *Places*; for no sooner does the *Poet* speak of a *Grove*, but immediately some *Consecration* follows, as believing that out of those shady *Profoundities*, some *Deity* must needs emerge.

Quo possis viso dicere Numen inest.

So as *Tacitus* (speaking of the *Germans*) says, *Lucos, & Nemora consecrant, Deorumque nominibus appellant secretum illud, quod solâ reverentiâ vident*: To the same, *Pliny*, l. 12. c. 1. *Arbores fuere Numinum templa, &c.* in which (says he) they did not so much

a ——— *Habitarunt Di quoque Silvas.*

BOOK IV. *revere the Golden and Ivory Statues, as the goodly Trees and awful Silence: And the Consecration of these Nemorous Places we find in Quintus Curtius, and in what Paulus Diaconus relates of the Longobards, where the Rites are express, allur'd as 'tis likely by the Gloominess of the Shade, Procerity and Altitude of the Stem, Floridness of the Leaves, and other Accidents, not capable of philosophizing on the physical Causes, which they deem'd supernatural, and plainly divine; so as to use the Words of Prudentius,*

*a Here all Religion paid; whose dark Recess
A sacred Awe does on their Mind impress,
To their wild Gods——*

And this *Deification* of their *Trees*, and amongst other things, for their *Age* and perennial *Viridity*, says *Diodorus*, might spring from the manifold *Use* which they afforded, and haply had been taught them by the *Gods*, or rather by some *God-like* Persons, whom for their *Worth*, and the publick *Benefit*, they esteem'd so; and that divers of them were voic'd to have been *metamorphoz'd* from *Men* into *Trees*, and again out of *Trees* into *Men*, as the *Arcadians* gloried in their *Birth*, when

b Out of the teeming Bark of Oaks Men burst:

Which perhaps they fancied, by seeing Men creep sometimes out of their Cavities, in which they often lodg'd and secur'd themselves:

*c For in the Earth's Non-age under Heaven's new Frame,
They stricter liv'd, who from Oaks Rupture came.*

STAPYLTON.

Or as the sweet *Papinius* again:

*d Fame goes, that ye brake forth from the hard Rind.
When the new Earth with the first Feet was sign'd:
Fields yet nor Houses doleful Pangs reliev'd,
But shady Ash the numerous Births receiv'd,
And the green Babe dropp'd from the pregnant Elm,
Whom strange Amazement first did overwhelm
At Break of Day, and when the gloomy Night
Ravish'd the Sun from their pursuing Sight,
Gave it for lost——*

Almost like that which *Rinaldo* saw in the enchanted *Forest*.

*e An aged Oak beside him cleft and rent,
And from his fertile hollow Womb forth went*

*a Quos penes omne sacrum est, quicquid formido tremendum
Suaferit horricos, quos prodigialia cogunt
Monstra Deos——* L. 2. Cont. Sym.

b Gensque virum, truncis, & rupto robore nati.

c Quippe aliter tunc orbe novo caeloque recenti

Vivebant homines, qui rupto robore nati, &c. JUVEN. L. 2. S. 6.

d Nemorum vos stirpe rigenti

——Fama fatos, cum prima pedum vestigia tellus

Admirata tulit, nondum arva, domusque ferebant,

Cruda puerperia, ac populos umbrosa creavit

Fraxinus, & facta viridis puer excidit Orno:

Hi lucis stupuisse vices, noctisque feruntur,

Nubila, & occiduum longe Titana secuti

Desperasse diem——

e Quercia gli appar, che perse stessa incisa

Appe seconda il cavo ventre, e figlia;

En' esce fuor vestita in strana guisa

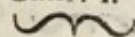
Ninfa d'età cresciuta——

CANTO 18.

(Clad

(Clad in rare Weeds, and strange Habiliment)
A full-grown Nymph——

CHAP. I.



And that every great *Tree* included a certain tutelar *Genius* or *Nymph* living and dying with it, the *Poets* are full; a special Instance we have in that prodigious *Oak* which fell by the fatal Stroke of *Erisichthon*; but the *Hamadryads* it seems were immortal, and had power to remove, and change their wooden *Habitations*.

In the mean while, as to those *Nymphs* (grieving to be dispossest of their antient *Habitations*) the *Fall* of a very aged *Oak*, giving a Crack like *Thunder*, has been often heard at many Miles Distance: Nor do I at any time hear the *Groans* without some Emotion and Pity; constrain'd (as I too often am) to *fell* them with much Reluctancy. Now that many such Disasters have happened to the *Owners* of the Places where goodly *Trees* have been *fell'd*; I cannot forget *one*, who giving the first stroke of the *Axe* with his own Hand, (and doubtless pursuing it with more) kill'd his own *Father* by the *Fall* of the *Tree*, not without giving the uncautious *Knight* (for so he was) sufficient warning to avoid it. And here I must not pass by the *Groaning-Board* which they kept for a while in *Southwark*, drawing abundance of People to see the Wonder; such another *Plant* being formerly, it seems, exposed as a Miracle at *Caumont* near *Toulouse* in *France*, and as it sometimes happens in *Woods* and *Forests*, thro' the Inclusion of the *Air* within the Cavities of the *Timber*; and perhaps gave heretofore occasion of the fabulous *Dodonian Oracle*: But however it were, methinks I still hear, and am sure feel the dismal *Groans* (happening on the 26th of *Novemb.* 1703.) of our *Forests*, so many thousand of goodly *Oaks* subverted by that late dreadful *Hurricane*; prostrating the *Trees*, and crushing all that grew under them, lying in ghastly Postures, like whole *Regiments* fallen in *Battel* by the Sword of the *Conqueror*. Such was the Prospect of many Miles in several Places, resembling that of *Mount Taurus*, so naturally describ'd by the *Poet*, speaking of the *Fall* of the *Minotaurs* slain by *Theseus*.

—— *Illa procul radicitus Exturbata,
Prona Cadit, late quacumvis obvia frangens.*

The Losses and dreadful Stories of this Ruin were indeed great, but how much greater the universal Devastation through the Kingdom! The publick Account tells us, besides innumerable Men, reckoning no less than 3000 brave *Oaks* in one Part only of the *Forest* of *Dean* blown down; and in *New-Forest* in *Hampshire* about 4000; and in about 450 *Parks* and *Groves*, from 200 large *Trees* to 1000 of excellent *Timber*, without counting *Fruit* and *Orchard Trees* sans number; and proportionably the same through all the considerable *Woods* of the Nation; with those stately *Groves*, *Avenues* and *Vista's* which the *Author* names, especially *one Tree* of near eighty Foot high, of clear *Timber* 600, all subverted within the Compass of five *Acres*.

Sir Edward Harly had One thousand three hundred blown down; myself above 2000; several of which torn up by their *Fall*, rais'd Mounds of Earth near 20 foot high, with great *Stones* intangled among the *Roots* and *Rubbish*; and this within almost sight of my *Dwelling*, (now no longer * *Wotton*) sufficient to mortify and change my too * *Wood-Town* great Affection and Application to this *Work*; which, as I contentedly

BOOK IV. submit to, so I thank God for what are yet left standing: *Nepotibus Umbram.*

Lactantius reports of a People who worshipped the *Wind*, as some at this day among the *Indians* do the *Devil*, that he may do them no harm.

What this *Prince* of the Air did to *Job* and his Religious Family, for the Tryal of his *Patience*, by God's permission, the *Scripture* tells us: And for what Cause he still suffers that *malicious Spirit* to exert his Fury in these Lower Regions, the same God only knows; though certainly for our *Chastisement*; and therefore *Reformation*, *Submission* and *Patience* will become our best Security.

Scaliger the Father affirms, He could never convince his learned Antagonist *Erasmus*, but that Trees felt the first stroke of the *Axe*, and discovers a certain *Resentment*: And indeed it seems to hold the Edge of the fatal *Tool*, till a wider Gap be made: And so exceedingly apprehensive they are of their Destruction, that as *Zoroaster* says, If a Man come with a sharp *Bill*, intending to fell a *Barren Tree*, and a Friend importunately deprecate the angry Person, and prevail with him to spare it, the Tree will infallibly bear plentifully the next Year: Such is the superstitious Sanctity and Folly of some credulous People.

But we were speaking of *Metamorphoses* of one *Species* into another; as it is said of a *Platan* into an *Olive-Tree*, when *Xerxes* came to *Laodicea*: And *Lycosthenes* talks of a *Sambucus* that bore *Grapes*, which I believe he mistook for *Elder-Berries*.

Pliny mentions a Timber-Tree, that being felled, they found it full of *Stones*, the solid Wood grown over it: As it happened in *Germany*: Others (as above noted) that had *Armour*, *Shields*, and *Weapons* invested with the Timber of an *Old Oak*, which might have, when younger, been hung about it for *Trophies*: But such another was found in *Germany*, that had the *Statue* of the *B. Virgin* in the very Centre of an aged *Oak* of eight foot diameter, as *John Burgosius* affirms, and that the Place where the Tree stood was turned into a *Chapel* near *Dinand ad Mosum*, famous for *Miracles*: See his Book *de parturido B. M. Virg.*

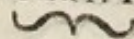
15. We might here indeed produce the wonderful strange *Apparitions* of *Spirits* interceding for the standing and life of Trees, when the *Axe* has been ready for Execution; as you may see in that *Hymn* of *Callimachus*, *Pausanias*, and the famous Story of *Paræbius* related by *Apollonius* in 2 *Argonaut.* with the fearful *Catastrophe* of such as causelessly and wantonly violated those goodly Plantations (from which *Fables* arose that of the *Dodonean* and *Vocal Forests*, frequent in *Heathen Writers*) but by none so elegantly as the witty *Ovid*, describing the Fact of the wicked *Erisichthon*.

In Phœæ & Arcad.

* ——— Who Gods despis'd,
Nor ever on their Altars sacrific'd:
Who Ceres Groves with Steel prophan'd; Where stood
An old huge Oak; even of it self a Wood.
Wreaths, Ribbons, grateful Tables deckt his Boughs

* ——— Qui numina divum
Sperneret, & nullos aris adoleret honores, &c.

And



And sacred Stem, the Dues of powerful Vows.
 Full oft the Dryades, with Chaplets crown'd,
 Danc'd in the shade, full oft they tript around
 About his Bole. Five Cubits three times told
 His ample Circuit hardly could infold.
 Whose stature other Trees as far exceeds,
 As other Trees surmount the humble Weeds.
 Yet this his Fury rather did provoke:
 Who bids his Servants fell the sacred Oak.
 And snatches, while they paus'd, an Axe from one;
 Thus storming: Not the Goddess lov'd alone;
 But, though this were the Goddess, she should down,
 And sweep the Earth with her aspiring Crown.
 As he advanc'd his Arms to strike, the Oak
 Both sigh'd and trembl'd at the threatening stroke:
 His Leaves and Acorns pale together grew,
 And colour-changing Branches sweat cold Dew:
 Then wounded by his impious hand, the Blood
 Gush'd from the Incision in a purple Flood:
 Much like a mighty Oxe, that falls before
 The sacred Altar, spouting streams of Gore.
 On all Amazement seiz'd: When one of all
 The Crime deters, nor would his Axe let fall.
 Contracting his stern Brows; Receive, said he,
 Thy Pieties Reward; and from the Tree
 The stroke converting, lops his Head; then strake
 The Oak again; from whence a Voice thus spake:
 A Nymph am I, within this Tree inshrin'd,
 Belov'd of Ceres. O prophane of Mind,
 Vengeance is near thee: With my parting Breath,
 I prophecy, a comfort to my Death.
 He still his Guilt pursues; who over-throws
 With Cables, and innumerable Blows,
 The sturdy Oak; which nodding long, down rush'd,
 And in his lofty Fall his Fellows crush'd.

SANDYS.

But a sad *Revenge* follows it, as the *Poet* will tell you: And one might fill a just Volume with the Histories of *Groves* that were violated by wicked Men, who came to fatal periods; especially those upon which the *Miffelto* grew, than which nothing was reputed more sacred,

^a To *Miffelto* the Druids us'd to sing.

For among such Oaks they usually dwelt,

————*Nemora alta remotis*
Incolitis Lucis———

LUCAN.

with whose Leaves they adorn'd and celebrated their Religious Rites. The *Druids*, says *Pliny*, lib. xvi. c. 4. (for so they call their *Divines*)

^a Ad viscum Druidæ, Druidæ cantare solebant.

Book IV. esteem nothing more venerable than *Misselto*, and the *Oak* upon which it grows, &c. Indeed they did nothing of Importance, without some Leaves or Branches of this Tree, and its very *Excrecence*, as sent from Heaven; and with a solemn *Sacrifice* of two *White-Bulls*; the *Misselto* not to be gather'd, but cut by the *Priest* with a *Golden Axe*, praying for a *Blessing* on this Divine Gift, &c. But of this Consult (besides the *Author*) *Mela*, *Laëtantius*, *Eusebius de præparat. Evangel.* and the *Aulularia* of *Pseudo-Plautus*, *Camden* and others; whilst as to that *Excrecence*, I am told of the Disasters which happened to the two Men who (not long since) fell'd a goodly Tree, call'd the *Vicar's Oak*, standing at *Nor-Wood* (nor far from *Croydon*) partly belonging to the *Archbishop*, and was *Limit* to four Parishes which met in a point; on this *Oak* grew an extraordinary Branch of *Misselto*, which in the time of the sacrilegious *Usurpers* they were wont to cut and sell to an *Apothecary* of *London*; and though warn'd of the *Misfortunes* observed to befall those who injured this *Plant*, proceeding not only to cut it quite off, without leaving a *Sprig* remaining, but to demolish and fell the *Oak* it self also: The first soon after lost his *Eye*, and the other brake his *Leg*; as if the *Hamadryads* had revenged the Indignity.

It is reported that the *Minturensian Grove* was esteem'd so venerable, that a Stranger might not be admitted into it; and the great *Xerxes* himself, when he pass'd through *Achaia*, would not touch a *Grove* which was dedicated to *Jupiter*, commanding his Army to do it no Violence; and the Honours he did to one single (but a goodly) *Platanus*, we have already mentioned. The like to this we find when the *Persians* were put to flight by *Pausanias*; though they might have sav'd their Lives by it, as appears in the Story. The same Reverence made that *Hercules* would not so much as taste the *Waters* of the *Ægerian Groves*, after he slew *Cacus*, though extreamly thirsty.

— The Priestess said,
(A Purple Fillet binding her Grey Head),
Stranger, pry not, but quit this shady Seat:
Avant, and whiles thou safely may'st, retreat,
To Men forbid, and by hard Sanction bound:
Far better other Springs were by thee found.

Nor indeed in such Places was it lawful to *Hunt*, unless it were to kill for *Sacrifice*, as we read in *Arrianus*; whence 'tis reported by *Strabo*, that in the *Ætolian Groves* sacred to *Diana*, the *Beasts* were so tame, that the very *Wolves* and *Stags* fed together like *Lambs*, and would follow a man licking his Hands, and fawning on him. Such a *Grove* was the *Crotonian*, in which *Livy* writes, there was a spacious Field like *St. James's Park*, stored with all sorts of *Game*. There were many *Forests* consecrated to *Jupiter*, *Juno*, and *Apollo*; especially the famous *Epidaphne*, near the *Syrian Antioch*, which was most incomparably pleasant, and adorn'd with *Fountains* and

o Puniceo canas flamine vineta comas,
Parce oculis hospes, Lucoque abscede verendo,
Cede agedum, & rura limina linque fuga,
Interdicta viris, metuenda lege piatur,
Di tibi dent alios fontes

rare *Statues*. * There was to be seen the *Laurel* which had been his chaste *Mistress*, and in the Centre of it his *Temple*, an *Asylum*: Here it was *Cosroes* and *Julian* did sacrifice upon several Occasions, as *Eusebius* relates, but could not with all their impious *Arts* obtain an *Answer*; because the holy *Babylas* had been interr'd near that *Oracle*; for which it was reputed so venerable, that there remained an express *Title* in the *Code*, *de Cupressis ex Luco Daphnes non excidendis, vel venundandis*, that none should either *fell*, or *sell* any of the Trees about it; which may serve for another Instance of their *burying* in such Places. The truth is, so exceedingly *superstitious* they were, and tender, that there was almost no meddling with these devoted Trees; and even before they did but *conlucre* and prune one of them, they were first to sacrifice, lest they might offend in something ignorantly: But to *cut down* was *Capital*, and never to be done away with any *Offering* whatsoever; and therefore *Conlucre* in *Authors*, is not (as some pretend) *succidere*, but to *prune* the Branches only; and yet even this gentle tonsure of Superfluities was reputed a kind of Contamination; and hence *Lucus coinquinari dicitur*, unless in the Case of *Lightning*, when *Cælo tacti*, a whole Tree might quite be felled, as marked by *Heaven* for the Fire: But of this sufficient. We could indeed fill many Sheets with the *Catastrophe* of such as maliciously destroy'd *Groves*, to feed either their Revenge or Avarice: See *Plutarch* in *Pericles*, and the Saying of *Pompeius*: *Cicero* sharply reproves *C. Gabinius* for his prodigious spoil in *Greece*; and it was of late Days held a piece of *Inhumanity* in *Charles* the *French* King, when he entered the *Frisons* after he had slain their Leader, to cut down their *Woods*; a Punishment never inflicted by sober Princes, but to prevent *Idolatry* in the old *Law*, and to shew the heinousness of Disloyalty and Treason by latter *Sanctions*; in which Case, and for *Terror*, even a *Traytor's Woods* have become *Anathema*, as were easy to instance out of *Histories*.

16. But what shall we say then of our late prodigious *Spoilers*, whose furious Devastation of so many goodly *Woods* and *Forests*, have bequeath'd an *Infamy* on their *Names* and *Memories*, not quickly to be forgotten! I mean our unhappy *Usurpers*, and injurious *Sequestrators*; not here to mention the deplorable Necessities of a gallant and loyal *Gentry*, who for their *Compositions* were (many of them) compelled to add yet to this *Waste*, by an inhuman and unparallel'd *Tyranny* over them, to preserve the poor remainder of their *Fortunes*, and to find them *Bread*.

Nor was it here they desisted, when, after the Fate of that once beautiful *Grove* under *Greenwich-Castle*, (of late supply'd by his present *Majesty*) the Royal *Walk* of *Elms* in *St. James's Park*,

That living Gallery of aged Trees,

was once propos'd to the late *Council of State* (as they called it) to be cut down and sold, that with the rest of his Majesty's Houses already demolished, and marked out for Destruction, his Trees might likewise undergo the same Destiny, and no Footsteps of *Monarchy* remain unviolated.

17. It is from hence you may calculate what were the *Designs* of those excellent *Reformers*, and the Care these great *Statesmen*

BOOK IV. took for the Preservation of their *Country*, when being *Parties* in the *Booty* themselves, they gave way to so dishonourable and impolitick a *Waste* of that *Material*, which being left entire, or husbanded with Discretion, had proved the best Support and Defence of it. But this (say they) was the effect of *War*, and in the height of our *Contentions*. No, it was a *late* and *cold deliberation*, and long after all had been subdued to them; nor could the most implacable of *Enemies* have express'd a Resolution more barbarous.

For, as our own incomparable *Poet* describes it,

— 'Twas not enough alone to take the Spoils
Of God's, and the King's Houses; these unjust
And impious Men destroy the stately Piles:
Of every Ruin there's a wicked Lust.

In every Place the groaning Carts are fill'd
With Beams and Stones; so busy and so loud
Are the proud Victors, as they meant to build:
But they to Ruin and Destruction crowd.

Timber, which had been buried many Tears
Under such Royal Towers, they invade:
'Tis sure that Hand the Living never spares,
Which is so wicked to disturb the Dead.

Then all the Woods the barbarous Victors seize,
(The noble Nursery of the Fleet and Town,
The hopes of War, and Ornaments of Peace)
Which once Religion did as sacred own.

Now publick Use, and great Convenience claims,
The Woods from private Hands inviolate;
Which greedy Men to less devouring Flames,
Do for sweet Lucre freely dedicate.

No Age they spare, the tender Elm and Beech,
Infants of thirty Years they overthrow;
Nor could old Age it self their Pity reach,
No Reverence to hoary Barks they know?

The unhappy Birds, an ever-singing Choir,
Are driven from their ancient shady Seats,
And a new Grief does Philomel inspire
With mournful Notes, which she all Night repeats.

Let them the Woods and Forest burn and waste,
There will be Trees to hang the Slaves at last:
And God, who such infernal Men disclaims,
Will root 'em out, and throw 'em into Flames.

In which he has shew'd himself as well a *Prophet* as a *Poet*.

We have spoken of the great *Xerxes*, that passing Conqueror through *Achaia*, he would not suffer his *Army* to violate so much as a Tree of his Adversaries; and have sufficiently observed from the Ancients, that the * *Gods* did never permit them to escape unpunish'd, who were injurious to Groves. What became of *Agamemnon's* Host after his Spoil

*Though cut
down for
building of
Ships.

of the *Woods* at *Aulis*? Histories tell us *Cleomenes* died mad: The *Temesean Genius* became proverbial; and the destructive Fact that the enrag'd *Cæsar* perpetrated on the *Massilian Trees*, went not long unre-
CHAP. I.
Lucum Es-
calapio dica-
tum succiderat
Turullius,
manifestis Nu-
minis illius

have hitherto produc'd, to assert their Veneration.
vivibus, eum in Lucum quem violaverat, ille attractus est, effecitque Deus ut ibi potissimum occideretur. Vide Valer. Max.
Lib. i. cap. 1. n. 19.

Lucus erat longo nunquam violatus ab ævo, &c.

LUCAN. l. 3.

*A Wood untouch'd of old was growing there
 Of thick-set Trees, whose Boughs spreading and fair,
 Meeting, obscured the inclosed Air,
 And made dark Shades, exiling Phœbus Rays:
 There no rude Fawn, nor wanton Silvan plays;
 No Nymph disports, but cruel Deities
 Claim barbarous Rites, and bloody Sacrifice:
 Each Tree defil'd with Human Blood; if we
 Believe Traditions of Antiquity:
 No Bird dares light upon those hallowed Boughs,
 No Beasts make there their Dens; no Wind there blows;
 No Lightning falls: A sad religious Awe,
 The quiet Trees unstirr'd by Wind do draw.
 Black Water Currents from dark Fountains flow:
 The Gods unpolish'd Images do know
 No Art, but plain and formless Trunks they are.
 Their Moss and Mouldiness procures a fear:
 The common Figures of known Deities
 Are not so fear'd: Not knowing what God 'tis,
 Makes him more awful: By relation
 The shaken Earth's dark Caverns oft did groan:
 Fallen Yew-trees oft of themselves would rise:
 With seeming Fire oft flam'd th' unburned Trees:
 And winding Dragons the cold Oaks embrace:
 None give near Worship to that baleful Place;
 The People leave it to the Gods alone.
 When black Night reigns, or Phœbus guilds the Noon,
 The Priest himself trembles, afraid to spy
 In th' awful Woods its Guardian Deity.*

But now *Erisichthon*-like, and like him in Punishment; for his was Hunger, *Cæsar's* Thirst, and Thirst of Human Blood, reveng'd soon after in his Own.

*The Woods he bids them fell, not standing far
 From all their Work: Untouch'd in former War,
 Among the other bared Hills it stands
 Of a thick growth; the Soldiers valiant hands
 Trembled to strike, mov'd with the Majesty,
 And think the Axe from off the sacred Tree
 Rebounding back, would their own Bodies wound:
 Th' amazement of his Men when Cæsar found,
 In his bold Hand himself an Hatchet took,
 And first of all assaults a lofty Oak;*

And

And having wounded the religious Tree,
 Let no Man fear to fell this Wood (quoth he)
 The Guilt of this Offence let Cæsar bear, &c.

MAY.

and so he did soon after, carrying ('tis thought) the *Maledictions* of the incensed *Gauls* to his Funeral Pile,

^a ——— For who,
 The Gods thus injur'd, unreveng'd does go?

18. But lest this be charged with *Superstition*, because the *Instances* are *Heathen*; it was a more noble and remarkable, as well as recent *Example*, when at the Siege of *Breda*, the late famous General *Spinola* commanded his *Army* not to violate a Tree of a certain *Wood* belonging to the Prince of *Orange* there, tho' a reputed *Traytor*, and in open defiance with his Master. In sum, we read, that when *Mithridates* but deliberated about the cutting down of some stately Trees which grew near *Patara*, a City of *Lycia*, tho' necessitated to it for the building of Warlike Engines with them, being terrified in a Vision, he desisted from his purpose. It were to be wished these, or the like Examples, might have wrought some effects upon the sacrilegious *Purchasers*, and disloyal *Invaders* in this Iron-Age amongst us, who have lately made so prodigious a Spoil of those goodly *Forests*, *Woods*, and *Trees* (to gratify an impious and unworthy *Avarice*) which being once the Treasure and Ornament of this *Nation*, were doubtless reserved by our more prudent *Ancestors* for the Repairs of our floating *Castles*, the *Safeguard* and *Boast* of this renowned *Island*, when *Necessity*, or some eminent Peril should threaten it, or call for their Assistance; and not to be devoured by these improvident Wretches, who, to their eternal reproach, did (with the *Royal Patrimony*) swallow likewise *God's own Inheritance*; but those *Sons* and *Grand-children* we have lived to see as hastily disgorge them again; and with it all the rest of their holy *Purchases*, which otherwise they might securely have enjoyed. But this, in *terrorem* only, and for Caution to *Posterity*, whiles we leave the *Guilty*, and those who have done the *Mischiefs*, to their proper *Scorpions*, and to their *Erisichthonian* Fate, or that of the inexorable *Paræbius*, the vengeance of the *Dryads*, and to their *Tutelar* better *Genius*, if any yet remain, who love the solid *Honour* and *Ornament* of their *Country*: For what could I say less, tho' constrain'd by necessity my self, to cut down so many goodly Trees, and venerable Woods, (devoted to the *Axe* by the *Owner*, who had right to dispose of them before me) Ὑλογενής, and * *Wood-born* as I am, in behalf of those sacred *Shades*, which both grace our *Habitations*, and protect our *Nation*? So in all Ages, from Trees have been denominated whole Countries, Regions, Cities and Towns; as *Cyparissa* in *Greece*, *Cerasus* in *Pontus*, *Laurentum* in *Italy*, *Myrrhinus* in *Attica*. Ports, Mountains and eminent Places; as the *Viminalis*, *Æsculetum*, &c. The Reason is obvious, from the spontaneous growth and abounding of such Trees in the respective Soils: And hence of old, *Avellana nux*, is called also *Prænestina*, *Ponticam*; dum unaquæque Natio indit huic

Qua tibi factum
 panas in-
 stare tuorum
 Vaticinor —

Vide Met. l. 8.
 Apollon. l. 2.
 Argonaut
 Prostermit
 quercum fune-
 stem quam sibi
 Nympha.
 Pignorisque
 suis fecit —

* At Wotton
 in Surrey.

^a ——— Quis enim læsos impune putaret
 Esse Deos —

Nuci

Nuci nomen ex loco in quo nascitur copiosior: So the *Chestnut*, called *Heracleotica*, of which see *Macrob. Saturnal. l. 3.* And *Sylvius* became great and famous Names among the *Latins* and *Romans*: *Sylvius Posthumus*, the Son of that renowned *Hero Æneus Sylvius*; and in time an *Hereditary* Name among the subsequent Kings: *Latinus Sylvius*, *Alba Sylvius*, who built that glorious *City*, which contended with *Rome* her self: And to return to our own Country, *Seven-Oaks* in *Kent* was so call'd (as reported) from some goodly *Oaks* growing about it, and giving Name also to that *Lord Mayor* (a *Foundling* of that Place) and was himself the Founder of the first *Protestant Hospital* in *England*, defeated the Insurrection of *J. Cade*, and his Complices, for which he was Knighted, as he deserved.

Old *Sarum*, or *Sorbiadunum*, had its Name à *Sorbis*.

Hence also from the plenty of *Beech-Trees* does *Mr. Camden* denominate the whole Country of *Buckingham*, *Bukenham* in *Norfolk*; *Buchonia* in *Germany*, &c. though indeed the Learned Author of the *Additions* to the late *Edition*, thinks them rather so called from the *Saxon Buc* (*Cervus*) a *Buck*, or *Hart*, and this from that in *Norfolk*, where *Sir Henry Spelman* reports there are no such *Trees* growing; whilst we yet know not whether there may not formerly have been store: In all events, be it one or the other, it is certain, abundance of Places, Countries and Families have taken their Denomination from *Trees*.

One thing more I think not impertinent to hint, before I take my leave of this *Book*, concerning the *Use* of *Standing Groves*; that in some Places of the *World*, they have no other Water to drink than what their *Trees* afford them; not only of their proper *Juice* (as we have noted) but from their attraction of the *Evening Moisture*, which impends in the shape of a *Cloud* over them: Such a *Tuft* of *Trees* is in the *Island* of *Ferro*; of which consult the Learned *Isaac Vossius* upon *Pomponius Mela*, and *Magnenus de Manna*: The same likewise happening in the *Indies*; so that if their *Woods* were once destroyed, they might perish for want of *Rains*; upon which account *Barbadoes* grows every year more *torrid*, and has not near the *Rain* it formerly enjoyed when it was better furnished with *Trees*; and so in *Jamaica* at *Guna-boa*, the *Rains* are observed to diminish, as their *Plantations* extend: The like I could tell you of some parts of *England* not far from hence.

And now lastly, to encourage those to Plant that have opportunity, and those who innocently, and with reluctancy are forced to cut down, and endeavour to supply the Waste with their utmost Industry: 'Tis observed, that such *Planters* are often blest'd with *Health* and *Old Age*, according to that of the *Prophet, Isa. lx. 22. The days of a Tree are the days of my People*: Instances of whose extraordinary *Longevity*, we have given abundance in this Discourse; and seems to be so universally remarked, that as *Paulus Venetus* (that great Traveller) reports, the *Tartarian Astrologers* affirm, nothing contributes more to *Mens Long Lives*, than the planting of many *Trees*: *Hæc scripsi Otagenarius*, and shall, if God protract my Years, and continue Health, be continually planting, till it shall please him to transplant me into those glorious Regions above, the *Celestial Paradise*, planted with *Perennial Groves* and *Trees*, bearing *Immortal Fruit*; for such is the *Tree of Life*,

BOOK IV. *Life*, which they who do his *Commandments* have *Right* to, *Apoc.* xxii. 2, 14, 20. Ναὶ ἔρχομαι ταχὺ, Ἀμὲν, ναὶ, ἔρχω Κύριε Ἰησοῦ, Ἀμὲν.

19. Thus my *Reader* sees, and I acknowledge, how easy it is to be lost in the *Woods*, and that I have hardly power to take off my *Pen* whilst I am on this delightful *Subject*: For what more *august*, more charming and useful, than the *culture* and *preservation* of such goodly Plantations,

a That shade to our Grand-children give?

and afford so sweet, and so agreeable refreshment to our Industrious *Wood-man*,

*b When he his wearied Limbs has laid
Under a florid Platan's Shade.*

or some other goodly spreading Trees, such as we told you stopt the *Legions* of a proud *Conqueror*, and that the wise *Socrates* swore by; that *Passienus Crispus* did sacrifice to, and the honours of his Gods?

20. But whilst we condemn this *Excess* in them, *Christians* and true Philosophers may be instructed to make use of these *Enjoyments* to better purposes, by contemplating the Miracles of their *Production* and *Structure*: And what *Mortal* is there so perfect an *Atomist*, who will undertake to detect the thousandth part, or point of so *exile* a *Grain*, as that insensible Rudiment, or rather *halituous spirit*, which brings forth the lofty *Fir-tree*, and the spreading *Oak*? That Trees of so *enormous* an height and magnitude, as we find some *Elms*, *Planes*, and *Cypresses*; some hard as *Iron*, and solid as *Marble* (for such the *Indies* furnish many) should be swadl'd and involv'd within so small a dimension (if a *Point* may be said to have any) without the least luxation, confusion or disorder of Parts, and in so weak and feeble a Substance; being at first but a kind of tender *mucilage*, or rather rottenness, which so easily dissolves and corrupts *Substances* so much harder, when they are buried in the moist Womb of the Earth; whilst this, tender and flexible as it is, shall be able in time to displace and rent in sunder whole *Rocks* of *Stones*, and sometimes to cleave them beyond the force of *Iron Wedges*, so as even to remove *Mountains*? For thus no *Weights* are observed able to suppress the victorious *Palm*: And thus our Tree (like *Man* whose inverted *Symbol* he is) being sown in *corruption*, rises in *glory*, by little and little ascending into an hard erect *Stem* of comely dimensions, into a solid Tower, as it were; and that which but lately a single *Ant* would easily have born to his little *Cavern*, now capable of resisting the *Fury*, and braving the *Rage* of the most impetuous Storms, *Magni mehercule artificis, clausisse totum in tam exiguo* (to use *Seneca's* Expression) *& horror est consideranti.*

Epist. 53.

For is it not plainly astonishing, how these minute *Atoms*, rather than visible *Eggs*, should contain the *Fœtus* exquisitely formed, even while yet wrap'd in their *Secondines*, like *Infants* in the *Animal* Womb, till growing too big for the dark Confinements, they break forth, and after a while more distinctly display every Limb and Member compleatly perfect, with all their Apparel, tire and trim of beautiful and flourishing Vegetables, endow'd with all the Qualities of the *Species*.

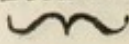
a ————— Seris factura nepotibus umbram.

b Cum post labores sub Platano cubat
Virentis umbræ —————

21. Contemplate we again, what it is which begins the Motion, and kindles the Flame of these *Automata*, causing them first to radiate in the *Earth*, and then to display their Top in the *Air*, so different *Poles*, (as I may call them) in such different *Mediums*; what it is imparts this *Elastic*, *Peristaltic* and other Motions, so very like to the *sensible* and perfectest *Animal*; how they *elect*, and then *introsume* their proper food, and give suck, as it were, to the yet tender *Infant*, till it have strength and force to prey on, and digest the more solid *Juices* of the *Earth*; for then, and not till then, do the *Roots* begin to harden: Consider how they *assimilate*, *separate* and *distribute* these several Supplies; how they *concoct*, *transmute*, *augment*, *produce* and *nourish* without separation of *Excrements* (at least to us visible) and generate their like, whilst furnished with *Tubes*, *Ovaries*, *umbilical* and other *Vessels*, the principle of any *Species*, are safely reserved and nourished till deliver'd without violation of *Virginity*: By what exquisite *percolations* and *fermentations* they proceed; for the *Heart*, *Fibres*, *Veins*, *Nerves*, *Valves* and *Anastomotas*, *Rind*, *Branches*, *Leaves*, *Blossoms*, *Fruit*; for the *Strength*, *Colour*, *Taste*, *Odour* and other stupendous *Qualities*, and distinct *Faculties*, some of them so repugnant and contrary to others; yet in so uniform and successive a *series*, and all this performed in the dark, and those secret *Recesses* of *Nature*: With what * *Analogy* the solid and inflexible *Texture* of Parts of Trees agree with the *Bones*, *Ribs*, *Vertebrae*, &c. nay, with the very *Brains* and *Marrow*, and the more *pliables*, fitted to such various Motions, have induced some to allow them place among the *Class* of *Animals*, is astonishing: To these, and for their preservation, *Nature* has invested the whole *Tribe* and *Nation* (as we may say) of *Vegetables*, with *Garments* suitable to their naked and exposed Bodies, Temper and Climate: Thus some are clad with a courser, and resist all extremes of Weather; others with more tender and delicate *Skins* and *Scarfs* as it were, and thinner Rayment. *Quid Foliorum describam diversitates?* What shall we say of the *mysterious* Forms, *Variety* and *Variegation* of the *Leaves* and *Flowers*, contrived with such Art, yet without Art; some round, others long, oval, multangular, indented, crisped, rough, smooth and polished, soft and flexible at every tremulous Blast, as if it would drop in a moment, and yet so obstinately adhering, as to be able to contest against the fiercest Winds, that prostrate mighty Structures, resisting *Hurricanes*, the violence whereof whole *Fleets* and *Countries* do often feel; yet, I say, continually making War, and sometimes joining Forces with steeming Showers, against the poor *Leaf*, tied on by a slender *Stalk*! there it abides till God bids it fall: For so the wise *Disposer* of Things has plac'd it, not only for *Ornament*, but *Use* and *Protection* both of *Body* and *Fruit*, from the excessive Heat of Summer, and Colds even of the sharpest Winters, and their immediate Impressions; as we find it in all such Places and Trees, as like the *Blessed* and *Good Man*, have always *Fruit* upon them, ripe, or preparing to mature; such as the *Pine*, *Fir*, *Arbutus*, *Orange*, and most of those which the *Indies* and more *Southern* Tracts plentifully abound in, where *Nature* provides this continual Shelter, and cloaths them with perennial Garments.

* See Scaliger
Exerc. 14. of
respondent Parts
within and
without, from
Head to Foot.

But with what amazement do we consider what may be demonstrated of the innumerable (and next to *Infinite*) number of *Seeds*, which in a young *Elm* (for Instance) it would amount, during the ordinary Age

Book IV.  Age of that *Species*; which suppose to be but One Hundred Years standing, it has in it 15480000000 Seeds, and the Tree grow and multiply, as many times, every individual *Grain* contain a *second* Tree, including the like number, and so on by *Geometrical* progression in *Squares* and *Cubes*, &c. At what a loss must the most enlarged Human Capacity be at so stupendous a Consideration!

One single Seed of *Tobacco* would produce 129600000000000, &c. and every one of these how many more, let those who have leisure compute.

22. Let us again examine with what care the Seeds, those little *Souls* of Plants, *Quorum exilitas* (as one says) *vix locum inveniat* (in which the whole and compleat Tree, though invisible to our dull Sense, is yet perfectly and entirely wrapp'd up) are preserved from *avolation*, diminution and detriment; expos'd, as they seem to be, to all those Accidents of *Weather*, *Storms*, and *Rapacious* Birds, in their spiny, arm'd and compacted *Receptacles*; where they sleep as in their *Causés*, till their Prisons let them gently fall into the Embraces of the *Earth*, now made pregnant with the *Season*, and ready for another *Burthen*: For at the time of Year she fails not to bring them forth. And with what delight have I beheld this tender and innumerable Off-spring, *repullulating* at the *Feet* of an aged Tree! from whence the *Suckers* are drawn, transplanted and educated by Human *Industry*, and forgetting the *Ferity* of their *Nature*, become *civiliz'd* to all his *Employments*.

23. Can we look on the prodigious quantity of *Liquor*, which one poor wounded *Birch* will produce in a few Hours, and not be astonish'd how some Trees should in so short a space, *weep* more than they *weigh*? And that so dry, so feeble and wretched a *Branch*, as that which bears the *Grape*, should yield a *Juice* that *cheers both God and Man*? That the *Pine*, *Fir*, *Larch*, and other *Resinous* Trees, planted in such rude and uncultivated Places, amongst *Rocks* and dry *Pumices*, should *transude* into *Turpentine*, and pearl out into *Gums*, and precious *Balms*?

In a word, so astonishing and wonderful is the *Organism*, Parts and Functions of *Plants* and *Trees*; as some have, as we said, attributed *Animal* Life to them, and that they were *living Creatures*; for so did *Anaxagoras*, *Empedocles*, and even *Plato* himself.

* Vide *Petri Mangot Botan. Monspel.* I am sure *Plants* and *Trees* afford more Matter for * *Medicine*, and the use of *Man*, than either *Animals* and *Minerals*, or any *Exotic* we have besides; are more familiar at hand, and safe; and within this late *Age* wonderfully improv'd, increased and searched into, and seems by the *Divine Wisdom*, to be an *inexhaustible* Subject for our disquisition and admiration.

24. There are Ten Thousand Considerations more, besides that of their *Medicinal* and *Sanative* Properties, and the *Mechanical Uses* mention'd in this *Treatise*, which a *Contemplative* Person may derive from the *Groves* and *Woods*; all of them the Subject of Wonder. And though he had only the *Palm*, (which † *Strabo* affirms is fit for Three Hundred and Sixty Uses;) or the *Coco*, which yields *Wine*, *Bread*, *Milk*, *Oyl*, *Sugar*, *Salt*, *Vinegar*, *Tinctures*, *Tanns*, *Spices*, *Thread*, *Needles*, *Linnen*, and *Cloth*, *Cups*, *Dishes*, *Spoons*, and other *Vessels* and *Utensils*; *Baskets*, *Mats*, *Umbrellas*, *Paper*, *Brooms*, *Ropes*, *Sails*, and almost all that belongs to the *Rigging* of *Ships*. In short, this single Tree furnishing a great Part of the World with

* Vide Mr. Dard's Hist. de l'Academ. Scient.

with all that even a *Voluptuous Man* can need, or almost desire; it were sufficient to employ his *Meditations* and his *Hands*, as long as he were to live, though his Years were as many as the most aged Oak: So as *Fr. Hernander*, *Gracilasco de la Urga*, and other * *Travellers*, * *Vide Ray H. Pl. L. xxi. c. 7.* speaking of the *Coco*, *Aloes*, *Wild-Pine* of *Jamaica*, &c. affirm there is nothing necessary for Life (*si esset rebus humanis modus*), which these *Polycrests* afford not.

What may we say then of innumerable other Trees, fitted for the Uses Nature has designed them, especially for Timber, and all other *Fabrile Employments*? But I cease to expatiate farther on these *Wonders*, that it may not anticipate the Pleasures which the serious *Contemplator* on those stupendous Works of Nature, (or rather God of Nature) will find himself even *Rapt'd* and *Transported*, were it only applied to the production of a single *Wood*.

Let the further *Curious*, or those who may take these *Wonders* for a florid *Epiphonema* only of this *Work*, add to the most Ancient *Naturalists*, what they will find improved on this ample Subject, in the late excellently Learned and Judicious *Malpighius*, *Grew*, *Ray*, *Sennertus*, *Faber*, and others who have defin'd these astonishing Operations of Nature, *Causes* and *Effects*, with the greatest and exactest accuracy imaginable. But a *Wise* and a *Thinking Man* can need none of these *Topics*; in every *Hedge*, and every *Field* they are before him; and yet we do not admire them because they are common and obvious: Thus we fall into the just *Reproach* given by one of the *Philosophers* (introduced by the *Orator*) to those who flighted what they saw every *Day*, because they every *Day* saw them: *Quasi Novitas nos magis quam magnitudo rerum, debeat ad exquirendas causas excitare*: As if *Novelty* only should be of more force to engage our Enquiry into the *Causes* of Things, than the *Worth* and *Magnitude* of the Things themselves.

Cic. de Nat. Deor. l. 2.

I conclude this *Book*, and whole Discourse, with that incomparable *Poem* of *Rapinus*, as epitomizing all we have said.

I cannot therefore but wonder, that excellent *Piece*, (so elegant, pleasant and instructive) should be no more enquired after.

RENATI RAPINI S. J. HORTORUM Lib. II. NEMUS.

*Me nemora, atque omnis nemorum pulcherrimus ordo
Et spacia, umbrandum late fundenda per hortum
Invitant, &c.*

Thus made *English* by my late Son *Evelyn*.

Long Rows of Trees and Woods my Pen invite,
With shady Walks, a Garden's chief delight:
For nothing without them is pleasant made:
They Beauty to the ruder Country add.
Ye Woods and spreading Groves afford my Muse
That Bough, with which the Sacred Poets use
To adorn their Brows; that by their Pattern led,
I with due Laurels may impale my Head.

Methinks the Oaks their willing Tops incline;
Their trembling Leaves applauding my Design;
With joyful Murmurs, and unforc'd assent,
The Woods of Gaul accord me their consent.
Citharon I, and Menalus despise,
Oft grac'd by the Arcadian Deities;
I, nor Molercus, or Dodona's Grove,
Or thee crown'd with Black Oaks, Calidno love;

Cyllene thick with *Cypress* too I fly;
To *France* alone my *Genius* I apply,
Where noble Woods in ev'ry part abound,
And pleasant Groves commend the fertile Ground.

If on thy Native Soil thou dost prepare
To erect a *Villa*, you must place it there,
Where a free Prospect do's it self extend
Into a Garden, whence the Sun may lend
His influence from the *East*; his radiant heat
Should on your House through various windows beat;
But on that side which chiefly open lies
To the North-wind, whence storms and show'rs arise,
There plant a *Wood*; for, without that defence,
Nothing resists the Northern Violence.
While with destructive Blastso're Cliffs and Hills
Rough *Boreas* moves, and all with Murmurs fills;
The Oak with shaken Boughs on Mountains rends,
The Valleys roar, and great *Olympus* bends.
Trees therefore to the Winds you must expose,
Whose Branches best their pow'rful Rage oppose.

Thus Woods defend that part of *Normandy*,
Which spreads it self upon the *British* Sea.
Where Trees do all along the Ocean side
Great Villages and Meadows too divide.

But now the Means of raising Woods I sing;
Tho' from the Parent Oak young shoots may spring,
Or may transplanted flourish, yet I know
No better means than if from Seed they grow.
Tis true this way a longer time will need,
And Oaks but slowly are produc'd by Seed;
Yet they with far the happier Shades are blest;
For those that rise from Acorns, as they best
With deep-fixt roots beneath the Earth descend;
So their large Boughs into the Air ascend.
Perhaps because, when we young Sets translate,
They lose their Virtue, and degenerate:
While Acorns better thrive, since from their birth
They have been more acquainted with the Earth.

Thus we to Woods by Acorns Being give;
But yet before the Ground your Seed receive,
To dig it first employ your Labourer;
Then level it; and if young shoots appear
Above the Ground, sprung from the cloven Bud;
If th' Earth be planted in the Spring, 'tis good
Those Woods by frequent Culture to remove,
Whose Roots would to the Blossom hurtful prove.
Nor think it labour lost to use the Plough;
By Dung and Tillage all things fertile grow.

There are more ways than one to plant a Grove,
For some do best a rude confusion love;
Some into even squares dispose their Trees,
Where ev'ry side do's equal Bounds possess:
Thus Boxen Legions with false Arms appear
At Chieft, and represent a face of War.
Which sport to *Schaccia* the *Italians* owe;
The painted Frames alternate colours show.
So should the Field in space and form agree;
And should in equal Bounds divided be.

Whether you plant young Sets, or Acorns sow,
Still Order keep; for so they best will grow.
Order to ev'ry Tree like Vigor gives,
And room for the aspiring Branches leaves.

When with the Leaf your hopes begin to bud,
Banish all wanton Cattle from the Wood.
The browsing Goat the tender Blossoms kills;
Let the swift Horse then neigh upon the Hills,
And the free Herds still in large Pastures tread;
But not upon the new-sprung Branches feed.
For whose Defence Inclosures should be made
Of Twigs, or Water into Rills convey'd.
When ripening Time has made your Trees dilate,
And the strong Roots do deeply penetrate,
All the superfluous Branches must be fell'd,
Lest the oppressed Trunk should chance to yield

Under the weight, and so its Spirits lose
In such Excrecencies. But as for those
Which from the Stock you cut, they better thrive;
As if their Ruin caus'd them to revive.
And the slow Plant, which scarce advanc'd its Head,
Into the Air its leavy Boughs will spread.

When from the fastned Root it springs again,
And can the fury of the North sustain;
On the smooth Bark the Shepherds should indite
Thir Rural Strifes, and there their Verses write.

But let no impious Axe prophane the Woods,
Or violate the sacred Shades; the Gods
Themselves inhabit there. Some have beheld
Where drops of Blood from wounded Oaks distill'd
Have seen the trembling Boughs with horror shake!
So great a Conscience did the Ancients make
To cut down Oaks, that it was held a Crime
In that obscure and superstitious Time,
For *Driopeus* Heaven did provoke,
By daring to destroy th' *Aemonian* Oak;
And with it it's included *Dryad* too:
Avenging *Ceres* here her Faith did show
To the wrong'd Nymph; while *Eriichthon* bore
Torments, as great as was his Crime before.
Therefore it well might be esteem'd no less
Than Sacrilege, when ev'ry dark recess,
The awful silence, and each gloomy shade,
Was sacred by the zealous Vulgar made.
When e're they cut down Groves, or spoil'd the Trees,
With Gifts the Ancients *Pales* did appease.

Due Honour once *Dedona's* Forest had,
When Oracles were through the Oaks convey'd.
When Woods instructed Prophets to foretell,
And the Decrees of Fate in Trees did dwell.

If the aspiring Plant large Branches bear,
And Beeches with extended Arms appear;
There near his Flocks upon the cooler Ground
The Swain may lie, and with his Pipe resound
His Loves; but let no Vice these Shades disgrace
We ought to bear a Reverence to the Place.
The Boughs, th' unbroken silence of a Wood,
The Leaves themselves demonstrate that some God
Inhabits there, whose Flames might be so just,
To burn those Groves that had been fir'd by Lust.

But through the Woods while thus the Rusticks
sport,

Whole flights of Birds will thither too resort;
Whose different Notes and Murmurs fill the Air:
Thither sad *Philomela* will repair;
Once to her Sister she complain'd, but now
She warbles forth her grief on every Bough;
Fills all with *Terens* Crimes, her own hard Fate;
And makes the melting Rocks compassionate.
Disturb not Birds which in your Trees abide,
By them the Will of Heaven is signify'd;
How oft from hollow Oaks the boading Crow,
The Winds and future Tempests do's foreshow!
Of these the wary Plowman should make use;
Hence Observations of his own deduce;
And so the changes of the Weather tell.
But from your Groves all hurtful Birds expel.

When e're you plant, through Oaks your Beech
diffuse;

The hard Male-Oak, and lofty *Cerrus* chuse.
While *Esculus* of the Mast-bearing kind,
Chief in *Ilicean* Groves we always find.
For it affords a far extending shade;
Of one of these sometimes a Wood is made.
They stand unmov'd, though Winter do's assail,
Nor more can Winds, or Rain, or Storms prevail,
To their own Race they ever are inclin'd,
And love with their Associates to be joyn'd.
When Fleets are rigg'd, and we to fight prepare,
They yield us Plank, and furnish Arms for War.

Fuel to Fire, to Plowmen Ploughs they give,
To other Uses we may them derive.
But nothing must the sacred Tree profane:
Some Boughs for Garlands from it may be ta'en
For those whose Arms their Country-men preserve,
Such are the Honours which the Oaks deserve.

We know not certainly whence first of all
This Plant did borrow its Original.
Whether on *Ladon* or on *Menalus*
It grew, if fat *Chaonia* did produce
It first. But better from our Mother-Earth,
Than Modern Rumours we may learn their birth.
When *Jupiter* the World's Foundation laid,
Great Earth-born Gyants Heaven did invade,
And *Jove* himself, (when these he did subdue,)
His Lightning on the fastidious Brethren threw.
Tellus her Sons Misfortunes do's deplore;
And while she cherishes the yet-warm Gore
Of *Rhæcus*, from his monstrous Body grows
A vaster Trunk, and from his Breast arose
A hardned Oak, his Shoulders are the same,
And Oak his high exalted Head became.
His hundred Arms which lately through the Air
Were spread, now to as many Boughs repair.
A sevenfold Bark his now stiff trunk does bind;
And where the Gyant stood, a Tree we find.
The Earth to *Jove* straight consecrates this Tree,
Appealing to his injur'd Deity;
Then 'twas that Man did the first Acorns eat,
Although the Honour of this Plant be great,
Both for its shade, and that it sacred is;
Yet when its Branches shoot into the Skies,
Let them take heed, while with his brandish'd Flame,
The Thund'rer rages, shaking Natures Frame,
Left they be blasted by his pow'rful hand,
While Tamarisks secure, and Myrtles stand.

The other parts of Woods I now must sing;
With Beech, and Oak, let Elm and Linden spring,
Nor may your Groves the Alder-tree disdain,
Or Maple of a double-colour'd grain.
The fruitful Pine, which on the Mountain stands,
And there at large its noble front expands;
Thick-shooting Hazel, with the Quick-beam set,
The Pitch-tree, Withy, Lotus ever wet;
With well made Trunk here let the Cornel grow,
And here *Orcian Terebinthus* too;
And warlike Ash: But Birch and Yew repress.
Let Pines and Firs the highest Hills possess:
Brambles and Brakes fill up each vacant space
With hurtful Thorns; in your Fields Walnuts place,
And hoary Junipers, with Chusnuts good,
With Hoops to barrel up *Lycæus* Blood.

The difference which in planting each is found,
Now learn; since th' Elm with happy Verdure's crown'd;
Since its thick Branches do themselves extend,
And a fair Bark do's the tall Trunk commend;
With rows of Elm your Garden or your Field
May be adorn'd, and the Sun's heat repell'd.
They best the borders of your Walks compose;
Their comely green still ornamental shows.
On a large Flat continued ranks may rise,
Whose length will tire our Feet, and bound our Eyes.
The Gardens thus of *Fontainebleau* are grac'd,
By spreading Elms, which on each side are plac'd.
Where endless Walks the pleas'd Spectator views,
And ev'ry turn the verdant Scene renews.

The sage *Corycian* thus his native Field,
Near swift *Oebalian Galefus* till'd.
A thousand ways of planting Elms he found;
With them he would sometimes inclose his Ground;
Oft in directer Lines to Plant he chose;
From one vast Tree a num'rous offspring rose.
Each younger Plant with its old Parent vies,
And from its Trunk like Branches still arise.

They hurt each other if too near they grow;
Therefore to all a proper space allow.

The *Thracian Bard* a pleasing Elm-tree chose;
Nor thought it was below him to repose
Beneath its shade, when he from Hell return'd,
And for twice-lost *Eurydice* so mourn'd.
Hard by cool *Hebrus Rhodop'* does aspire;
The Artist, here, no sooner touch'd his Lyre,
But from the shade the spreading Boughs drew near;
And the thick Trees a sudden Wood appear.
Holm, Withy, Cypress, Plane Trees thither prest;
The prouder Elm advanc'd before the rest;
And shewing him his Wife, the Vine, advis'd,
That Nuptial Rites were not to be despis'd.
But he the Counsel scorn'd, and by his hate
Of Wedlock, and the Sex, incur'd his Fate.

High shooting *Linden* next exacts your care;
With grateful Shades to those who take the Air.
When these you plant, you still should bear in mind
Philemon and chaste *Baucis*; These were join'd
In a poor Cottage, by their pious Love,
Whose sacred Ties did no less lasting prove,
Than Life it self. They *Jove* once entertain'd,
And by their kindness so much on him gain'd;
That, being worn by Time's devouring rage,
He chang'd to Trees their weak and useless Age.
Though now transform'd, they Male and Female are;
Nor did their change ought of their Sex impair.
Their Timber chiefly is for Turners good;
They soon shoot up, and rise into a Wood.

Respect is likewise to the Maple due,
Whose Leaves, both in their figure, and their hue,
Are like the *Linden*; but it rudely grows,
And horrid wrinkles all its Trunk inclose.

The Pine, which spreads it self in ev'ry part,
And from each side large Branches does impart,
Adds not the least perfection to your Groves;
Nothing the glory of its Leaf removes.

A noble Verdure ever it retains,
And o'er the humbler Plants it proudly reigns;
To the God's Mother dear; for *Cybele*
Turn'd her beloved *Atys* to this Tree.

On one of these, vain-glorious *Marsyas* died,
And paid his Skin to *Phæbus* for his Pride.
A way of boring holes in Box he found,
And with his artful Fingers chang'd the sound.
Glad of himself, and thirsty after Praise,
On his shrill Box he to the Shepherds plays.
With thee, *Apollo*, next he will contend;
From thee all Charms of Musick do descend,
But the bold Piper soon receiv'd his Doom;
(Who strive with Heaven never overcome.)

A strong-made Nut their Apples fortifies,
Against the Storms which threaten from the Skies;
The Trees are hardy, as the Fruits they bear,
And where rough Winds the rugged Mountains tear,
There flourish best; the lower Vales they dread,
And languish if they have not room to spread.

Hazle dispers'd in any place will live;
In stony Groundswild Ash, and Cornel thrive;
In more abrupt Recesses these we find,
Spontaneously expos'd to Rain and Wind.

Alder, and Withy, cheerful Streams frequent,
And are the Rivers only Ornament.

If ancient Fables are to be believ'd,
These were Associates heretofore, and liv'd
On fishy Rivers, in a little Boat,
And with their Nets their painful Living got,
The Festival approach'd; with one consent
All on the Rites of *Pales* are intent;
While these unmindful of the Holy-day,
Their Nets to dry upon the Shore display.
But Vengeance soon th' Offenders overtook,
Persisting still to labour in the Brook.

The angry Goddess fix'd them to the Shore,
And for their fault doom'd them to work no more.
'Thus to eternal Idleness condemn'd;
They felt the weight of Heaven, when condemn'd.
The moisture of those Streams by which they stand,
Endues them both with power to expand
Their Leaves abroad; Leaves, which from Guilt
look pale;

In which the never-ceasing Frogs bewail.

Let lofty Hills, and each declining Ground,
(For there they flourish) with tall Firs abound.
Layers of these cut from some ancient Grove,
And buried deep in Mould, in time will move
Young Shoots above the Earth, which soon disdain
The Southern Blasts, and launch into the Main.

But in more even Fields the Ash delights,
Where a good Soil the gen'rous Plant invites.
For from an Ash, which *Pelion* once did bear,
Divine *Achilles* took that happy Spear
Which *Hector* kill'd; and in their Champion's Fate
Involv'd the Ruin of the *Trojan* State.
The Gods were kind to let brave *Hector* die
By Arms, as noble as his Enemy.

Ash, like the stubborn Heroe in his end,
Always resolves rather to break than bend.

Some Tears are due to the *Heliades*;
Those many which they shed deserve no less.
Griev'd for their Brother's Death, in Woods they
range,

And worn with sorrow, into Poplars change.
By which their Grief was rendred more divine,
While all their Tears in precious Amber shine.
These, with your other Plants, still propagate;
'Tis true indeed they are appropriate
To *Italy* alone, and near the *Po*,
Whogave them their first Being, best they grow.

Into your Forests shady Poplars bring,
Which from their Seed with equal vigour spring.
Rich Groves of Ebony let *India* show;
Judea Balsoms which in *Gilead* flow;
Persia from Trees her silken Fleeces comb;
Arabia furnish the *Sabaean* Gum;
Whose Odours sweetness to our Temples lead,
And at the Altar with our Pray'rs ascend:
Yet I the Groves of *France* do more admire,
Which now on Meads, and now on Hills aspire.
I not the Wood-Nymph, nor the Pontick Pine
Esteem, which boasts the splendor of its Line;
Or these which old *Lycaum* did adorn;
Or Box on the *Cytorian* Mountain born;
Th' *Idean* Vale, or *Erimanthian* Grove,
In me no reverence, no horror move;
Since I no Trees can find so large, so tall,
As those which fill the shady Woods of *Gaul*.

When from the cloven Bud young Boughs proceed,
And the Mast-bearing Trees their Leaves do spread;
The Pestilential Air oft vitiates
The Seasons of the Year, and this creates
Whole swarms of Vermin, which the Leaves assail,
And on the Woods in num'rous Armies fall.
Creatures in different shapes together joyn'd,
The horrid *Eruc's*, *Palmer-worm* design'd
With its pestif'rous Odours to annoy
Your Plants, and their young Off-spring to destroy:
Remember then to take these Plagues away,
Lest they break out in the first Show'rs of *May*.

From planting new, and lopping aged Trees,
The prudent Ancients bid us never cease:
Thus no decay is in our Forests known;
But in their Honour we preserve our own.
Thus in your Fields a sudden Race will rise,
Which in your Nurseries will yield supplies;
That may again some drooping Grove renew:
For Trees, like Men, have their Successions too.

Their solid Bodies Worms and Age impair,
And the cast Oak gives place to his next Heir.
While such Designs employ your vacant hours,
As ordering your Woods and shady Bow'rs;
Despise not humbler Plants, for they no less
Than Trees, your Gardens Beauty do increase.

With what content we look on *Myrtle* Groves!
On *Verdant Laurels*! There's no Man but loves
To find his *Limon*, with *Acanthus*, thrive.

To see the lovely *Phillyrea* live,
With *Oleander*. Ah! to what delights
Shorn *Cypresses*, and sweet *Jessamine* invites.

If any Plain be near your Garden found,
With *Cypress*, or with *Horn-beam*, hedge it round.
Which in a thousand Mazes will conspire,
And to Recesses unperceiv'd retire.
Its Branches, like a Wall, the Paths divide;
Affording a fresh Scene on every side.

'Tis true, that it was honour'd heretofore;
But Order quickly made it valued more.
By its shorn Leaves, and those Delights which
rose

From the distinguish'd Forms in which it grows,
To some cool *Arbour*, by the Ways deceit,
Allur'd, we haste, or some oblique Retreat:
Where underneath its umbrage we may meet
With sure defence against the raging heat.

Though *Cypresses* contiguous well appear;
They better shew if planted not so near.
And since to any shape, with ease, they yield,
What Bound's more proper to divide a Field?
Repine not *Cyparissus*, then in vain;
For by your change you glory did obtain.

Sylvanus and this Boy with equal fire
Did heretofore a lovely *Hart* admire;
While in the cooler Pastures once it fed,
An *Arrow* shot at Random, struck it dead.
But when the Youth the dying Beast had found,
And knew himself the Author of the wound,
With never-ceasing sorrow he laments,
And on his Breast his grief and anger vents.
Sylvanus mov'd with the poor Creature's Fate,
Converts his former love to present hate.
And no more pity in his angry Words,
Than to himself th' afflicted Youth affords.
Weary of life, and quite oppress'd with woe,
Upon the Ground his Tears in Channels flow:
Which having water'd the productive Earth,
The *Cypress* first from thence deriv'd its birth,
With *Sylvan's* aid; nor was it only meant
T' express our sorrow, but for ornament.
Chiefly when growing low your Fields they bound,
Or when your Gardens *Avenues* are crown'd
With their long Rows; sometimes it serves to hide
Some Trench declining on the other side.
Th' unequal Branches always keep that green,
Of which its Leaves are ne'er divested seen.
Tho' shook with Storms, yet it unmov'd remains,
And by its trial greater Glory gains.

Let *Phillyrea* on your Walls be plac'd,
Either with Wire, or slender Twigs made fast:
Its brighter Leaf with proudest *Arras* vies,
And lends a pleasing Object to our Eyes.
Then let it freely on your Walls ascend,
And there its native *Tapistry* extend.

Nor knows he well to make his Garden shine
With all delights, who fragrant *Jessamine*
Neglects to cherish, wherein heretofore
Industrious Bees laid up their precious store.
Unless with Poles you fix it to the Wall,
Its own deceitful Trunk will quickly fall.
These Shrubs, like wanton Ivy, still mount high,
But wanting strength on other Props rely.

The pliant Branches which they always bear,
Make them with ease to any thing adhere.
The pleasing Odors which their Flow'rs expire,
Make the young Nymphs and Matrons them desire:
Those to adorn themselves withal; but these
To grace the Altars of the Deities.

With foreign *Jassemine* be also stor'd,
Such as *Iberian* Valleys do afford:
Those which we borrow from the *Portuguese*;
With them which from the *Indies* o're the Seas
We fetch by Ship; in each of which we find
A difference of Colour, and of Kind.
Though gentle *Zephyrus* propitious proves,
And welcome Spring the rigid Cold removes;
Haste not too soon this tender Plant t' expose,
Your Garden's Glory; the rash Primrose shows
Delay is better; since they oft are lost,
By venturing too much into the Frost.
The cruel Blasts which come from the North Wind,
To over-hasty Flow'rs are still unkind.
Let others ill create this good in you,
Without Deliberation nothing do.
For this will scarce the open Air endure,
Till by sufficient warmth it is secure.

No Tree your Gardens, or your Fountains more
Adorns, than what th' *Atlantick* Apples bore.
A deathless Beauty crowns its shining Leaves,
And to dark Groves its Flower Lustre gives.
Besides the Splendor of its golden Fruit,
Of which the Boughs are never destitute;
This gen'rous Shrub in Cases then dispose,
Made of strong Oak, these little Woods compose;
Whose gilded Fruits, and Flow'rs which never fade,
A grace to th' Country and your Garden add,
Proud of the Treasures Nature has bestow'd.
When snowy Flow'rs the slender Branches load,
And straying Nymphs to gather them prepare,
Molest them not, but let your Wife be there;
Your Children, all your Family employ,
That so your House its Odors may enjoy:
That with sweet Garlands all may shade their Brows;
For in their Flow'rs these Plants their vigor lose.
Suffer the Nymphs to crop luxuriant Trees,
And with their fragrant Wreaths themselves to please.
Such soft Delights they love; then let them still,
With their fresh-gather'd Fruit their Bosoms fill.
These Apples *Atalanta* once betray'd;
They, and not Love, o'recame the cruel Maid.
These were the golden Balls which slack'd her pace,
And made her lose the Honour of the Race.

But these sweet Smells, and pleasant Shades will
cease,
Nor longer be your Gardens happiness;
Unless the hostile Winter be repress'd,
And those strong Blasts sent from the stormy East.
Wherefore to hinder these from doing Harm,
You must your Trees with Walls defensive Arm.
To such warm Seats they ever are inclin'd,
Where they avoid the Fury of the Wind.
These Plants, besides that they this Cold would shun,
Look for th' *Assyrian*, and the *Median* Sun.
In parched *Africa* they flourish more,
Than if they grow by *Strimon's* Icy Shore.
Left then the Frost, or barb'rous North should blast
Your Flow'rs, while all the Sky is over-cast
With dusky Clouds, Sheds set apart prepare,
To guard them from the Winter's piercing Air:
Till the kind Sun these Tempests does disperse,
And with his Influence cheers the Universe.
Then calmer Breezes shall o'er Storms prevail,
And your fresh Groves shall sweet Perfumes exhale.
These Trees are various, and the Fruits they bear,
Are diff'rent too. The *Lemons* always are
Of oval Figure, underneath whose Rind,
A Juice ungrateful to our Taste we find.

But though at first our Palates it displease,
Yet better with our Stomach it agrees.
Others less sharp do in *Hetruria* spring;
Some, that are mild, from *Portugal* we bring.
Another sort from old *Aurantia* came,
To which that City does impart its Name.
Hard by *Dicaeon* *Aracynthus* lies
This ancient Town; the *Orange* hence does rise.
To which in Rind and Juice the *Lemons* yield.
By each new Soil new Tastes are oft infill'd.

Mind not the Fables by the *Grecians* told,
Of the *Hesperian* Sisters, who of old
On vast Mount *Atlas*, near the *Libyan* Sea,
With greatest Care did cultivate this Tree:
Of fierce *Alcides*, who by Force brake in,
And in the Spoils of the *Nemean* Skin;
And from the *Dragon*, who securely slept,
Stole, with Success, the Apples which he kept.
Return'd to the *Adventine*, he sets that Hill
With *Orange-trees*, which *Italy* now fill.
But Things of greater Moment are behind;
For Purple *Oleander* may be join'd
With *Oranges*, and *Myrtles*; each of these
Peculiar Graces of their own possess.

The *Myrtle* chiefly, which, if Fame says true,
From the God's Bounty its beginning drew.
When *Venus* plac'd it in the pleasant Shade
Of the *Idean* Vales, about it play'd
Whole Troops of wanton *Cupids*, while the Night
Was clear, and *Cynthia* did display her Light.
This *Citherea* above all prefers,
And by transcendent Favour made it hers.
With *Myrtle*, hence, the wedded Pair delights
To crown their Brows at *Hymeneal* Rites.
Hence *Juno*, who at Marriages presides,
For Nuptial Torches always these provides.
Eriphyle, sad *Procris*, *Phadra* too,
And all those Fools, who in *Elysium* woo,
Honour this Plant, and under *Myrtle* Groves,
If after Death they last, recount their Loves.

Proud Victors with its Boughs themselves adorn,
While round their Temples Wreaths with it are
worn.

Tudertus, when the vanquish'd *Sabines* fled,
Plac'd one of these on his triumphant Head.
The Trunk is humble, and the Top as low,
On which soft Leaves and curled Branches grow.
Its grateful Smell, and Beauty so exact,
Th' admiring Nymphs from ev'ry Part attract.
If too much Heat, or sudden Cold surprize,
Which are alike the *Myrtles* Enemies;
You must avoid them both, and quickly place
The tender Plant within a Wooden Case.
Sheds may protect them, if the Cold be gear,
Or watering from the Summer's scorching Heat;
No impious Tool, our Tenderness allows
To fell these Groves, nor Cattel here must browse.

Oft *Oleanders* in great *Vasa's* live,
With *Myrtles* mix'd, and *Oranges*, and give
Some Graces to your Garden, which arise
From the Confusion of their diff'rent Dies.
In watry Vales, where pleasant Fountains flow,
Their fragrant *Berries*, lovely *Bay-trees* show;
With Leaves for ever green, nor can we guess
By their Endowments, their Extraction less.
The charming Nymph liv'd by clear *Peneus* Side,
And might to *Jove* himself have been ally'd,
But that she chose in Virtues Paths to tread,
And thought a God unworthy of her Bed.
Phæbus, whose Darts of late successful prov'd
In *Pythons* Death expected to be lov'd;
And had she not withstood blind *Cupid's* Pow'r,
The fiery Steeds and Heav'n had been her Dow'r:
But she by her Refusal more obtain'd,
And losing him, immortal Honour gain'd;

Cherish'd by thee, *Apollo*, Temples wear
The Bays, and ev'ry clam'rous Theatre.
The Capitol it self, and the Proud Gate
Of Great *Tarpean* Fove they celebrate.
Into the *Delpbick* Rites, the Stars, they dive,
And all the hidden Laws of Fate perceive.
They in the Field (where Death and Danger's found,
Where clashing Arms, and louder Trumpets found)
Incite true Courage: Hence the Bays, each *Muse*,
Th' Inspiring God, and all good Poets chuse.

Persian Ligustrum grows among the rest,
Whose azure Flowers imitate the Crest
Of an *Exotick* Fowl; they first appear
When the warm Sun and kinder Spring draws near;
Then the green Leaves upon the Boughs depend,
And sweet Perfumes into the Air ascend.

Pomegranates next their Glory vindicate,
Their Boughs in Gardens pleasing Charms create:
Nothing their flaming Purple can exceed.
From the green Leaf the Golden Flow'rs proceed:
Whose Splendor, and the various Curls they yield,
Add more than usual Beauty to the Field.

As soon as e're the Flowers fade away,
Yet to preserve their lustre from decay,
To them the Fruit succeeds, which in a Round
Conforms it self, whose Top is ever crown'd:

In Seats apart, stain'd with the *Tyrian* Dye,
A thousand Seeds within in order lye.
Thus, when industrious Bees do undertake
To raise a Waxen Empire, first they make
Rooms for their Honey in divided Rows;
And last of all, on Twigs the Combs dispose.
So ev'ry Seed a Narrow Cell contains,
Made of hard Skin, which all the Frame sustains.
Neither too sharp or sweet the Seeds incline
Too much, but in one Mixture both conjoin.

From whence this Crown, this Tincture is deriv'd,
We now relate; the Nymph in *Africk* liv'd;
Descended from the old *Numidians* Race,
Beauty enough adorn'd her swarthy Face;
As much as that tann'd Nation can admit,
Too much, unless her Stars had equall'd it.
Mov'd by Ambition, she desir'd to know
Whate'er the *Priests* or *Oracles* could show
Of things to come. A Kingdom they dispense
In Words including an ambiguous Sense.
She thought a Crown no less had signify'd.
But in the *Priests* she did in vain confide.
When *Bacchus* th' Author of the fruitful Vine
From *India* came, her for his Concubine
He takes; and to repair her Honour lost,
Presents her with a Crown; by Fate thus cross'd,
The too ambitious Virgin ceas'd to be;
Transmitting her own Beauty to this Tree.

Sharp *Paliurus*, *Ramus*, (which by some
Is *White-thorn* term'd) your Garden will become.
There leavy *Caprifoli*, *Alcea* too,
Th' *Idean* Bush, and *Halimus* may grow.
Woody *Acanthus*, *Ruscus* there may spring,
With other Shrubs; these skillful *Gard'ners* bring
Into a thousand forms; but 'tis not fit
To tell their *Species*, almost infinite.

From brighter Woods the Prospect may descend
Into your Garden, there it self extend
In spacious Walks, divided equally,
Where the same Angles in all parts agree.
In oblique winding others plant their Groves,
For ev'ry Man a different Figure loves.
Thus the same Paths, respecting still their Bound,
In various Tracts diffuse themselves around.
Whether your Walks are straight or crooked made,
Let Gravel, or Green Turf be on them laid.
The Nymphs and Matrons then in Woods may meet,
There walk, and to refresh their wearied Feet,

Into their Chariots mount, though to the young
Labour and Exercise does more belong.

If close-shorn *Phillyrea* you deduce
Into a Hedge, for Knots the *Carpine* use;
Or into *Arbors* with a Hollow *Bark*,
The pliant Twigs of soft *Acanthus* make.
With stronger wires the flowing Branches bind,
For if the Boughs by nothing are confin'd,
The *Tonsile* Hedge no longer will excell;
But uncontrol'd beyond its Limits swell.
And since the lawless Grass will oft invade
The neighb'ring Walks, repress th' aspiring Blade;
Suffer no Grass or rugged Dirt t' impair
Your smoother Paths. But to the *Gard'ner's* care
These things we leave; they are his Business,
With setting Flowers and planting fruitful Trees:
And with the Master let the Servants join,
With him their willing Hearts and Hands combine:
Some should with Rowlers tame the yielding Ground,
Making it plain where ruder Clods abound.
Some may fit Moisture to your Meadows give,
And to the Plants and Gardens may derive
Refreshing Streams; let others sweep away
The fallen Leaves; mend Hedges that decay:
Cut off superfluous Boughs; or with a Spade
Find where the Mole their winding Nests have made;
Then close them up. Another Flowers may sow
In Beds prepar'd; on all all some Task bestow;
That if the Master happens to come down,
To fly the Smoak and Clamour of the Town;
He in his *Villa* none may idle find,
But secret Joys may please his wearied Mind.

And blest is he, who tir'd with his Affairs,
Far from all Noise, all vain Applause, prepares
To go, and underneath some silent Shade,
Which neither Cares nor anxious Thoughts invade,
Does for a while himself alone possess;
Changing the Town for Rural Happiness.
He, when the Sun's hot Steeds to th' Ocean haste,
E'er sable Night the World has over-cast,
May from the Hills the Fields below descry,
At once diverting both his Mind and Eye.
Or if he please, into the Woods may stray,
Listen to th' Birds, which sing at Break of Day;
Or, when the Cattle come from Pasture, hear
The bellowing Oxe the hollow Valleys tear
With his hoarse Voice: Sometimes his Flowers invite;
The Fountains too are worthy of his sight.
To ev'ry part he may his Care extend.

And these Delights all others so transcend,
That we the City now no more respect,
Or the vain Honours of the Court affect;
But to cool Streams, to aged Groves retire,
And th' unmix'd Pleasures of the Fields desire;
Making our Beds upon the grassy Bank,
For which no Art, but Nature we must thank.
No Marble Pillars, no proud Pavements there,
No Galleries, or fretted Roofs appear;
The modest Rooms to *India* nothing owe;
Nor Gold, nor Ivory, nor Arras know:
Thus liv'd our Ancestors when *Saturn* reign'd,
While the first Oracles in *Oaks* remain'd:
A harmless Course of Life they did pursue;
And nought beyond their Hills their Rivers knew.
Rome had not yet the Universe ingross'd,
Her Seven Hills few Triumphs then could boast.
Small Herds then graz'd in the *Laurentine* Mead;
Nor many more th' *Arician* Valleys feed.

Of Rural Ornaments, of Woods much more
I could relate, than what I have before;
But what's unfinish'd, my next Care requires,
And my tir'd Bark the neighb'ring Port desires.

APPENDIX

A TABLE, shewing the several Sorts of Soil, or Places that are proper, or at least may serve, or that are unfit for certain Kinds of Trees.

These BOOKS following are quoted here.

- Ra. *Austen* of Fruit-Trees. 4to. 1652.
 J. B. of Husbandry. 8vo. 1669.
 Dr. *Beal* of Herefordshire Orchards. 12mo. 1657.
 Wa. *Blith* of Husbandry. 4to. 1649.
 Mo. *Cook* of Forest-Trees and Fruit-Trees. 4to. 1679.
 Mr. Ch. *Cotton's* Planter's Manual. 8vo. 1675.
 Pe. *Crescentiensis* de Agricultura. fol. Bas. 1548.
 ——— *The Country Farme*. fol. 1616.
Evelyn's Silva, &c. This Edition.
 Sa. *Hartlib's* Legacy. 4to. 1651.
 ——— Design for Plenty; published by him about 1653. 4to.
 The *Sieur Le Gendre*, Curate of *Henonville*, of Fruit-Trees. 12mo. 1660.
 T. *Langford* of Fruit-Trees. 8vo. 1699.
 Will. *Lawson's* New Orchard and Garden, printed at the End of *Markham's* Way to Wealth. 4to. 1683.
 Le. *Meager* of Gardening. 12mo. 1697.
 Tim. *Nourse's* Campania. 8vo. 1700.
 Jo. *Smith* of Husbandry and Trade. 4to. 1673.
 Jo. *Taverner* of Fish and Fruit. 4to. 1600.
 Jo. *Worlidge* of Husbandry. fol. 1675.
 ——— *His Vinetum*. 8vo. 1691. And some other Books.

TH E S E Trees grow in almost *Any* Soil; *Limes*, *Evelyn* Silva 68. *Cook* 70. *Elm*, *Farm* 503. *Ash*, idem 662. *Chestnut*, id. 664. *Sallow*, *Nourse*, c. 8. *Coppices*, *Evelyn* Silva 176. *Walnut*, *Crescentiensis* 156. *Pear*, *Evelyn* Silva 17. *Phil. Transact.* n. 71. *Apple*, *Farm* 379. *Worlidge* *Vinetum*, c. 4. sect. 1. *John-Apple*, ib. Sect. 2. *Fruit-Trees*, *Beal* 9. *Meager*, c. 2.

Arable Ground, and *Balks*: See *Plowed* Ground, and *Open Fields*, (some *Timber-Trees*, *Evelyn* Silva 7. 271.)

Almost *Barren* Ground serves for these; *Birch*, *Evelyn* Silva 78. *Hornbeam*, *Evelyn* Silva 48. *Fir*, *Evelyn* Silva 118. *Pine*, *Evelyn* Silva 118. *Crescentiensis* 257. *Pitch-tree*, *Evelyn* Silva 4. *Box*, *Evelyn*

Evelyn Silva 4. *Tew*, Evelyn Silva 4. 113. *Poplar*, Evelyn Silva 71. *Abele* Cook 78. *Beech*, Evelyn Silva 45. Nourse c. 8. *Pear*, Langford 63, 97, 148. Beal 10. *Apples* in some Places, Beal 9. *Westbury*-*Apple*, Worlidge Vinet. c. 4. Sect. 2. But in most Places not well for *Apples*, Evelyn Terra 34. Evelyn Pomona 71. Langford 97. London's Gardiner p. 9. Austen Observ. p. 5, 37. *Crescentiensis* 147. Nor for *Oak*, Farm 666. Nor for *Nurseries* of Fruit-Trees, Evelyn Terra 35. Cotton 111. Langford 7. Farm 656. See Course, Deep, Fat Gravel, Shallow.

Black Fat Ground; *Oak*, Evelyn Silva 24. Worlidge Husb. 75. *Chestnut*, Gerard's Herb. *Apple*, Farm 379. *Fruit-Trees*, Meager c. 2. J. B. Husb. 303. Lawton c. 2. *Most Trees*, Evelyn Terra 4. Lawton ibid.

Boggy Ground drained serves for these; *Birch*, Evelyn Silva 78. *Poplar*, Evelyn Silva 71. Blith 132. *Alder*, ib. Nourse 123. Worlidge Husb. 83. *Ash*, Blith, 132. *Willow*, ib. and 124. *Cedar*, Evelyn Silva 135. *Wood*, Evelyn Silva 244. Not for *Fruit-Trees*, Lawton c. 2. See Cold.

In *Bottoms*; most *Timber-Trees*, Evelyn Silva [276.] Evelyn Terra 6. See Vallies.

Brick-Earth. See Loam.

Instead of *Briars* and Weeds, *Fruit-Trees*, Evelyn Pomona. 51. or *Forest-Trees*, or both.

To shelter *Buildings*; *Walnut*, Langford 134. See Houses.

In Places where *Cattle* come; not *Tew*, being esteemed Noxious to them, Evelyn Silva 157.

Chalky Ground; *Beech*, Evelyn Silva 46. Worlidge Husb. 78. *Cherry*, Evelyn Terra 34. *Walnut*, Evelyn Silva 59. Worlidge Husb. 101. *Juniper*, Bacon Nat. Hist. Exp. 659. Most *Fruit-Trees*, ib. *Apple*, Evelyn Terra 34. *Winter Apple* and *Pear*, J. B. Husb. 303. *Elm*, *Ash*, *Oak*, *Crescentiensis* 257. Not *Poplar*, id. 176. Entire Chalky Ground, unmixed, is bad for most Trees, Smith 41.

Champion Grounds; See *Open-Fields*.

Clay; *Oak*, Evelyn Silva 244. The toughest *Oak*, Evelyn Silva 8. Farm 649. and most durable, ib. Other *Timber* slowly, Evelyn Silva 244. *Pears* 371. Worlidge Husbandry 100, and Vinet. c. 4. Sect. 2. *Winter Apples*, J. B. Husb. 302. *Pears* and *Apples*, Drope of Fruit-Trees c. 1. Not *Fruit-Trees*, Bacon Nat. Hist. Exp. 544. Austen Observ. p. 37. Not *Abele*, Evelyn Silva 73. Hartlib Leg. 131. Some *Clay* is fit for *Timber-Trees*, Smith 41. See Stiff.

Moist *Clay*; *Oak*, Evelyn Silva 25. 198. *Ash*, Farm 662. *Elm*, ib. 663. *Chestnut*, Worlidge Husb. 80. It will serve for *Red-Willow*, *White Sallow*, and *Male* or *Weich Elm*.

Soft *Clay*; *Apple* better than *Pear*, Beal 11. Cotton 6.

Strong *Clay*; Firr, Evelyn Silva 120. Pine ib. It serves for some *Cider-fruit*, Evelyn Pomona 74, 77. *Pear* better than *Apple*, Evelyn Terra 34. Evelyn Pomona, 57, 77. Beal 10. Nourse 158. Worlidge Husb. 100. Few Trees prosper in it, Evelyn Silva 8. 25. 244. Evelyn Terra 5. Cook 15. *French Gardiner* 2. Not *Oak*, Evelyn Silva 25. Not *Ash*, Evelyn Silva 53. Not *Beech*, Farm 667. Cook 57. Not *Elm*, id. 51. Not *Cherry*, id. 67. Not *Walnut*, unless it be mixed with Stones or Chalk, id. 63. Not *Chestnut*, Farm 391. Not *Chestnut* in Stiff red Clay, Meager c. 19.

Clayish

Clayish, or mixt; *Walnut*, Hartlib Def. 22. Clay and Sand mixt
s best for Fruit-trees, Taverner 35. See Loam.

In *Clofes*. See Fields.

Cold Ground; *Ash*, Evelyn Silva [277.] *Birch*, Pliny, l. 16. c. 18.
Se vice, ib. See Warm.

Cold and Moist Ground; *Westbury-Apple*, Worlidge Vinet. c. 4.
Sect. 2. See Moist.

Cold and Spungy; *Alder*, Evelyn Silva 86. Not Female *Elm*, Eve-
lyn Silva 42. See Boggy and Wet.

On *Commons*; *Forest-trees*, Evelyn Silva 96. Cook 88. *Fruit-*
trees for the Poor at 100 Foot distance, Evelyn Pomona 51. at 30
Yards distance, Hartlib's Design 6. Fruit-trees and Forest-trees mixt.

In *Coppices*; Not Timber-trees, Nourse c. 7.

In Ground fit for *Corn*; Most Timber-trees, Evelyn Silva 8. *Fruit-*
trees, Evelyn Pomona 78. In Ground proper for Wheat, Barley, Rye,
Beans or Pease, *Fruit-trees*, Compleat Planter, 258.

In every *Corner* of your Ground set Fruit-trees, Evelyn Silva 105.
Gerard's Herb. of Apples.

Course Ground serves for most *Forest-trees*, Evelyn Silva 244. *Chest-*
nut, Evelyn Silva 8. Evelyn Pomona 77. Farm 649. *Hornbeam*, ib.
666. *Beech*, ib. *Walnut*, Evelyn Silva 9. Evelyn Pomona 77. Lang-
ford 63. *Quince*, Evelyn Pomona 77. Pine, Firr, Ash, Wild-Pear,
Crab, Evelyn Silva 8. Readstreak, Worlidge Vinet. c. 4. Sect. 2. For
Apples and *Pears* Ordinary Soil serves, Austen of Fruit-trees 64. Beal
9. and Poor Arable, Evelyn Pomona 68, 77. See Barren.

Where *Crab-trees* prosper set *Apple-trees*.

Craggy Ground; *Ash*, Evelyn Silva [277.] Firr. See Rocky.

Crumbling Mold is good, Evelyn Terra 5.

Deep Soil; *Oak*, Evelyn Silva 26. *Elm*, Evelyn Silva 43. *Garden-Pears*,
Henonville c. 4. *Fruit-trees*, Evelyn Pomona 68. Langford 81. Au-
sten Observ. p. 5. Beal 31. Soil one Foot deep, id. 43. For *Garden*
Fruit-trees, Soil 2 Foot and a half deep, Quintinye p. 60. London 1.
c. 3. For most Trees Soil 2 Spade deep, or one and a half, Blith 124.
See Shallow.

On *Ditch-Banks*; Female *Elm*, Evelyn Silva 41. *Ash*, Farm 662.

Dry Ground; *Holly*, Cook 96. *Walnut*, Meager c. 18. *Maple*, Eve-
lyn Silva 65. Cook 72. It serves for *Abele*, Cook 78. *Poplar*, Evelyn
Silva 72. Black-*Alder*, Evelyn Silva 86. *Sallow*, not *Quince*, Quin-
tinye 60. Not *Willow*, Farm l. 7. c. 15. Not *Aquaticks*, ib.

Dry hot Ground, *Chestnut*, Langford 136. See Cold, Moist and
Wet.

Dry rich Ground; *Walnut*, Evelyn Silva 59. Gerard Herb. Lang-
ford 135. Cook 63. Worlidge Husb. 101. *Chestnut*, Cook 64. *Oak*,
Farm 666. *Beach*, ib. *Hornbeam*, ib.

Dry, sandy, hot Ground serves for *Cherry*, Evelyn Silva 63. Cotton
6. *Pear*, Evelyn Terra 34. *Birch*, Evelyn Silva 78. *Apples* in some
Places, Beal 9. Not *Elm*, Evelyn Silva 39. Not *Limes*, Worlidge
Husb. 84. See Rye-Land, and Sandy.

Very *Dry Ground*; Not *Fruit-trees*, Evelyn Pomona 68. London
1. c. 3. Compleat Planter 258. Lawson c. 2.

Ground leaning to the *East*; *Forest-trees*, Nourse c. 7. *Fruit-trees*,
d. p. 132.

Ground *Easy* to till; *Fruit-trees*, London 1. c. 3.

Fat Soil; *Lime*, Evelyn Silva 70. Cook 70. *Sycamore*, Blith 135. *Withy*, Nourse c. 8. *Elm*, Farm 503. *Maple*, id. 663. *Lotus*, id. 306. *Quince*, Langford 134. *Pear*, Meager c. 11. *Crescentienfis* 256. French *Cornel*, Phil. Transf. n. 71. *Apple*, Evelyn Terra 34. Evelyn Pomona 70. Langford 81. Austen Obs. p. 5. *Crescentienfis* 147, 256. But yet for *Apples* not very fat, Evelyn Pomona 55, 77. Taverner 34.

Soil made *Fat* with much Dung, Not *Holly*, Evelyn Silva 160. Not *Cherry*, Farm 374. Not *Forest-trees*, Cook c. 8. Not fit for a *Nursery*, Langford 7, 26. Austen of Fruit-trees 63. Taverner 31.

Feeding Ground; *Limes*, Evelyn Silva 69. Cook 70. *Plane-tree*, Evelyn Silva 120. See Loam.

In *Fields*; Trees set in Rows, Evelyn Silva 24. Houghton's Letters of Husb. Vol. II. p. 63. *Fruit-trees*, Evelyn Pomona 50. Langford 95. Nourse 129, 145. Austen of Fruit-trees, Epist. Ded. and p. 1, and 2. Plot's Nat. Hist. of Staff. 226. At the Distance of 45 Foot, Farm 398. In *Fat Ground* allow the greater distance, ib. And in Windy Places the less, Meager c. 6. Pliny l. 17. c. 11. *Fruit-trees* and *Forest-trees* mixt. See Pastures, Plowed Ground, and Meadows.

In Open *Fields*; *Forest-trees*, Cook 85. *Pears*, Evelyn Pomona 80. *Bare-land Pear*, Phil. Transf. n. 71. *Fruit-trees*, Evelyn Pomona 51, 77, 78. Hartlib's Design 14. Taverner 30. Nourse 129, 130, 132, 152.

Flinty Ground; *Oak*, *Ash*, *Elm*, *Beech*, Evelyn Silva [279.] Farm 667.

Very near *Fruit-trees*; Not *Ash*, Cook 55. Not *Aspen*, nor any *Big Trees*, but such as have their greatest Branches often pared away. No Trees, Lawson c. 13.

Near fine *Gardens*: Not *Ash*, Evelyn Silva 54. Cook 55.

Gorsy Ground; Gennet-Moyle, Phil. Transf. n. 71. See *Signs* of bad Ground.

Gravel; *Beech*, Evelyn Silva 45. Cook 15, 57, 96. Worlidge Husb. 78. *Oak*, Evelyn Silva 25. *Ash*, Cook 15. *Cherry*, ib. *Holly*, Evelyn Silva 160, 342. Cook 87, 89. *Walnut*, Langford 136. *Pear*, Evelyn Terra 34. Evelyn Pomona 77. Ray's Hist. Plant. Worlidge Husb. 100. *Elm*, Nourse 130. Not *Fruit-trees*, ib. unless well digged and dunged, J. B. Husb. 303. On gravelly and thorny Hills, *Oak* better than *Chestnut*, Columella l. 4. c. 33.

Hungry *Gravel* serves for *Pears*, Evelyn Pomona 57. Few Trees, Austen Observ. p. 37. Not *Apples*, Evelyn Pomona 77. Not *Oak*, Evelyn Silva 25, 28. Cook 37. Not *Ash*, Farm 662. Not *Elm*, Evelyn Silva 28. Not *Walnut* on sharp Gravel, Cook 63.

Gravel mixt with *Loam*; English, French and Dutch *Elms*, Evelyn Silva 198, 199. *Oak*, *Ash* and *Elm*, Evelyn Silva 242. *Walnut*, Evelyn Silva 58. *Cherry*, Evelyn Silva 63. Cook 66. Any Trees, Cook 15, 89. Blith 124.

Moist *Gravel*; *Chestnut*, Evelyn Silva 55. Meager c. 19. *Elm* and *Oak*, Evelyn Silva 198, 199. *Fir* and *Pine*, Evelyn Silva 124. Green *Willow*. English, French and Dutch *Elms*.

On *Hades*; *Forest-trees*, or *Fruit-trees*, or both.

Hard Footing with reasonable Depth of Earth, serves for *Fruit-trees*, Evelyn Terra 35. and for some *Timber-trees*, ibid.

Very *Hard Ground* is not fit for *Fruit-trees*, London 1. c. 3.

On *Head-Lands*; *Fruit-trees*, Evelyn Pomona 51, 67.

Heathy Ground serves for Wood in some Places, Evelyn Silva 7, 244. See *Signs* of bad Ground. In

In *Hedges*; *Elm*, Evelyn Silva 42, [279.] Cook 102. *Oak*, *Beech*, Evelyn Silva 101, 103. *Ash*, 105. Farm 662. *Oak* not headed, Cook 103. *Chestnut*, Evelyn Silva 56. *Plums*, Hartlib's Leg. 21. *Fruit-trees* and *Forest-trees* mixt, Evelyn Silva [277,] [278.] Blith 144. *Timber-trees*, Evelyn Silva 12. Houghton's Letters, Vol. II. p. 73. *Fruit-trees*, Evelyn Silva 111. Evelyn Pomona 51, 67. Houghton ib. Worlidge Husb. 100. Austen of *Fruit-trees*, Epist. Ded. and p. 1. and 2. Beal 3. Lawfon c. 4. Taverner 29. Hartlib's Def. 13. Plot's Nat. Hist. of Staff. 226, 384. Nourse 141, 152. But not where Water stands long in the Ditches, id. 141. Not high *Maples*, Cook 72. Not *Walnut*, Worlidge Husb. 102. Not *Timber-trees*, Nourse c. 4. Not too many high Standard Trees or Pollards, Cook 102.

Distance of *Fruit-trees* in or near *Hedges*; *four* or *five* Yards, Langford p. 22. *Twenty Foot*, Evelyn Silva 100. Evelyn Pomona 70. Cook 97, 101. Or *ten* or *twelve Foot*, ib. *Eight Yards*, or nearer, Langford 105. *Twenty Foot* for lesser Trees, and *35 Foot* for bigger, Farm 398. *Twenty Yards*, Blith 158.

Distance of *Timber-trees* in or near *Hedges*; *20* or *30 Foot*, Evelyn Silva 103. *4 Yards*, Evelyn Silva [278.] *One Perch*, Blith 144.

Near *Hedges*, not in them, set *Timber-trees* and *Fruit-trees*, Evelyn Silva 106. Langford 103. Worlidge Husb. 100. *Walnut*, Evelyn Silva 60.

High Ground; *Beech*, Evelyn Silva 45. *Chestnut*, Evelyn Silva 55. *Hornbeam*, Evelyn Silva 48. *Oak*, Beal 36. Not *Elm*, Worlidge Husb. 76.

Near *Highways*; *Elm*, Beal 36. *Walnut*, Evelyn Silva 59. Beal 33. *Chestnut*, Evelyn Silva 55. *Fruit-trees*, Beal 7. Big *Fruit-trees* 35 *Foot* asunder, Farm 398. *Ash*.

Hills; *Chestnut*, Evelyn Silva 55. *Maple*, Evelyn Silva 65. *Lime*, Farm 667. *Oak*, *Ash*, &c. Beal 49. *Beech*, Evelyn Silva 45. Nourse c. 8. *Apple*, Farm 379. *Cedar*, Evelyn Silva 135. *Cherry*, Palladius Oct. ti. 12. *Larch*, *Elm*, Pliny l. 16. c. 18. *Service*, ib. Farm 395. *Pear*, *Poplar*, Pliny, ib. Not *Poplar*, Crescentienfis 176. *Walnut*, Evelyn Silva 59. Meager c. 5. Not *Walnut*, Pliny ib. See Mountains.

Hills and *Vallies*; *Fir*, *Lime*, Pliny, ib. *Oak* and *Chestnut*, ib. Crescentienfis 256. *Fruit-trees*, Nourse 131.

Near the Foot of a *Hill*; *Fruit-trees*, Beal 31.

In *Holes* where great Trees have grown before, set no Trees; Sil. Taylor of Inclosure 44. Quære. See Evelyn Silva 8. and 180.

Near *Houses*; *Pears*, Evelyn Pomona 79. *Fruit-trees*, Beal 79. *Elm*, ib. Farm 650. Not *Mulberry*, ib. 383. Not *Sycamore*, Cook 73.

Land-Divisions. See Plowed Ground, and Open Fields.

Level Ground unshelter'd or wet; Not *Fruit-trees*, Nourse 131.

Light Ground; Trees whose Roots run shallow, Cook 15. Most Trees, id. 16. Blith 124. *Beech*, Cook 15. *Sycamore*, id. 73. *Chestnut*, Evelyn Silva 55. Farm 391. *Female-Elm*, Worlidge Husb. 76. *Stone-Fruit*, Evelyn Terra 38. *Cherry*, Evelyn Silva 73. Evelyn Terra 34. Cook 15. Quintinye 60. *Pear*, Hartlib Def. 22. Langford 63. *Walnut*, ib. Some *Cider-Apples*. Evelyn Pomona 57, 58. Worlidge Vinet. c. 4. Sect. 1. *Summer-Apples*, ib. Not *Pippins* in *Light Rich* Ground, ib. See Ryland.

Light

Light Sandy Ground; *Stone-Fruit*, Cotton 6. It serves for *Apples* in some Places, Beal 9. Not *Firr*, nor *Pine*, Evelyn Silva 123, 126. Not *Oak*, Evelyn Silva 24. *Crescentienfis* 170. See Sand.

Very *Light Ground*; Not *Fruit-trees*, London 1. c. 3.

Limed Ground; Not *Fruit-trees*, Nourse 140.

Loam, or light feeding Ground, or light Brick-Earth; *Elm*, Cook 51. *Oak* and *Pear*, id. 15. English, French and Dutch *Elms*.

Horse-Chestnut, Worlidge Husb. 85. Most *Fruit-trees*, Evelyn Terra 5. Any Trees, Evelyn Silva 242. See Gravel.

Loose Ground; *Walnut*, Langford 136. *Crescentienfis* 156. *Chestnut*, id. 256. *Alder* and *Willow*, id. 257. *Poplar*, ib. *Ash*, Cook 55. Farm 662. *Hornbeam*, id. 666. *Beech*, id. 667. Not *Oak*, Evelyn Silva 28. *Crescentienfis* 170. See Stiff.

Low Ground; French *Elm*, Evelyn Silva 39. Dutch *Elm*, *Willow*, *Crescentienfis* 257. *Poplar*, ib. and 176. *Timber-trees*, Smith 41. *Fruit-trees*, Lawson c. 2. See *High*, and *Hills*.

Marl; *Walnut*, Evelyn Silva 58. Worlidge Husb. 101. *Oak*. Soil falsely called *Marl*, in Herefordshire; *Pear*, Beal 10.

Marshy Ground; *Alder*, Nourse 123. Farm 660. *Crescentienfis* 173. See Wet.

Near *Marshes*; Not *Fruit-trees*, Meager c. 1.

Meadows; *Alder*, Farm 504, 660. *Apples*, Palladius Feb. ti. 25. *Aquaticks*; Any Trees, Cook 88. *Fruit-trees* and *Forest-trees* mixt. See Mowing Ground, and Rivers.

Upland Meadow; *Timber-trees*, London 1. c. 3. Meager, c. 2.

Moist Ground; *Aquaticks*, *Soft Wood*, Evelyn Silva 242. *Poplar*, Evelyn Silva 72, 241. *Crescentienfis* 257. *Plane-tree*, Evelyn Silva 116. Farm 306. *Service*, id. 595. *Elm*, Evelyn Silva 39. Worlidge Husb. 76. Farm 503, 563. English, French and Dutch *Elms*. *Quince*, Langford 134. Meager c. 12. Farm 375. *Lime*, id. 667. *Hornbeam*, id. 666. *Chestnut*, id. 391. *Maple*, id. 663. Pliny 1. 16. c. 18. *Oak*, Smith 55. *Ash*, *Crescentienfis* 176. Farm 662. *Sycamore*, Evelyn Silva 68, 82. *Cherry*, Farm 374. *Black-Cherry*, Evelyn Silva 82. *Cedar*, Evelyn Silva 135. It will serve for *Apples*, Farm 379. Palladius Feb. ti. 25. *Westbury-Apple*, Worlidge Vinet. c. 4. Sect. 2. *Pears*, Meager c. 11. *Pears* better than *Apples*, Nourse 158. Taverner 36. See Dry.

Moorish Ground serves for *Wood*, Evelyn Silva 242. *Alder*, Cook 81. *Sallow*, Evelyn Silva 166. Cook 83. *Poplar*, id. 79. Few Trees, Smith 41.

Near *Moorish Ground*; Not *Fruit-trees*, Meager c. 1.

Mounds. See Hedges.

Mountains; *Firr*, Bacon's Nat. Hist. Exp. 659. *Pine*, ib. Farm 292. See Hills.

High Mountains; Unfit for *Fruit-trees*, Cotton 7. And for the planting of most Trees, Smith 40.

Wet Mountains; *Maple*, *Ash*, *Service*, *Lime*, *Cherry*, Pliny 1. 16. c. 18. *Cedar*, Farm 285.

Mowing Ground; *Oak*, Smith 102. *Fruit-trees*, Taverner 36. Austen of *Fruit-trees* p. 2. *Fruit-trees* and *Forest-trees* mixt. See Meadows.

Near together; *Elm*, *Ash*, *Lime*, *Sycamore*, *Firr*, *Pine*, Evelyn Silva 17. Not *Oak*, *Beech*, or *Walnut*, Evelyn Silva 17. Not *Genet-Moyle*, Worlidge Vinet. c. 4. Sect. 2.

On the *North* sides of Hills; *Chestnut*, Evelyn Silva 55. Farm 391, 664.

In *Orchards*; Not *Ash*, Cook 55. Not *Walnut*, Meager c. 18. Lawfon c. 13. No Trees, but for Fruit and Flowers, ib. Some *Un-grafted* Fruit-trees, id. c. 7. Nourse 142, 151. *Fruit*-trees of all sorts id. 152. Plant the *highest* Trees, as *Pears*, &c. on the *North* side, Langford 94. Lawfon c. 9. Meager c. 5. Sharrock 206.

The Distance of Trees in *Orchards*; 50 Foot, Lawrence of Nurseries p. 15. 40 Foot, Tuffer, Decem. 15. Betwixt 8 and 14 Yards, Langford 85. 10 or 12 Yards, Austen of Fruit-trees 94. 30 Foot, Evelyn Pomona 78. Beal 43. Nourse 140. *Pears* 30 Foot, *Apples* more, Meager c. 11. *Apples* 30 Foot, *Pears* 24 Foot, French Gardiner 40. Some 20 Foot, others 40 Foot, Worlidge Vinet. c. 4. Sect. 4. Betwixt 20 and 30 Foot, Farm 399. 20 or 30 Foot, Hartlib's Leg. 21. Crescentienfis 257. 30 or 40 Foot betwixt the Rows, Columella l. 5. c. 9. and l. 13. c. 19. 30 Foot betwixt the Rows, Pallad. Feb. ti. 19. 20 Foot one Way, and 30 Foot another, Taverner 35. 30 Foot one Way, and 15 Foot another, Cook 111. See Plowed Ground.

On the *Outsides* of Orchards; *Elm*, Evelyn Silva 258. *Chestnut*, Evelyn Silva 57. *Walnut* next the Hedges, and *Oak*, *Elm*, or *Ash* outmost, Lawfon c. 13. And other Trees for Bees, ib. *Walnut*, *Ash*, *Poplar*, &c. Worlidge Vinet. c. 4. sect. 1. *Walnut*, Meager c. 18. Wild Trees round about, especially on the West side, id. c. 1. On the North side *Walnut*, *Chestnut*, &c. Langford 81, 94, 134, 136. On the North, and North-East, *Elms*, Beal 47. Secure *Fruit*-trees from the South-west Winds, Cotton 8.

In *Parks*; *Hornbeam*, Evelyn Silva 49. *Fruit*-trees and *Forest*-trees mixt.

In *Pastures*; *Oak*, Evelyn Silva 8, 25. English, French and Dutch *Elm*, Evelyn Silva 43, 44. *Forest*-trees, Evelyn Silva 8, [275.] Cook 88. Worlidge Husb. 93. At the Distance of 40 Foot, Evelyn Silva 30. Of 3 or 4 Rod, Cook 85. Of 36 Foot or nearer, Smith 102. Of 11 Yards, Evelyn Silva [277.] *Fruit*-trees in Pastures, Evelyn Silva 109. Sharrock c. 8. n. 5. Beal 22. Cook 85. Langford 95. Austen of Fruit-trees p. 2. Hartlib's Legacy 21. Taverner 36. At the Distance of 4 or 5 Fathom, Henonville c. 7. *Fruit*-trees and *Forest*-trees mixt. Evelyn Silva 24.

Cow-Pasture; Is best for *Forest*-trees, Evelyn Silva 7, [276] Cook 88.

In *Dry Pits*; *Walnut*, Evelyn Silva 59.

In *Plains*; *Oak*, *Maple*, *Ash*, *Beech*, Pliny l. 16. c. 18. *Fruit*-trees, Meager c. 1. But not in naked Plains, Cotton 7. See Level Ground.

Plowed Ground; *Forest*-trees, Evelyn Silva 257. 36 Foot asunder, Smith 102. *Oak*, Evelyn Silva 258. *Elm*, Evelyn Silva 42. Farm 663. *Maple*, ib. *Chestnut*, 40 Foot asunder, Crescentienfis 139. *Walnuts* at 60 and 100 Foot distance, Evelyn Silva 58. 256. Worlidge Husb. 101. *Abele* well pruned, Hartlib's Leg. 131. Not *White-Poplar*, Crescentienfis 177. Not *Ash*, Evelyn Silva 51. Cook 55. Worlidge Husb. 79. Farm 664. Not *Willow*, id. 502. Not *Quince*, *Fruit*-trees, Evelyn Pomona 67, 77. Worlidge Vinet. c. 4. Sect. 1. Meager c. 5. Cook 111. Langford 63. Hartlib's Leg. 21. Taverner

36. Austen of Fruit-trees, Epist. Ded. and p. 1, and 2. Phil. Transf. n. 71. Trees bearing harsh *Fruit*, and *Forest*-trees mixt, the *Forest*-trees having the biggest side Branches often cut off.

Distance of *Fruit*-trees in Arable Land; 60 Yards, Beal p. 28. 30 Yards, Langford p. 97. Blith p. 159. Hartlib's Def. p. 14. 24 Yards, or at least 20 Yards, or as far as the Trees will spread, Lawfon c. 8. 60 or 72 Foot, Quintinye p. 117. 20 Yards, Austen of Fruit-trees p. 2, 62. 64 Foot, Evelyn Pomona 58. 50 or 60 Foot, ib. p. 78. From 32 to 60 Foot, ib. 69. Worlidge Husb. 121. 8 or 10 Fathom, Henonville c. 7. 20 Yards betwixt the Ranks in Normandy, Nourse 132. Betwixt 20 and 30 Paces, on the Tops of Plowed Lands, id. 134. 8 Fathom for *Apples*, and 6 Fathom for *Pears*, Cotton p. 8, and 9.

Red-Land; *Cyder-Apples*, Worlidge Vinet. c. 4. Sect. 1. *Summer-Apples*, ib. *Sycamore*.

Rising Ground; *Oak*, Evelyn Silva 25. *Timber-trees*, Smith 41. Nourse c. 7. *Fruit-trees*, id. p. 132. Cotton p. 7. See South and East.

By the sides of *Rivers* or Brooks; *Alder*, Farm 504, 660. *Aquaticks*, *Fruit-trees*, Lawfon c. 2. Meager c. 1. Worlidge Vinet. c. 4. Sect. 1. See Water.

Rocky Ground; *Fir* and *Pine*, Evelyn Silva 123. Cook 84. *Pear*, Evelyn Silva 8. Evelyn Pomona 57. *Beech* on the sides of Rocky Hills, Nourse c. 8. Not *Beech* in Mould exceeding hard and rocky, Farm 667. Not *Poplar*, Crescentiensis 176. Not *Oak*, Cook 37. Not *Elm*, id. 51. *Few Trees*, Smith 41. See Craggy.

Almost *Rocky Ground* serves for *Walnut*, Langford 136.

Rye-land; *Most Timber-trees*, Evelyn Silva 7. *Pears*, Hartlib's Design 22. *Gennet-Moyle*, Phil. Transf. n. 71. *Cyder-Apples*, Evelyn Terra 34. Evelyn Pomona 57, 58, 74. Beal 9, 11. London 1. c. 25. Worlidge Vinet. c. 4. Sect. 1. See Corn and Light Ground.

Rushy Ground; See Moist, and Signs of bad Ground.

Sandy Ground; *Birch*, Evelyn Silva 78. *Beech*, Worlidge Husb. 78. *Pine*, Crescentiensis 257. Farm 392. *Pear*, Worlidge Husb. 100. *Fruit-trees*, Nourse 133. *Cherries*, J. B. Husb. 303. *Summer-Fruit*, ib. See Dry and Light.

Dark, Fat, *Sandy Mould*; *Fruit-trees*, Evelyn Terra 3.

Moist *Sand*; *Poplar*.

Sand and Gravel; *Chestnut*, Farm 664. *Medlar*, Hartlib's Def. 22. *Service*, ib.

Sand unmixed is bad; Evelyn Terra 4. Not good for *Cyder-Apples*, Worlidge Vinetum Part II. c. 4. Nor any *Apples*, Henonville c. 4.

Near the *Sea-coast*; *Pine*, Crescentiensis 257. Farm 392. *Cyder-Apples* on Brackish Ground, Worlidge Vinetum Part II. c. 4. *Few Trees*, Smith 40.

Land newly recovered from the *Sea*; Not *Apples* till the Soil is sweetned, Worlidge ib.

Shady Places will serve for *Holly*, Cook 87. Not *Ozier*, Farm 502.

Shallow Soil; serves for *Beech*, Smith 55. For *Ash* shallower than for *Oak*, ib. *Cherry*, Evelyn Pomona 77. *Pear*, Beal 10. Not *Walnut*, Cook 63. Not *Oak*, Evelyn Silva 23. Not *Elm*, Evelyn Silva

Silva 39. *Few Trees*, Evelyn Silva 243. Smith 42. *Shallow* and *Starvy Land* serves for *Apples* in some Places, Beal 9. Henonville c. 4. See Barren and Deep.

Ground very *Shallow*; Not *Fruit-trees*, Evelyn Pomona 67. Not *Ash*, Cook 55.

Signs of Ground fit for *Wood*; where grow *Betony* or Wild *Strawberries*, Evelyn Terra 6. Bacon's Nat. Hist. Exp. 660. Or *Thistles*, or Wild *Time*, Evelyn Terra 6. Or *Mallows*, *Nettles*, *Docks*, or *Hemlock*, Smith 32. And some Places where *Fern* grows, Evelyn Terra 6. Cook 16.

Signs of *Bad Ground*; *Moss*, *Rusbes*, Wild *Tansy*, *Sedge*, *Flaggs*, *Tarrow*, Evelyn Terra 6. *Fern* for the most part, *Broom* and *Heath*, Evelyn Silva 4. Smith 33. *Furze* and *Blewish* pale thin small *Grass*, ib. See Markham of Barren Ground c. 1.

Soft Ground; *Chestnut*, Farm 391. *Pear*, Henonville, p. 55. See Clay and Hard.

Sound Ground; *Walnut*, Evelyn Silva 59. *Sycamore*, Blith 135. *Most Trees*, id. 124.

Ground leaning to the *South*; *Fruit-trees*, Beal, 41. J. B. Husb. 301. Or to the *South-East*, Worlidge Vinetum c. 4. sect. 1.

Spewing Ground; Not *Poplar*, Evelyn Silva 72. See very Wet. *Spungy*; see Cold.

Stiff Ground; *Oak*, Evelyn Silva 24. Cook 16. *Hornbeam*, Evelyn Silva 48, 242. Cook 63. *Service*, Evelyn Silva 63. Cook 65. *Ash*, Evelyn Silva 242. *Winter-Apple*, Evelyn Terra 6. Beal 19, 32, 41. Langford 81. Henonville c. 4. Worlidge Vinet. c. 4. sect. 1. It serves for *Red-Willow*. *Apple* better than Garden *Pear*, Cotton 6. *Pear* better than *Stone-Fruit*, ib. Not *Sycamore*, Evelyn Silva 68. Cook 73. Not *Green-Willow*. See Clay and Loose.

Ground very *Stiff*; Not *Beech*, Farm 667. Not *Hornbeam*, id. 666. Not *Ash*, id. 662. Not *Fruit-trees*, London 1. c. 3. Not fit for a *Nursery*, id. 2. c. 16. Langford 7. Cotton 91. Cook 16.

Soil with some *Stones* in it, is best for *most Trees*, Blith 124.

Stony Ground; *Walnut*, Evelyn Silva 59. Beal 33. Langford 63, 136. Worlidge Husb. 101. *Birch*, Evelyn Silva 78. *Beech*, Nourse c. 8. Farm 666, 667. *Hornbeam*, id. 666. *Oak*, Crescentiensis 256. *Wood*, Evelyn Silva 244. *Pear*, Evelyn Pomona 80. Langford 63. Worlidge Husb. 100. and Vinet. c. 4. sect. 2. *Apples* in some Places, Beal 9. See Gravel.

Very *Stony Ground*; *Few Timber-Trees*, Evelyn Silva 7, 25. Smith 41.

Instead of *Thorns* not growing in a Hedge or Coppice, plant *Fruit-Trees*.

Near *Towns*; *Hornbeam* in Clumps, Evelyn Silva 48.

In *Soil* not tried before with *Fruit-trees*, plant *Apples* and *Pears* alternatively, Phil. Transl. n. 71.

In *Vallies*; *Walnut*, Evelyn Silva 59. *Chestnut*, Farm 391. *Beech*, Worlidge Husb. 78. *Apples*, Evelyn Pomona 68. Beal 31. *Fruit-trees*, Cotton 7.

On the North and North-East sides of *Villages*, *Elms*, Beal 47.

Very *Uneven Ground*; Ungrafted *Apples*, Beal 45.

Walks; *Fruit-trees*, Langford c. 11. sect. 4. Nourse 132, 334. Farm 651. Henonville 109. *Pears*, Evelyn Pomona 79. *Forest-trees*, Cook

Cook c. 38. *Elms*, Evelyn Silva 41. Farm 650. *Elms* growing high and kept stript up to the Top, Evelyn Silva 41. *Walnut*, Evelyn Silva 58. Langford 134. Henonville 25, 110. Farm 651. *Chestnut*, Evelyn Silva 56. Henonville 25, 110. *Horse-Chestnut*, Evelyn Silva 56. Langford 137. *Lime*, Evelyn Silva 69. Cook 70. Henonville 27, 110. *Hornbeam*, Evelyn Silva 45. *Poplar*, Evelyn Silva 72. *Abele*, Speed of Husbandry 65. *Plane-tree*, Evelyn Silva 115. *Lawrel*, Evelyn Silva 162. *Beech*, Nourse c. 8. *Firr*, Evelyn Silva 258. *Pinafter*, 88. *Oak*, *Pine*, *Black-Cherry*, *Tew*, *Holly*, Evelyn Silva 260. *Fruit-trees* and *Forest-trees* mixt.

Near *Fine Walks*; Not *Sycamore*, Evelyn Silva 68. Cook c. 20. Not *Ash*, Evelyn Silva 53. Cook p. 55. Not *White-Poplar*, Evelyn Silva 72.

Warm Ground; *Oak*, Evelyn Silva 24. *Beech*, Worlidge Husb. 78. *Apples*, Evelyn Silva 57. *Walnut*, Evelyn Silva 57. Cook 63. Langford 135. Worlidge Husb. 101. *Sycamore*, Blith 135. *Most Trees*, Evelyn Terra 6. Blith 124.

On *Waste-Lands*; *Forest-trees*, Evelyn Silva 97. *Fruit-trees* and *Forest-trees* mixt. *Fruit-trees* for the Poor, Evelyn Pomona 51. See Commons. Hartlib's Def. p. 6.

Near *Water*; *Aquaticks*, Farm 660. *Poplar*, ib. *Birch*, ib. *Sallow*, Evelyn Silva 88. *Chestnut*, Evelyn Silva 65. *Ash*, Evelyn Silva 51. *Cypress*, Cato c. 151.

Banks worn away by *Water*; *Alder*, Evelyn Silva 86.

Wet Ground; *Aquaticks*, Evelyn Silva 73. *Birch*, Evelyn Silva 78. Not *Walnut*, Gerard. Pliny l. 16. c. 18. Not *Chestnut*, ib. Not *Cypress*, ib. Not *Beech*, Farm 666. Not *Oak*, Crescentienfis 170. Not *Fruit-trees*, Evelyn Silva 212. Langford 81. Beal 26, 45. Taverner 33. Austen Observ. p. 5, 37. Meager c. 1. London 1. c. 3. Compleat Planter 258. Not a Nursery of *Fruit-trees*, Langford 7. Taverner 33. See Cold and Moist.

Wet Fat Ground; *Sallow*, Evelyn Silva 88.

Very *Wet Ground*; *Alder*, Evelyn Silva 4, 86. Farm 660. *Hopping Sallow*, Evelyn Silva 89. Not *Female-Elm*, Evelyn Silva 39. Not *Ash*, Evelyn Silva 51, 54. Cook 55. Not *Lime*, id. 70. Not *Sycamore*, Evelyn Silva 68. Cook 73. Not *Withy*, id. 82. Not *Chestnut*, Evelyn Silva 55. Meager c. 19. Not *White-Poplar*, Evelyn Silva 72. Not *Willow*, Evelyn Silva 93. Farm 660. Not *Ozier*, id. 502.

Ground on which *Water* lies long; *Few Trees*, Smith 41. Blith 123. Not *Fruit-trees*, Lawfon c. 2. Nourse 131. Worlidge Vinet. c. 4. sect. 1.

Wheat Land; *Walnut*, Evelyn Silva 59. *Fruit-trees*, Taverner 34. It serves for *Cyder-Fruit*, Evelyn Pomona 74, 77. See Corn.

Very *White Ground*; Not *Fruit-trees*, London 1. c. 3.

Wild Ground; *Oak*, *Ash*, &c. Beal 49.

Sowre *Wood-Land* serves for *Cyder-Fruit*, Evelyn Pomona 75.

Any thing thrives under *Elms*, Evelyn Silva 41, [279.] Cook 52. Pliny l. 17. c. 12. Or *Alders*, Evelyn Silva 86. Pliny, ib. Or *Poplars*, Evelyn Silva 72. Pliny, ib. Or *Abeles*, Evelyn Silva 73. Speed of Husbandry 64. Or *Pines*, Palladius Nov. tit. 7. Farm 392. Quære. See Pliny, ib. and Meager c. 6. But not so well under *Ash*, Evelyn Silva 53, 54. Nourse c. 8. Bacon's Nat. Hist. Exp. 480. Nor

Beech,

Beech, Nourse ib. Nor *Chestnut*, Evelyn Silva 54. Nor *Oak*, *Fir*, nor *Pitch-tree*, Pliny ib. Meager c. 6. And yet if their Branches be pared away, there are few Trees that do much hurt in this respect, Evelyn Silva [279.] Pliny ib.

Walnut-trees 60 or 100 foot asunder do good to Corn, Evelyn Silva 59. Quære, see Pliny, ib. Meager c. 6, and 18. Farm 392.

Pliny says, That in *Bœotia* the best Corn grew among *Olive-trees*, ibid.

Willows, hurt Corn, but not Grass, Farm 502.

Oaks discreetly disposed of, take off nothing from other Profits, Evelyn Silva 273.

Oaks, *Ash* or *Elm* set in Pasture Ground 3 or 4 Rod asunder, do no harm, Cook 85.

Oak set 12 Yards asunder do little hurt to Corn, Meadow or Pasture, Smith 102.

In answer to that Objection of spoiling Ground, the Inconveniences of Orchards planted at 20 or 30 Foot distance is not worth speaking of, Hartlib's Leg. p. 21.

If Men would plant *Fruit-trees*, they might take as great Commodity in effect by pasturing or caring of their Ground, as now they do, Taverner p. 29.

By planting *Fruit-trees* in Fields 30 Yards asunder, you may almost have a double Crop on your Lands, viz. Grass, or Grain and Fruit, and the Land rather benefited than damaged, Langford c. 11. sect. 1.

By planting *Fruit-trees* 30 Yards asunder, there may be a great improvement of Land, without any loss of Grass or Corn; and so Men may receive a double Gain; Hartlib's Design p. 7. See also Blith's Improver improved, p. 263. and Austen of Fruit-trees, p. 2.



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T E R R A.

A

Philosophical Discourse

O F

E A R T H,

Relating to the •

*Culture and Improvement of it for Vegetation,
and the Propagation of Plants, &c. as it
was presented to the ROYAL SOCIETY,
April 29. 1675.*

By J. EVELYN, Esq; Fellow of the said SOCIETY.

Πολλάκι τοι κηπωρὸς ἀνὴρ καλὰ κείριον εἶπε.

TERRA

Philosophical Discourse

OF
EARTH

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By J. Evelyn, Esq; Fellow of the said SOCIETY.

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F O R

JOHN EVELYN, *Esq*; &c.

S I R,

THE Council of the ROYAL SOCIETY, considering with themselves the great Importance of having the Publick Meeting of the said Society constantly provided with Entertainments suitable to the Design of their Institution, have thought fit to undertake to contribute each of them One; not doubting but that many of the Fellows of the Society will join with them in carrying on such an Undertaking: And being well persuaded of your Approbation of this their Purpose, (so much tending to the Reputation, and Support of the Society,) they desire that you would be pleas'd to undertake for One; and to name any Thursday after the fourteenth of January next, such as shall be most convenient for you; when you will present the Society at one of their Publick Meetings, by your self (or some other of the Fellows for you) with such a Discourse (grounded upon, or leading to Philosophical Experiments) on a Subject of your own Choice: In doing of which, you will benefit the Society, and oblige,

S I R,

Your humble Servant,

Brouncker, P. R. S.



To the Right Honourable

My Lord Viscount BROUNCKER, &c.

President of the ROYAL SOCIETY, &c.

MY LORD,



Have in Obedience to your Lordship, and the irresistible Suffrages of that SOCIETY over which you preside, resign'd these Papers to be dispos'd of, as you think fit: I hear your Lordship's Sentence is, they should be made Publick. Why should not a thousand Things of infinitely more Value, daily enriching their Collection (and which would better justify the laudable Progress of that Assembly) be oftner produc'd, as some of late have been? This, my Lord, would obviate all unkind Objections, and cover the Infirmities of the present Discourse, with things indeed worthy our Institution. But, as I am to obey your Lordship's Commands, so both your Lordship and the Society are accountable for publishing the Imperfections of,

My LORD,

Your Lordship's, and Their

most obedient Servant,

J. EVELYN.

T E R R A.

A Philosophical Discourse O F E A R T H.

I AM call'd upon, by Command from your *Lordship*, and the Council, who direct the Progress of the *Royal Society*, (and as in course it falls) to entertain this *Illustrious Assembly* with something, which being either deduced from, or leading to *Philosophical Experiment*, may be of real use, and suitable to the design of its Institution.

I am highly sensible, as of the Honour which is done me; so of the great Disadvantages I lie under, for want of Abilities to carry me through an Undertaking of this Importance, and before such acute and learned Judges; but I hope, my Obedience to your Commands, and, at least, Endeavours, will cover those defects for which I can make no other Apology.

There are few here, I presume, who know not upon how innocent and humble a Subject I have long since diverted my thoughts; and therefore I hope, they will not be displeased, or think it unworthy of their patience, if from their more sublime and noble Speculations (and which do often carry them to converse among the brighter Orbs, and Heavenly Bodies) they descend a while, and fix their eyes upon the *Earth*, which I make the present Argument of my Discourse. I had once indeed pitch'd upon a Subject of somewhat a more brisk and lively nature; for what is there in Nature, so sluggish and dull as Earth? What more spiritual and active than *Vegetation*, and what the Earth produces? But *this*, as a Province becoming a more steady Hand, and penetrating Wit, than mine to cultivate, (unless where it transitorily comes in my way to speak of *Salts* and *Ferments*) I leave to those of this learned *Society*, who have already given such admirable Essays of what they will be more able to accomplish upon that useful and curious Theme; and therefore I beg leave, that I may confine my self to my more proper *Element* the Earth, which though the lowest, and most inferior of them all, is yet so subservient, and necessary to *Vegetation*, as without it there could hardly be any such thing in Nature.

To begin, I shall in the first Place then describe, what I mean by *Earth*; then I shall endeavour to shew you the *several sorts* and kinds

of Earth; and lastly, how we may best *improve* it to the Uses of the *Husbandman*, the *Forester*, and the *Gardiner*; which is indeed of large and profitable Extent, though it be but poor and mean in sound, compar'd to Mines of Gold and Silver, and other rich *Ores*, which likewise are the Treasures of the Earth, but less innocent and useful.

I intend not here to amuse this noble Audience, or my self, with those nice Enquiries, concerning what the real *Form* of that Body or Substance is, which we call *Earth*, denudated and stripp'd of all *Heterogeneity*, and reduc'd to its Principles: As whether it be composed of *sandy, central, nitrous*, or other *Salts*, Atoms, and Particles? Whether void of all Qualities but Dryness, and the like, (as they commonly enter into the several Definitions of *Philosophers*,) nor of what Figure and Contexture it consists, which causes it to adhere and combine together, so as to affirm any thing dogmatically thereupon; much less shall I contend, whether it be a *Planet* moving about the *Sun*, or be fix'd in the *Centre* of the Universe; all which have been the curious researches and velitations of our later *Theorists*: but content my self with that Body or Mass of *Glebe*, which we both dwell on, and every day cultivate for our necessary subsistence, as it affords us *Corn, Trees, Plants*, and other *Vegetables* of all sorts, useful for human life, or the innocent refreshments of it.

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Those who have written *de Arte Combinatoria*, reckon up no fewer than *One hundred seventy nine millions one thousand and sixty different sorts of Earths*; but of all this enormous number, as of all other good things, it seems they do not acquaint us with above eight or nine eminently useful to our purpose; and truly I can hardly yet arrive at so many. Such as I find naturally and usually to rise from the Pit, I shall here spread before you in their order.

The most beneficial sort of *Mould* or *Earth*, appearing on the surface (for we shall not at present penetrate lower than is necessary for the planting and propagation of *Vegetables*) as it consists of a mixt body, is the *natural* (as I beg leave to call it) *underturf-Earth*, and the rest which commonly succeeds it, in *strata*, or layers, 'till we arrive to the barren and impenetrable Rock, be it fat or lean, *Loam, Clay, Plastic, Figuline*, or *Smectic*; as *Chalk, Marle, Fullers-Earth, Sandy, Gravelly, Stony, Rock, Shelly, Coal, or Mineral*; such as with the Antients were the *Creta, Argilla, Smectica, Tophacea, Pulla, Alba, Rufa, Columbina, Macra, Cariosa, Rubrica*, (I name them promiscuously) to be found in the old *Geoponic* Authors, to whom I refer the Critical.

Most, or all, of these lying (as I affirm'd) in Beds, one upon another, from softer to harder, better to worse, usually determine in *Sand, Gravel, Stone, Rock, or Shell*, which last we frequently meet with in Marsh, and Fenny Delves, and sometimes even at the foot of high *Mountains*, and sometimes on the very Tops, after divers successions of different Moulds, and at the bottom of the profoundest Pits, as in that deep *Perforation* made at *Amsterdam*, in order to the building of the *Stadt-House*. All which, and of the Cause of the Successions of the several *Strata* of *Fossils*, &c. so bedded, thro' the whole Terrestrial Globe, (after all Conjectures hitherto) the Ingenious Dr. *Woodward* attributes to a total dissolution of the Materials which constituted the Original Fabrick of the *Antediluvian World*; when the commotion of the Waters beginning to calm and relax, the disunited floating Particles

ticles promiscuously blended, sunk down, and subsiding according to their specifick Gravity, settled in the Beds and *Strata* we now every where find them. But of this, and other Effects of the Deluge, see the learned *Doct^r's Essay*.

I begin with what commonly first presents it self under the removed Turf, and which, for having never been violated by the Spade, or received any foreign mixture, we will call the *Virgin-Earth*; not that of the *Chymists*, and the Searchers after the *Philosophers Stone*; but as we find it lying about a foot deep, more or less, in our Fields, before you come to any manifest alteration of Colour or Perfection. This Surface-mould is the best, and sweetest, being enriched with all that the Air, Dews, Showers, and Celestial Influences can contribute to it: For 'tis with good *Earth*, as with excellent *Water*, that's the best, which with least difficulty receives all external qualities; for the Fatness of this *Under-turf* Mould, being drawn up by the kindly warmth of the Sun to the Superficies, spends but little of its Vigor in the Grass and tender Verdure which it produces, and easily nourishes without dissipating its Virtue, provided no rank Weeds, or predatitious Plants (consuming their Seeds) be suffered to grow and exhaust it; but maintains its natural force, and is therefore of all other uncultivated Moulds the most grateful to the Husbandman.

Now as the rest of incumbent and subjacent *Earths* approach this in vertue, so are they to be valued; and of these there are several kinds, distinguishable by their several Constitutions: The best of which is *black, fat*, yet porous, light, and sufficiently tenacious, without any mixture of *Sand* or *Gravel*, rising in pretty gross Clods at the first breaking up of the Plough; but with little labour and exposure falling to pieces, but not crumbling altogether into Dust, which is the defect of a more vicious sort. Of this excellent *black* Mould (fit almost for any thing without much manure) there are three kinds, which differ in Hue and Goodness.

The next layer in *series* to this, is usually mixt with a sprinkling of Stones, somewhat hard, yet friable, and when well aired and stirred, is not to be rejected; the looseness of it, admitting the refreshment of Showers, renders it not improper for Trees and Plants, which require more than ordinary Moisture. Declining from this in perfection, is the *darkish gray* or *tawny*, which the deeper you mine, rises vein'd with yellow, and sometimes reddish, till it end in pale; and if you penetrate yet farther, commonly in Sand, and a gritty Stone.

Of a second *Class*, is Mould of an obscure Colour also, more delicate Grain, tender, cheffum and mellow; clear of Stones and Grittiness, with an eye of *Loam* and *Sand*, which renders it light enough, yet moist; of all other the most desirable for *Flowers*, and the *Coronary Garden*.

To this we add a yet more obscure and sandy Mould, accompanied with a natural Fattiness; and *this*, though rarer, is incomparable for almost any sort of *Fruit-Trees*.

A *third* participates of both the former, fattish, yet interspersed with small Flints and Pebbles, not to be altogether neglected.

A *fourth* is totally *sandy*, and that of divers colours, with sometimes a bottom of *Gravel*, now and then *Rock*, and not seldom *Clay*; and, as the Foundations are, so is it more or less retentive of Moisture, and tolerable for Culture: But all *Sand* does easily admit of Heat and Moisture,
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and yet for that not much the better; for either it dismisses, and lets them pass too soon, and so contracts no ligature, or retains it too long, especially where the bottom is of Clay; by which it parches, or chills, producing nothing but Moss, and disposes to *Cancerous* Infirmities: But if, as sometimes it fortunes, that the Sand have a Surface of more genial Mould, and a *fund* of Gravel or loose Stone; though it do not long maintain the virtue it receives from Heaven, yet it produces as forward springing, and is Parent of sweet Grass, which, though soon burnt up in dry Weather, does as soon recover with the first Rain that falls.

Of pure and *sheere-Sand*, there's white, black, bluish, red, yellow harsher and milder, and some meer Dust in appearance, none of them to be desired alone; but the grey-black, and ash-colour'd, and that which frequently is found in heathy Commons, or of the travelling kind, volatile, and exceeding light, is the most insipid, and worst of all. I do not here speak of the Drift and Sea Sands, which is of admirable virtue and use in mixtures, and to be spread on some Lands; because it has been describ'd so accurately already in a just Discourse upon another occasion, by an experienc'd *Gentleman*, dwelling in the Western Parts, where this Manure is perfectly understood, and recommended to more general use.

As of *Sands*, so are there as different sorts of *Clays*, and of as different Colours, whereof there is a kind so obstinate and ill-natured, as almost nothing will subdue it, and another so voracious and greedy, as nothing will satiate, without exceeding Industry, because it ungratefully devours all that is applied to it, turning it into as arrant *Clay* as it self: Some *Clays* are more pinguid than other; some more slippery; all of them tenacious of Water on the Surface, where it stagnates and chills the Plant, without penetrating; and in dry Seasons costive, and hardning with the Sun and Wind; most of them pernicious, and untractable.

The unctuous and fatter *Clay*, frequently lies upon the other, having oftentimes a basis of *Chalk* beneath it; but neither is this worth any thing, 'till it be loosened, and rendred more kind, so as to admit of the Air and Heavenly Influences; in a word, the *blue*, *white*, and *red Clay*, (if strong) are all unkind; the stony, and looser sort is yet sometimes tolerable; but the light *Brick-Earth* does very well with most *Fruit-trees*.

I had almost forgotten *Marsh-Earth*, which though of all other, seemingly, the most churlish, a little after 'tis first dug, and dried, (when it soon grows hard, and chaps,) may with labour, and convenient exposure, be brought to an excellent Temper; for being the Product of rich Slime, and the Sediment of Land-Waters, and Inundations, which are usually fat, as also the rotting of Sedge, yea, and frequently of prostrated Trees, formerly growing in or near them, and in process of time rotted (at least the spray of them) and now converted into Mould, becomes a very profitable Land: But whether I may reckon this among the natural *Earths*, I do not contend.

Of *Loams* and *BrickEarths*, we have several sorts, and some approaching to *Clay*; others nearer *Marle*; differing also in colour; and if it be not too rude, mingled in just proportion with other Mould, an excellent Ingredient in all sorts of *Earth*, and so welcome to the Husbandman, and the Gardiner especially, as nothing does well without a little dash of it.

Of *Marle*, (of a cold, sad nature, a substance between *Clay* and *Chalk*) seldom have we such quantities in Layers, as we have of the forementioned *Earths*; but we commonly meet with it in places affected to it, and 'tis taken out of Pits, at several Depths, and of divers Colours, red, white, gray, blue, all of them unctuous, of a slippery nature, and differing in Goodness; for being pure and immixt, it soon relents after a Shower, and when dried again, slackens, and crumbles into Dust, without induration, and growing hard again: They are profitable for barren Grounds, as abounding with *Nitre*; and sometimes there has been found in *Marle Delfs*, a *Vitriolic* Wood, which will kindle like *Coal*.

Lastly, *Chalk*, which is likewise of several Kinds and Colours, hard, softer, fine, courser, abstergent, slippery and marly, and apt to dissolve with the Weather into no unprofitable Manure: Some of them have a sandish, others a blacker and light surface; and there is a sort which produces sweet Grass, and aromatic Plants, and some so rank, especially in the Valleys of very high Hills, as to feed not only Sheep, but other Cattle, to great advantage, as we may see in divers places among the Downs of *Sussex*. But it has a peculiar virtue above all this, to improve other Lands, as we shall come to shew.

I forbear to speak particularly of other *Argillaceous Fullers-Earth*, *Tobacco-Clay* dry and astringent, the white *Cimolia*, and the several fictile *Clays*; because they are not so universal, and serviceable to the Plough and Spade; much less of *Terra Lemnia*, *Chia*, *Melitenensis*, *Hetrusca*, and the rest of the *Sigillatæ*; nor of the *Bolus's*, *Rubrics*, and *Okers*, *Figuline*, *Stiptic*, *Smegmatic*, &c. as they are diversly qualified for several uses, *Medical*, and *Mechanical*; but content myself with those I have already enumerated.

Now besides the Description and Characters we have given of these several *Moulds* and *Earths*, as they reside in their several Beds and Couches, there are divers other Indications, by which we may discover their *Qualities* and *Perfections*; as amongst other, a most infallible one is, its disposition to melt, and crumble into fine morsels, not turn to Mud and Mortar, upon the descent of gentle Showers, how hard soever it seem before, and if in stirring it rise rather in *Granules*, than massy Clods.

If excavating a Pit, the Mould, you exhaust, more than fill it again, *Virgil* tells us 'tis good Augury; upon which *Laurembergius* affirms, that at *Wittemberg* in *Germany*, where the Mould lies so close, as it does not replenish the Foss out of which it has been dug, the *Corn* which is sown in that Country soon degenerates into *Rye*; and what is still more remarkable, that the *Rye* sown in *Thuringia* (where the *Earth* is less compacted) reverts, after three Crops, to be *Wheat* again.

My Lord *Bacon* directs to the observation of the *Rainbow*, where its extremity seems to rest, as pointing to a more roscid and fertile Mould; but this, I conceive, may be very fallacious, it having two Horns, or Bases, which are ever opposite.

But the Situation and Declivity of the Place is commonly a more certain mark; as what lies under a Southern, or South-East rising ground; but this is also eligible according to the purposes you would employ it for; some *Plants* affecting hotter, other colder exposures; some delight to dwell on the Hills, others in the Vallies, and closer

Seats; and some again are indifferent to either; but generally speaking, most of them chuse the warm, and more benign; and the Bottoms are universally fertile, being the recipients of what the Showers bring down to them from the Hills and more elevated parts.

Another infallible Indication is the nature, and floridness of the *Plants*, which officiously it produces; as where *Thistles* spontaneously thrive; where the *Oak* grows tall and spreading; and as the Plant is of kind, so to prognostic for what Tillage, Layer, or other use, the Ground is proper; *Tyme*, *Strawberries*, *Bettony*, *Sorall*, &c. direct to Wood; *Camomile*, to a Mould disposed for *Corn*, and I add, to Hortulan Furniture; *Burnet*, to Pasture; *Mallows* to Roots, and the like, as my Lord *Verulam* and others observe.

On the contrary, some Ground there is so cold, as naturally brings forth nothing but *Gorse*, and *Broom*, *Holly*, *Tew*, *Juniper*, *Ivy*, *Box*, &c. which may happily direct us to the Planting of *Pine*, *Firs*, the *Phillyreas*, *Laurel*, *Spanish-Broom*, and other perennial Verdures in such places.

Moss, *Rushes*, *Wild-Tansy*, *Sedge*, *Flags*, *Fern*, *Tarrow*, and where Plants appear wither'd or blasted, shrubby, and curl'd, (which are the effects of immoderate Wet, Heat, and Cold interchangeably) are natural Auguries of a curs'd Soil: Yet I have observ'd some *Ferny Grounds* proper enough for *Copp'ce* and *Forest-Trees*. Thus as by the *Plant* we may conjecture of the *Mould*; so by the *Mould* may we guess at the *Plant*: The more *herbaceous* and tender, springing from the gentle Bed; the courser and rougher Plants, from the rude and churlish: And as some *Earths* appear to be totally barren, and some though not altogether so unfruitful, yet wanting *Salacity* to conceive, Vigor to produce, and sensibly eluding all our Pains; so there is other, which is perpetually pregnant, and this is likewise a good Prognostic.

Upon these, and such like hints, in proposals of transplanting *Spices* and other exotic Rarities, from either *Indies*, the Curious should be studious to procure of the natural Mould in which they grow (and this might be effected to good proportion, by the ballasting of Ships) either to plant, or nourish them in from the *Seed*, till they were of age, and had gained some stability of Roots and Stem, and become acquainted with the *Genius* of our *Climate*; or for Effays of Mixtures, to compose the like.

By the Goodness, Richness, Hungriness and Tincture of the *Water* straining through Grounds, and by the Weight and Sluggishness of it, compared with the lighter, conjecture also may be made, as in part we have shewed already.

To conclude, there are almost none of our *Senses*, but may of right pretend to give their Verdict here: And *First*,

By the *Odour* or *Smell*, containing (as my Lord *Verulam* affirms) the juice of *Vegetables* already as it were concocted and prepared; so as after long Drowths, upon the first Rains, good, and natural Mould will emit a most agreeable Scent; and in some places (as *Alonso Barba*, a considerable *Spanish* Author testifies) approaching the most ravishing Perfumes; as on the contrary, if the Ground be disposed to any *Mineral*, or other ill quality, sending forth *Arsenical*, and very noxious Steams; as we find from our Marshes and Fenny-grounds.

By the *Taste*, and that with good reason; all *Earths* abounding more or less in their peculiar *Salts*, as well as *Plants*; some sweet and

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more grateful; others bitter, mordacious, or astringent: some flat and insipid; all of them to be detected by *percolation* of untainted Water through them; though there be who affirm, that the best *Earth*, like the best *Water*, and *Oyl*, has neither Odour nor Taste.

By the *Touch*, if it be *tenera*, fatty, deterfive, and slippery; or more asperous, gritty, porous and friable; likewise if it stick to the fingers like Bird-lime, or melt, and dissolve on the tongue like Butter: Furthermore, good and excellent *Earth* should be of the same constitution, and not of contrary, as soft and hard; churlish and mild; moist and dry; not too unctuous, nor too lean, but resolvable, and of a just and procreative temper, combining into a light, and easily crumbling Mould; yet consistent, and apt to be wrought and kneaded, such as having a *modicum* of *Loam* naturally rising with it, to entertain the Moisture, does neither defile the Fingers, nor cleave much to the Spade, which easily enters it, and such as is usually found under the Turf of Pasture-grounds, upon which Cattel have been long fed and foddered. In a word, *that* is the best *Earth* to all Senses, which is of a blackish gray, cuts like Butter, sticks not obstinately, but is short, light, breaking into small Clods; is sweet, will be temper'd without crusting or chapping in dry weather, or (as we say) becoming Mortar in wet.

Lastly, by the *Sight*, from all the Instances of *Colour*, and other visible Indications: For the common Opinion is, (though long since exploded by *Columella*) that all hot, and choleric Grounds, are *red* or *brown*; cold and dry, *blackish*; cold and moist, *whitish*; hot and moist, *ruddy*; which yet, Exhalations from *Minerals*, the Heat of the Sun, and other Accidents may cause; but generally, they give preeminence to the darker *Grays*; next to the *Russet*; the clear *Tawny* is found worse; the light and *dark-ash* colour (light also of weight, and resembling *Ashes*) good for nothing; but the *yellowish-red* worst of all. And all these are fit to be known, as contributing to noble and useful *Experiments*, upon due and accurate Comparisons, and Enquiries from the several Particles of their Constitutions, Figures, and Modes, as far at least, as we can discover them by the best auxiliaries of *Microscopes*, *Lotions*, *Strainers*, *Calcinations*, *Triturations* and *Grindings*; upon such discovery to judge of their qualities, and by essaying variety of Mixtures, and imitating all sorts of *Mould*, *foreign* or *indigen*, to compound *Earths* as near as may be resembling the natural, for any special or curious use, and thereby be enabled to alter the Genius of Grounds, as we see occasion.

The consideration of this it was, which gave me the Curiosity to fall upon the examining of a Collection I had made of several sorts both of *Earth* and *Soils*, such as I could find about this Territory; whereof some I washed, to find by what would melt, reside, or pass away in the percolation, of what visible Figure they chiefly seemed to consist, armed as I was with an indifferent *Microscope*, of which be pleased to take this brief account.

Gravelly and *Arenous* Earths of several sorts, before they were washed, appeared to be, most of it, rough *Chrystals*, of which some very transparent and gemmy; few of them sharp or angular, but roundish; mixed with Atoms and Particles of a mineral hue, which being well dried, and bruised on a hard serpentine Stone, and *Mullar* of the same, was with little labour reduced to an impalpable whitish Sand,

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untransparent, as it happens in the bruifings of most, though never so diaphanous Bodies, which may be so reduced.

Yellow Sand had the appearance of Amber; bruised, an untransparent paler Sand.

Fat rich Earth, full of black spots, without much discolouring the Water (as hardly did any of the Sands of all) being dried, was reduced to a delicate sandy Dust, with very little brightness.

Marsh Earth contained a considerable quantity of Sand, the rest resembled the fat Earth.

The *Under-pasture Mould* had likewise a sandy mixture, and what passed with the Water after evaporation, seemed to be an impalpable, and very fine untransparent Sand.

Clay consisted of most exceeding smooth and round Sands, of several opacous Colours.

Potters-Earth, of different sorts, ground small, became like Sand, of a yellowish gray, and other Colours, exceeding polite and smooth.

A certain *yellowish loamy Earth*, which had been brought to me, with some *Orange-Trees* out of *Italy*, was reduced to a bright soft Sand, appearing more gemmy than in the other *Loams*.

Chalk resembled fine white Flower, and some of it sparkling, especially the harsher sort; but the tender, not.

Fullers-Earth appeared like *Gum Tragacanth*, a little wetted, seemingly swelled, yet glistening; but when reduced to a fine Dust, a smooth Sand.

Tobacco-Earth, not much bruised, was just like white Starch; washed and well dried, it resembled the whitest Flower of *Wheat* a little candied: I had not the opportunity of examining the several sorts of *Marles*: and so I proceed to the *Dungs*.

Neats-Dung, (the Cattel fed only with Fodder, or little Grass, for 'twas in the Winter I made my Observations) appeared to be nothing but Straws in the entire substance, and Colour little alter'd, save what a certain slippery Mucilage gave them, sprinkled with a glistening Sand like Atoms of *Gold*; but upon washing and drying again, the tenacious Matter vanished, and the Straws appeared separated and clear.

Sheeps-Dung was much like the former, only the spires and blades of a fine short Grass conglomerated and rolled up in the Pellets, and the Glew about it less viscous, but it passed also away in the lotion.

Swines-Dung had the resemblance of dirty Bees Wax, mingled with Straws and Husks, which seemed like candied *Eringo*, and some like *Angelica* Roots.

The *Soil of Horses* appeared like great Wisps of Hay, and little Straws, thin of Mucilage, and which being washed, was easily to be discerned by a naked Eye.

Deers-Dung much resembled that of *Sheeps*.

Pigeons-Dung consisted of a stiff glutinous matter, easily reducible to Dust of a gray Colour, with some husky Atoms, after dilution. Lastly,

The *Dung of Poultry*, was so full of Gravel, small Stones, and Sand, that there appeared little or no other substance, save a very small portion both of white and blackish viscous Matter twisted up together; of all the other, the most foetid and ill smelling.

These were all I had Time and Leisure to examine; I cannot say with all the Accurateness they were capable of, but sufficiently to encourage the more Curious, and to satisfy my self, that the very finest Earth, and best of Moulds, however to appearance mix'd with divers imperfect Bodies, may, for ought we know, consist more of *sandy Particles*, than of any other whatsoever; at least, if from this *Criterion* we may be allowed to pronounce what they seem to the Eye, *Sands*, *Crystals*, or *Salts*, call them what you please; the Consideration of which being so universally the Cause of *Vegetation*, was no small Inducement to me to see, if by examining the several *Earths*, (though but by a cursory inspection) I might possibly detect, what Rudiments of such a *Principle* there were lurking in them, abstractedly taken; not that I opine *Earth* to be *Salt* alone, and nothing else, (though perhaps little more besides *Sulphur*) for so it produces no Vegetable that I know of, without *Water* to dissolve and qualify it for Insurrection, and perhaps some other vegetable Matter, fitted to manure and receive the *Seeds*, and keep the Plant steady; which yet, for ought I can discern, is also but a finer sort of *Sand*, the Clamminess of it being rather something extrinsical and accidental to it, than any Thing natural, and originally constitutive: For, the Combination of these several Moulds, which gives the Ligature, Slipperiness, and a diverse Temper, seems rather to be caused by the perpetual and successive rotting of the *Grass*, *Plants*, *Leaves*, *Branches*, *Moss*, and other Excrescencies growing upon it (than any peculiar or solitary Principle apart) which in long tract of Time, has amassed together a Substance *heterogeneous* to the ruder Particles, which after the dilutions of the Superficies (that is, of the rich and fatter Mould) appears to be little other than *Sand*, or fixed *Salts*, of various Figures and Colours; since even the most obdurate and flinty *Pebble* beaten and ground to Powder, or by Calcination reduced to an insensible Dust, is as fine both to the Eye, and smooth to the Touch, as the most *Smettic* Earths, and *Marbles* themselves; such, at least, as you shall collect from the Subsidence (to Appearance) of the most Crystal Waters, precipitated by deliquated Oil of *Tartar*, or the like; and the more they be subdued and broken, the harder they will prove, if (cleared of their *nitrous* Parts) they pass the Potter's Fire, however they seemed before to be of different Constitution: This is evident in Vessels made of *Tobacco-Clay*, or whatever the Material be, which has of late been so successfully employed, for the finding out of a Composition (if I may so call it) nothing inferior to the hardest *Porcelain*, and almost as beautiful (by a worthy Member of this Society.) And Dr. Hooke; now upon Contemplation of that almost universal Ingredient of *Sand*, through all our Tryals, I cannot but incline to the Sentiment of that excellent *Philosopher*, as well as *Physician*, (the learned * Dr. Lister) that *Sand* might be the first *Mantle*, and universal Covering, of the whole newly created *Earth*.

But to return to our superficial Earth, which we call the *Mould*, I affirm it to grow, and increase yearly in Depth, from the Causes aforesaid; and in some Places to that Proportion, as to have raised no inconsiderable Hills and Eminences, by the accidental Fall, and rotting of Woods and Trees; such as *Birch*, and *Beech*, &c. which are not of a Constitution to remain long in the Ground (as *Fir*, *Oak*, *Elm*, and some other Timber will do, and grow the harder) without Cor-

* See his Discourse upon a Map, discovering Sands and Clays, reduced to Tables, presented to the R. Society.

ruption, and relenting into Mould as soft and tender, as what they first were sown or planted in; and of this I am able to give undeniable Instances. I insist not here on the perpetual Successions, and generations of *Flints*, and other Stones, in the same Places where they have been sedulously gathered off, by many (not improbably) thought to proceed from *Worm-casts*, hardened by the Air, and a certain *lapidescent Succus* or Spirit which it meets with: And this, for happening most on *Downs*, very much exposed (yet undisturbed) is the more probable; as, on the other Side, it establishes our Conjecture of the purest Moulds being capable of such a Change; that which is thus cast up by the Worms, being so exceedingly elaborated and refined: Nor perhaps are all those innumerable *Perforations*, especially through the hardest Surfaces, the Labour of *Worms* alone, but the Effect of some *Nitrous Spirit*, that spews out those *Molecule*: In the mean Time, let no Man be over-confident, that because some *Earths* are soft, fat, and slippery, they may not possibly consist of *Sands* (of which there are so many Kinds,) since 'tis evident, that even all possible Bodies, which can be reduced and brought to Sands, may by Contrition of the Particles be render'd so minute, as to emulate the finest *Earths* we have enumerated; the Compactedness, and accidental Mixtures resulting (as we affirm) from Things Extrinsic, not excluding Exhalations, Passage of Liquors, and several Juices to them, or conveyed by subterraneous Steams and Influences, be the Stones or Rock *Glareous*, *Metallic*, *Testaceous*, or any other Concretes whatsoever. And what if we should indeed suspect all *Earth* to be arrant *Salt*, nay *Glass*; and that *Glass*, how hard soever, the Offspring and Child of *Water*, the most Fluid, Crystalline, sincere and void of all other Qualities? 'Tis not impossible, I think, but by the different Texture of its Parts, even that liquid *Element* may be brought to the Consistence of a most different Body to what it appears: We know, that *Water* (besides that it was the first immense Body which invested the *Chaos*) was by some thought to be the *Mother* of *Earth*, (nay the *principia soluta* of all mixts whatsoever,) and that the bottom of the Sea was made by a perpetual *Hypostasis* or Subsidence, which precipitated from every Part of it to the Centre. I do not stand to justify these Speculations, but to illustrate what I am about; namely, that *Water* is apt enough to be condensed and made hard; and crude *Mercury*, and running Metal, *Crystals*, *Gems*, and *Pearls*, do more resemble it, than that dirty and opaque Body, which we usually denominate *Earth*: Besides, we find, how divers *Waters*, not only indurate, and petrify other Substances, but grow into *Stones*, and leave a rocky *Callus* where they drop, and continually pass, and that all Sands and Stones are not Diaphanous: Therefore that is no Eviction, but that they might once have been Fluid, since their Opacity may be adventitious, and proceed from sundry Accidents; so as granting this *Hypothesis*, we are less to wonder, that this Matter is above all other, so disposed to *Vegetation*, and apt to produce *Plants* endued with Colour, Weight, Taste, Odour, and with sundry medical and other Virtues, as I think that excellent Philosopher Mr. Boyle (the great Ornament of this Society) does somewhere make out from the various *Percolations*, *Conceptions*, and *Circulations* of that fruitful *Menstruum*: And if that be true, that there is but one *Catholic*,

homogeneous, fluid Matter, (diversified only by *Shape, Size, Motion, Repose*, and various *Texture* of the minute Particles it consists of; and from which Affections of Matter, the divers Qualities result of particular Bodies;) what may not Mixture, and an attent Inspection into the Anatomical Parts of the vegetable Family in time produce, for our composing of all sorts of Moulds and Soils almost imaginable, which is the Drift of my present Discourse? And why might not *Solomon* by this means have really had all kinds of *Plants* in his incomparable Gardens? even *Ebony, Cloves, Cinnamon*, and from the *Cedar* to the *Shrub*, such as grew only in the remotest Regions; furnished (as he doubtless was) with so extraordinary an Insight into all natural Things and Powers for the composing of Earths, and assigning them their proper Mixtures and Ferments. I do not here enquire, whether there be not a *Pansperme* universally diffused, individuated, and specified in their several *Matrixes* and Receptacles *pro ratione mixti* (as they speak) but I think there might very unexpected *Phænomena* be brought to light in vegetable Productions, did Men seriously apply themselves to make such possible Trials, as is in the Power of Art to effect; and how far *Soils* may be dissembled, and the *Air* and *Water* attempered, (at least for some Curiosities, which may give light to more useful things) I do not conclude; but I should expect very rare and considerable things from an attentive and diligent Endeavour. To this end, the raising of artificial *Dews* and *Mists*, impregnated with several Qualities, for the more natural Refreshment of *Exotic* Plants, were, it may be, no hard matter to effect; no more than were the Modification of the *Air* abroad, as well as in our more confined Reserves, where we set them in for *Hyemation*, and during the most rigorous Colds. As for Mixtures of *Earths*; Plants, we know, are nourished by things of like Affinity with the Constitution of the Soil which produces them; and therefore 'tis of singular Importance, to be well read in the *Alphabet* of *Earths* and *Composts*: For, as we have said, Plants affect the *Marsh, Bog, Mountain, Valley, Sand, Gravel, fat* and *lean* Mould, according to their Tempers; and for want of Skill in this, the same Plant not only languishes and starves, but some we find to grow so luxuriant, as to change their very Shapes, Colours, Leaves, Roots, and other Parts, and to grow almost out of knowledge of the skillfullest *Pythologists*; not here to speak of what Alterations do accrue from transplanting and Irrigations alone. I mention this, to incite the Curious to essay artificial Compositions in defect of the natural Soil; to make new *Confections* of *Earths* and *Moulds* for the entertaining of the most generous and profitable Plants, as well as curious; especially if, as I hinted, we could skill to modify also the *Air* about them, and make the Remedy as well *regional* as *topical*; and why not for other Fruits (Strangers yet amongst us) as for *Oranges, Lemons, Pomegranats, Figs*, and other precious Trees, which of late are become almost endenizon'd amongst us, and grow every Generation more reconcileable to our Climate? For (according to **Theophrastus*) 'tis not the excessive Fatness and Richness of the Soil, which invites these *Exotics* and Varieties to stay with us, or indeed any other Plants to prosper, but something which is *connatural* and suitable to the *Species*.

Here we might enlarge upon the several Enquiries formerly suggested: As, how far *Principles* might be multiplied, and differenced by Alteration and Condensation? Whether *Earth*, stripp'd of all *Heterogeneity*

* *Ἦν μέγας
αἰσχύνη ἐστὶν
ἐν τῇ γῇ
Theoph.
l. 2. c. 5.*

generosity and ununiform Particles, retains only Weight, and an insipid Siccity? And whether it produces or affords any thing more than *Embracement* to the first Rudiments of *Plants*, Protection to the Roots, and Stability to the Stem; unprolific, as they say, till married to something of a more masculine Virtue, which irradiates her Womb; but otherwise, nourishing only from what it attracts, without any *active* or *material* Contribution. 'Tis in the mean time wonderful to consider, how such vast, tall, and *monstrous Trees*, such as we find among the *Firrs*, *Pines*, and other *Alpestrals*; whose Footing and Roots insinuate into the most dry and impenetrable Rocks, without any *Earth* or *Mould* (as we call it) which seems to contribute any thing to these *Vegetables*, (expos'd as they are to the most rigid Colds, fierce Winds, and other Inclemencies of Weather) if the *Rains*, *Dews*, *Mists*, the *Air*, &c. or other visible *Principle*, appear in no proportion to the Stature, Bulk, and Substance of these goodly Trees: These indeed, with many other *Queries*, do appositely come in here; but it would perhaps render this Discourse more prolix than useful, to enter upon them in *detail*; nor is it for me to undertake Speculations of so abstruse a Nature without unpardonable Ostentation; and therefore having only offer'd something towards the Discovery of the great Varieties and Choice of *Earths*, (such as we *Gardeners* and *Rustics* for the most part meet with in our Grounds;) my next Endeavour shall be to shew, how we may improve the best, and prescribe Remedy to the worst, by *Labour* and stirring only; which being the least artificial, approach the nearest to Nature.

At the first breaking up of your Ground therefore, let there be a pretty deep Trench or Furrow made throughout, of competent Depth (as the manner is of experienc'd *Gardeners*) the Turf being first pared off, and laid by itself, with the first Mould lying under it, and that of the next in Succession, that so they may both participate of the Air, Showers, and Influences, to which they are expos'd; and this is to be done in Severals, as deep as you think fit, that is, so far as you find the *Earth* well-natur'd; or you may fling it up in several small Mounds or Lumps, suffering the Frosts and Snows of a Winter or two (according as the Nature of it seems to require) to pass upon them, beginning your Work about the Commencement of *Autumn*, before the Mould becomes too ponderous and sluggish; though some there are who chuse an earlier Season, and to open their Ground when the *Sun* approaches, not when he retires: But certainly, to have the whole *Winter* before us, does best temper and prepare it for those impregnating Agents.

In separating the Surface-mould from the deeper, whether you make a Trench, or dig Holes to plant your Trees in, be it for *Standards*, *Espalieres*, or *Sbrubs*; the longer you expose it, and leave the Receptacles open (were it for two whole *Winters*) it would soon recompense your Expectation; and especially if when you come to plant, you dispose of the best and fattest Earth at the bottom; which, if it be of sweet and ventilated *Mud* of *Ponds*, or *Highway-dust*, were preferable to all the artificial *Composts* you can devise. In defect of this (where it cannot be had in quantity) cast in the upper *Turfs* (if not already consumed) the *Sod* downwards, with the next adhering Mould for half a foot in thickness; on this, a Layer of well-matur'd *Dung*; then as much of the *Earth* which was last flung out, mixing them very well together. Repeat this Process for *Kinds*, *Mixture*, and *Thickness*,

nests, till your *Trenches* and *Holes* be filled four or five Inches above the Level or *Area* of the Ground, to which it will quickly subside upon the first Refreshings, and a very gentle treading to establish the Tree. *Fruit* planted in such Mould, you will find to prosper infinitely better, than where young Trees are clapp'd in at adventure in new broken-up Earth, which is always cold and sluggish, and ill complexion'd; nor will they require (as else they do) to be supplied every foot with fresh Soil, before they be able to put forth lusty and spreading Roots; but which it is impossible to convey to them, so as to affect the under-parts, by excavating the Ground, and undermining the Trees (after once they arrive to any Stature) without much Trouble and Inconvenience, and the manifest retarding of their Progress.

If you will plant in *Pits* and *Holes*, and not give your Ground an universal *Trenching* (which I prefer) make them the larger, (*five foot* at the least square) but not above half a *yard*, or two *foot* deep, according to the Nature of the Tree. In dressing the *Roots*, be as sparing as possible of the *Fibres*, small and tender Strings, (which are as it were the *Emulgent Veins* which insume and convey the Nourishment to the whole Tree;) and such of the stronger and more confirmed Parts which you trim, cut sloping, so as the Wound may best apply to the Earth. The *Head* or Top I advise you to let alone, till after the most penetrating Colds be pass'd; and then, about *February*, to take them off, and shape them as you please, and as the skilful *Gardeners* can direct you; or as it is describ'd *graphically* in *Monsieur de la Quinteny's Compleat Gardiner*, and his industrious *Epitomizers*. Now the *Earth* in which you thus plant your *Fruit-Trees*, will require four annual *Stirrings*; namely, at the Approach of *March*, a Spade-bit deep, covering it with some *mungy* Stuff, Heaps of *Grass* or *Weeds*, to protect it from the parching *Sun*: In *May* following, after a gentle Rain, stir again, but not so deep as to molest the subnascent *Weeds*. Thirdly, in the Month of *July*, and lastly *October*, after the same Method you are taught in *March*.

This, for *Standards* planted out for good and all: The *Nursery* requires a busier Process, as 'tis excellently describ'd by 'Squire *Cotton* in that late incomparable *Manual* publish'd by that worthy Person. Briefly thus; three Weeks before *Midsummer* lay some green *Fern* about the Ranks, after the Ground is labour'd, to defend it from the Heats: In which Work Care must be also had not to offend the tender Roots; therefore you shall stir it deeper in the middle of the Lines or Interstices; and when *Winter* comes, bury the *Ferns* in the Place, by making little *Trenches*, or rather taking away some of the Earth you shouler'd up, when the Stocks were first drawn out of the *Seminary*, and planted in those Rows; yet so, as to leave it somewhat higher than the *Area*, to secure them from the Frosts. In *March* following, stir your *Nursery* again, chopping and mincing in the *Fern*, and mingling it with the loosen'd Mould which you took from the *Imps* when you first applied the *Fern*: then back them up again as before. Repeat this *three* or *four* Years successively, till your Stocks are fit to graff on. An *Orchard* thus planted, *Spring* and *Autumnal* stirring of the Mould about them, is of incredible Advantage; and even during the hottest Summer Months carefully to abate the *Weeds* (but not to dig above a quarter of a *Spit* deep, for fear of exposing them to the *Sun*, unless it be after plentiful Showers) is very necessary.

There are, I confess, who fancy that this long exposure of *Earth* before it be employed for a Crop, causes it to exhale, and spend the virtue which it should retain; but, provided nothing be suffered to grow on it whilst it lies thus rough and *fallow*, there's no danger of that; there being in truth, no Compost, or *Latation* whatsoever, comparable to this continual Motion, *Repastination*, and turning of the Mould with the Spade; the pared-off Turf (which is the very fat, and *Efflorescence* of the *Earth*) and even *Weeds* with their vegetable *Salts*, so collected into heaps, and exposed, being reduced, and falling into natural, sweet, and excellent Mould. I say, this is a marvellous advantage, and does in greater measure fertilize the Ground alone, without any other additament: For the *Earth*, which was formerly dull and unactive, or perhaps producing but one kind of Plant, will by this culture dispose it self to bring forth variety, as it lies in depths, be it never so profound, cold and crude, the nature of the Plant always following the Genius of the Soil; but indeed requiring time, according to the depth from whence you fetch it, to purge and prepare it self, and render it fit for conception, evaporating the malignant *Halitus's* and Impurities of the imprisoned Air, laxing the Parts, and giving easy deliverance to its Offspring.

I do not dispute, whether all Plants have their *primigenial Seeds*, (as in truth I believe they have) and that nothing emerges spontaneously, and at adventure; but, that these would rise freely, in all places, if Impediments were removed, (of which something has already been spoken;) and to shew, how pregnant most *Earths* would become, were these Indispositions cured, and that those seminal Rudiments, wherever latent, were free to move, and exert their virtue, by taking off these Chains and Weights which fetter and depress them.

It is verily almost a Miracle to see, how the same Land, without any other Manure or Culture, will bring forth, and even luxuriate; and that the bare raking and *combing* only of a Bed of *Earth*, now one way then another, as to the *Regions* of Heaven, and *Polar Aspects*, may diversify the annual Production, which is a *Secret* worthy to be considered: I am only to caution our Labourer as to the present work, that he do not stir the Ground in over-wet, and slabby Weather; that the *Sulcus* or Trench, be made to run from *North* to *South*, and that, if there be occasion for opening of a fresh piece of *Earth*, for present use, he dig not above one *Spit*-deep, which will be sufficient to cover the Roots of any plantable Fruit, or other Tree; otherwise, not to disturb it again, till the *March* following; when, if he please, and that the Ground seem to require an hastier maturation, there may be a Crop of *Beans*, *Pease*, or *Turneps* sown upon it, which will mellow it exceedingly, and destroy the noxious Weeds; after which, with a slight *repastination*, one may plant, or sow any thing in it freely; especially *Roots*, which will thrive bravely; and so will *Trees*, provided you plant them not too deep, but endeavour to make them spread, and take in the succulent virtue of the upper Mould; and therefore too deep trenching is not always profitable, unless it be for *Esculent Roots*, such as *Carrots*, *Parsneps*, *Beets*, and the like; since *Trees*, especially *Fruit*, would be tempted even by *Baits*, to run shallow; such as penetrate deep, commonly spending more in Wood and Leaves, than in the burden for which we plant them.

There is only this Caution due, that you never plant your *Roots* where the stiff and churlish Ground is likely to be within reach of them;

them; for though it be neither necessary nor convenient they should penetrate deep, it is yet of high importance they should dilate and spread, which they will never do in obstinate and inhospitable Land (but revert back towards the milder, and better natured Mould,) which crumples the Roots, and perverts their posture, to their exceeding damage. And to this Infirmary our rare *Exotic Plants* and *Shrubs* are most obnoxious, confined as they are to their *Wooden Cases*, and *Testaceous Prisons*, and therefore require to be frequently trimm'd, and supply'd with fresh and succulent Mould to entertain the *Fibres*, which else you will find to *mat* in unexplicable Intanglements, and adhere to the sides of the Vessel, where they dry or corrupt.

Having said thus much of the *Natural*, I should now come to *Artificial* Helps, by application of *Dungs*, and *Composts*; and indeed *stude ut magnum sterquilinum habeas*, was old and good advice; but for that there be who affirm any Culture of the *Earth* preferable to *Dung*, even things so slight as the haume of *Peas* and *Lupines*, or any other *Pulse* (for when I speak of *Dungs*, I mean those excrementitious and fordid Materials which we commonly heap up and lay upon our Grounds;) I beg your Patience to suspend a while my stirring that less pleasant mixture, and, till it be well aired and fit for use, proceed a little farther on our former Subject, and try what aid we may yet expect from more kind and benign means, before we come to the gross and violent. For besides that such *Compost* (at least so prepared as it ought to be) is not every where, nor always to be had in quantities; to confide in *Dungs* and *Ordure*, is not so safe, and of that importance to our Husbandman, as some are made believe; since if we shall look back into the best Experience of * elder days, we shall find, they had very little, or no use * *Hesiod.* at all of *Stercoration*. I know some there be, who attribute this neglect to the natural Fertility of the Country, that 'tis the busy Nurse of *Vermin*, and nauseous accidents; but waving these, (without intending to desert the aid of Soil in place and time,) I proceed with what I call more natural helps; namely, as we have shewed, by *opening*, *stirring*, and *ventilating* the *Earth*, and sometimes its contrary, by *coverture*, *shade*, *rest*, and forbearance for a season, as we daily see it practised in our worn-out and exhausted Lay-fields, which enjoy their *Sabbaths*. 'Tis certain, that for our *Gardens* of Pleasure, the fairest Beauties of the *Parterre* require rather a fine, quick, friable, and well-wrought Mould, than a rank or richly dunged: And even all *Fruit Trees* affect not to stand upon artificial and loose *Composts*, but in naturally rich, and sweet Mould, within the scent and neighbourhood of well consumed *Soil* for the next *Layer* under, and above; so as the virtue thereof may be derived to it through a *Colature* of natural Earth; those forcing mixtures being more proper for *Annuals*, and *Exotic Toys*, which having but little time to live, refuse no assistances, whilst *Trees* of longer durance, care not much for accelerations.

I shall here then begin with an *Experiment* I have been taught by a learned Person of this illustrious Body, from whom I have long since received the choicest Documents upon *this* and many curious Subjects. *Dr. Beal!* And first, That amongst the Mechanical Aids, (wherein *Stercoration* has no Hand) that of pulverizing the *Earth* by Contusion, and breaking it with Plough or Spade, is of admirable Effect, to dispose it for the Reception of all the natural Impregnations we have been discouraging upon, as constant and undeniable, I think will be evinced.

For

For the *Earth*, especially if fresh, has a certain *Magnetism* in it, by which it attracts the *Salt*, Power or Virtue (call it either) which gives it Life, and is the reason of all the Labour and Stir we keep about it, to sustain us; all *Dungings*, and other fordid Temperings, being but the *Vicars* succedaneous to this Improvement, which of all other, makes its Return of Fruit, or whatsoever else it bears, without imparting any of those ill and pernicious Qualities, which we sensibly discover from forced Grounds; and that not only in the *Plants* which they produce, but in the very *Animals* which they feed and nourish.

I know, *Laurembergius* (somewhere) denies this, and that *Animals* in preparing *Chyle*, transmute, alter, and infuse what is only their proper Aliment; rejecting all that is superfluous; but as our early *Asparagus*, *Collyflowers*, and divers Roots, manifestly refute it, so does the Taste of the Flesh, and Milk of *Cattle*, especially *Fowl*, that feed on the wild *Garlick*, Fenny-grass, and other rank and putrid Things; not here to insist on their sweet, and delicate Relish upon their change of Food, or more odoriferous Pasture. But to the Experiment.

Take of the most barren *Earth* you can find, drain'd, if you please, of all its *Nitrous Salts*, and Masculine Parts; reduce it to a fine Powder, (which may be done even in large Proportion, by a rude Engine, letting fall a kind of Hammer or Beetle, at the Motion of a Wheel;) let this pulverized *Earth*, and for the Time incessantly agitated, be expos'd for a *Summer* and *Winter*, to the Vicissitudes and Changes of the Seasons, and Influences of Heaven: By this *Labour*, and *Rest* from Vegetation, you will find it will have obtain'd such a generous and masculine Pregnancy, within that Period, as to make good your highest Expectations: And to this belongs Sir *Hugh Platt's* Contrition, or Philosophical grinding of *Earth*; which upon this Exposure alone, without manure of Soil, after the like Revolution of Time, will, as he affirms, be able to receive an *exotic* Plant from the farthest *Indies*, and cause all Vegetables to prosper in the most exalted Degree; and, to speak magnificently with that industrious Man, to bear their Fruit as kindly with us, as they do in their natural Climates; and as Dr. * *Munting* pretends to have done in *Holland*. But a little to abate of this, modestly we may say, that this Culture (easy and simple as it is) will be found effectually able to render the Soil of a most extensive Capacity, for the Entertainment of foreign and uncommon Plants. For to enumerate some of its Perfections; such as refuse *Dung*, and violent Applications, have *here* pure *Earth*; and such as require Aid, a mellow and rich Mould, impregnated with all the Blessings which the Influences of the Heaven, and *Efflorescence* of the *Earth* can contribute to it; fitted, as it is, for Generation, and yet so restrain'd from it, as greedily to receive the first *Seeds* which are committed to it, with a Passion and Fervency as it were of animal Love. What high and sublime Things are spoken more upon this, I forbear to prosecute; but in Sir *Kenelm Digby's* Discourse of *Sympathetic Powder*, he affirms, that the *Earth* in the Years of Repose recovers its Vigor, by the Attraction of the vital Spirits, which it receives from the Air, and those superior Irradiations, which endow simple *Earth* with Qualities promoting *Fermentation*. And indeed, such a vegetative Activity I have often observ'd in the bare exposure of

* Munt.
Waare Offen-
ning der Plan-
ten. Lib. 1.
Cap. 56, &c.
65, &c.

some Plants but for a few Hours only, as has rais'd my Admiration; particularly in the *Aloe*, and other kinds of *Sedums*, which when to all Appearance shrunk, and shrivel'd up, have fill'd themselves in a Moment, set out in the *Air*, when a very few drops of Water (at the same, that is, Winter Time) would certainly have made it rot, and turn to a Mucilage, as, to my Cost, I have experienc'd. And these Ferments of the *Earth*, by this Amity, and genial Intercourse with the *Air*, are innumerable, to concoct, digest, accelerate, and restore; equal to, yea, beyond any artificial Enforcements of *Dungs*, and *Composts* whatsoever. But to return to Dust again; by the Toil we have mentioned, 'tis found, that Soil may be so strangely alter'd from its former Nature, as to render the harsh, and most uncivil *Clay*, obsequious to the Husbandman, and to bring forth *Roots*, and *Plants*, which otherwise require the lightest and hollowest Moulds.

In other Cases and Affections, the *Earth* may be likewise fertiliz'd, as from without, so from within, by more recondite and *central* Causes, and Agitations, which if in Excess, may be allay'd with some *feminine*, or other Mixture; since oftentimes Qualities too intense, rather poison dry and cholerick Grounds, than conduce to their Advantage, as we shall come to shew; and that which makes a cold and moist Ground fertile, will destroy the contrary, as we see in the too free Applications of *Salt*; and therefore it requires no ordinary Dexterity, to be able to direct where, and what Remedies are to be administred; since we find it the same in *Vegetable* Productions, as in the *Animal*, where Complexions should be suited; for want of which Care, through Avarice, and other sordid Circumstances, Noble Families themselves are many times render'd Childless, which might else have multiply'd, and been perpetuated. To illustrate this by our present Subject: We find, that a thin scising, or sprinkling of *Ashes*, has enriched all the higher Pastures, when, where 'twas strew'd too thick, it became totally barren: Sometimes again, defect of sufficient Depth, may be cause of Sterility; and so it frequently happens, that the proper Remedy of some hungry and shallow Surface, is to superinduce and lay more *Earth* upon it, and to find out the *Medium*, by diligent Tryals of some degrees of Depths in the same Soil; but solitary, single, or over-hasty Experiments, before the *Earth* be prepar'd by some of our foremention'd Essays, may prove discouraging, and unsufficient, as my Lord *Bacon* has oft advertis'd us.

Earth is also sometimes improv'd by Mixtures of Fern, rotten *Leaves*, and the pouriture of old Wood; the haulm of *Beans*, *Pease* and other *Legumina*, which heats and accelerates Concoction; for which, and all other *Medications*, the nature of the Mould is carefully to be examin'd, that Application be made accordingly; as for Instance, If it be *Sandy*, or other light mixed *Earth*, to imbody it with something of a fatter nature, as *Lime*, or *Marle*, (for I yet forbear the touch of ordure or animal Composts, as the least natural;) and be sure so to stir, and lay it (especially if with *Lime*) that it may not sink too deep, and suddenly, as 'tis apt to do, and so desert the Surface-mould, where it should do the feat, and therefore it is to be the oftner renew'd. But *Marle* enters as properly here, and so does *Mud*, *Slub* of slimy *Waters*; especially, if the Soil be gravelly and mixt, which it will sadden and impinguate, and consequently combine; but

if the *Gravel* be wet and cold, *Lime* is preferable: Wherefore the nature of the Mould should be well examin'd before the Application; as here *arenous* and sandy *Earth* wants Ligature, and besides consisting of sharp and asperous Angles, wounds and galls, curls and dwarfs our Plants, without extraordinary Help, to render the Passages more slippery and easy; and therefore relenting *Chalks*, or *Chalk-marl*, is also profitable, with *Calcinations* of *Turf*, or *Sea-Wreck*, where it is at Hand; and if the Soil be exceeding bibulous, spread a Layer or Couch of *Loam*, discreetly mingled at the bottom, to entertain the Moisture. In the mean time, there are yet some *Plants* which thrive almost in nothing so well, as in *Sand* alone, or with very little Mixture, nor that of any *Dung*: So *Melons* are said to grow in *Jamaica*; and some vast Timber-trees have little or no Mould adhering to their Roots; such is that beautiful Stranger, the *Japan-Lilly*, call'd by those of *Guernsey* (from whence we only have them) *La belle de nuit*; and a certain *Palm* of the same *Japan*, which shrinks and dries at the least touch of *Water*, as if it were laid before the *Fire*, which is, it seems, the only Remedy that restores it, or the sudden replanting it in *Scales* of *Iron*, or the most burning *Sand*: But what if *Sand* it self, however vulgarly reputed, be not so hot, or interiorly ardent, as 'tis given out to be? Indeed, for being of an open, and loose Contexture, 'tis apt to put forth a forward *Spring*, as more easily admitting the solar Rays; but it does not continue, and is an Infirmary which may be remedied with *Loam*; which not only unites it closer for the present, but is capable in time to alter and change its very Nature also, so as too hot a *Compost* be no Ingredient with it.

Here I take Notice, that *Husbandmen* observe, a too clean and accurate gathering of *Stones* from off those Grounds which lie almost cover'd with them, rather impoverishes than improves them; especially where *Corn* is sown; by exposing it to Heat and Cold. Certain it is, that where they are not too gross and plentiful, a moderate Interposition of the smaller *Gravel*, preserves the *Earth* both warm and loose, and from too sudden Exhalation; whilst the over-fine Grain, or too nice a Sifting, makes it apt to congregate, and grow stiff upon wetting; so as the tender *Seedlings* can hardly issue through; and this is a *Document* for ignorant *Gardeners*, who, when they have a fine *Flower*, think they can never make the Ground fine enough about them; yet the finer the *Plant*, or *Seed*, the finer should the *Mould* be which entertains it; though when all is done, Trees thrive best, where they have easiest Footing.

Chalky Grounds come next to be consider'd, and they should be treated like *Gravel*, *Sand*, and *Stony*, if harsh; but if of the melting kind, 'tis apt to mix with all the sorts of Moulds; and being of it self so husbanded, composes a kind of natural Soil fit for most Uses sought for, and of admirable Effect in dry Grounds.

Here now of course something we are to speak concerning *Calcinations*, all reducing of *Stone* into *Ashes* being of excellent Use where *Lime* is upon any occasion proper; and indeed all our *Composts* and *Dungings* serve but to this End, namely, so to qualify and mix the Soil, as may artificially answer to the varieties of the natural *Earth*, or such a Constitution of it, as the skilful Husbandman requires: As for Instance, (since all Fertility is the result of Mixture contrary in Quality) if it want due Heat, to apply Additions of a fiery Nature;

and

and therefore 'twere profitable, if in the using *Lime* with *Turf*, and *Swarth*, it were laid alternatively, *Turf* on *Lime*, and *Lime* on *Turf*, in Heaps for six Months, by which Means it will become so mellow (and rich in *Nitrous Salts*) as to dissolve, and run like *Ashes*, and carry a much more cherishing Vigor, than if amassed in greater Quantity; and so, by a too violent Application, burn out, and exhaust the vegetative Virtue which it should preserve. There is (by the way) this Caution to be used in burning of *Earth*, that though what is *torrified* into Blackness, will exceedingly fructify; yet, if it proceed to adustion beyond that Degree, it consumes the *Nitre*, which is the Principle would be preserved; as we shall come to shew, when we speak of *Salts*, which we are the most carefully to keep entire, in all our *Animal* or other *Composts*: If once the *Nitrous Spirit* be quite mortify'd, the *Earth* produces nothing, 'till being long expos'd, it have attracted a fresh Supply to give it Life, and prepare it for Conception: For otherwise, all moderate Burnings, yea, and even sometimes (to Appearance) immoderate (as that of *Rose-trees*, *Reeds*, and some other, which makes them bear, and come the better,) is excellent Manure, as we see it in Straw and Stubble, enrich'd as they are with *Salts*; and if the very *Earth* be roasted with the Fire, it solves Obstructions, laxes the Pores, renders them attractive of the Influences, and to cherish with its Warmth; and the more simple and unmix'd the *Ashes* be, in relation to what the Ground produces, it is the better: For as *Weeds* bring *Weeds*, so the *Ashes* of *Fruits* and *Berries* (being burnt) dispose to bring forth the same; nay, *Honorat. Faber* affirms, that *Wheat* burnt to *Ashes*, produces *Wheat*; so as no Treatment of the *Seminal Rudiments* whatsoever, seems totally of Power to annihilate their Virtue; so strict is the Union of the Parts from whence their *Forms* result. The *Calcination* then of *Earth* alone, not only disposes it to produce great Variety, but if it be intense, increases the very Weight of the Mould; whether from a certain *Magnetism* which it thereby contracts, (which fortifies it to draw the proper Aliment more powerfully) or upon what other Account, let the Curious examine. In the mean Time, whilst we are on this of *burning* the *Earth*, and that many think the *fixed Salts* to be the same in all *Vegetables*, (and their great Virtue included in this *Volatile*, totally lost by *Calcination*) the *Powder* of Plants is by some preferable to the *Ashes*: Which Husbandry, (after the *Romans* had long since used, even in *Britain*, for near Five Hundred Years, but discontinued by their Expulsion, and Depopulation) was reviv'd again in *Flanders*, and thence brought into *Devonshire*, and about Sixty Years after cultivated more generally, with great Success at first, (especially on *Chalky* and barren Grounds) but sensibly diminishing, occasion'd the Proverb, That *what is good for the Father*, is *sometimes naught for the Son*; however it is found restor'd again to Fertility, by feeding *Sheep* on the Ground, above all other Dressings.

Lime is excellent for cold, wet Grounds, (and stiff *Clays*) a little fleck'd, as over-burning the Drier, and the very best Destroyer of *Moss*, and *Rushes*; as *Quick-lime* does *Furzes*, being first extirpated: Two Loads of *Turf* will make a Load of *Ashes*, and so for greater Quantity, spread on sterile Lands, spontaneously producing the *Cinq-foil*.

I come next to *Marl*, (amongst other Parts of *Agriculture* introduc'd by the same *Romans*) of excellent Use to fix light *Sand*, and dry Grounds; some are for the *White* and *Gray*, others the *Blue* and *Red*, (which I think the best) according as 'tis more or less apt to resolve after wetting; but neither of them discovering their Virtue for the first Year: It does incomparably on *Pastures*; some on *Arable*, a good Coat of *Compost*, suitable to the Land, being first spread where you will lay it: If your *Marl* be very unctuous and rich, apply it less copiously; the too thick Covering is the worst Extream; nor is it always to be us'd without Allay and Mixture with other proper Soil; for some *Marl* is more *sandy* and gritty than other, and should be qualified with a Contrary: Give lean and emaciated *Earth*, a Covering of the fattest *Marl*; hot and dry, to the cold and moist: And this is also to be observ'd in the Applications of all other *Composts* and *Medications*.

Marsh and churlish *Earth* will be civiliz'd by the Rigor and Discipline of two Winters; *Bis Frigora*, is the old Method to make the stubborn Clod relent; and with the Mixture of a little *Sand*, if it be too close of Body, it will become excellent Mould.

Clay is of all other a curst Stepdame to almost all Vegetation, as having few or no *Meatus*'s for the percolation of the alimantal Showers, or expansion of the Roots; whether it be the Voracious, Hungry, Weeping or Cold Sort: In these Cases, *Laxatives* are to be prescrib'd, such as drift *Sand*, small gritty *Gravel*, *Saw-dust*, with *Marl*, or *Chalk*, and continually vexing it with the Spade or Plough; but above all, with *Sea Sand*, where it may be procur'd, and the burning of the Ground to *Ashes*, and all that it bears, the more the better; for by no less Severity will this ill-natur'd Mould be subdu'd: *Rotten-wood*, and the bottom of *Bavine-stacks*, is a good Ingredient to this Manure; and if it be a cold and wet Sort, Strewings of *Soot* are good; if very stiff, Rubbish of *Brick*, *Limestone*, and such Trash, may properly be laid at the bottom, and on the upper part *Composts* of *Dung*; for otherwise no *Limings* (which being *Sleck'd*, is raw and cold) may at any Hand be applied, especially to the hungry Sort, which (as also most kinds of *Marsh-Earth*) is subject to *Chasm*, and gape in dry Seasons; to prevent which, a discreet Mixture of *Ashes* and *Sand* is us'd; for if it be in Excess, it over-heats the latter.

I do not reckon *Loams* among the *Clays*, though it seem to be but a succulent kind of *Argilla*, imparting a natural Ligament to the Earth where you mix it, especially the more Friable; and is therefore, of all other, the most excellent Mean between Extreams, fastening and uniting that which is too loose or stony, cooling that which is hot, and gently entertaining the Moisture. The *Flower-Garden* cannot be without a Mixture of it, nor well any *Fruit*, especially the best *Cider-Apples*, so it be accompanied with a lighter Soil.

To sum up all we have said concerning Natural Improvements, by Mixtures of *Earth* with *Earth*, rather than *Dungs*; let us hear my Lord *Bacon*: He reckons up *Marl*, *Chalk*, *Sea-sand*, Mould upon Mould, *Pond-earth* with *Chalk*, and the several Blendings and Tempering of them; among all which, *Marl* we find to carry the Preeminence with his Lordship, as the most pinguid, rich, and least over-heating; next to this, *Sand*, as the most abounding in Salt; *Chalk* more heating, and therefore proper for *Clay*; cold

and spewing Grounds, being suffer'd to lie a competent time to resolve before you turn it in; *Earth* on *Earth*, that is (I suppose he means) the underpart upon the upper, or the second *spit* on the first, as we have all along directed at the breaking of fresh Ground with the Spade.

Another mixture he commends (and which we have likewise newly touched) of Substances, which are not meer *Earth*, as *Soot*, *Asbes*, nor the hard and dry *Cinders* of *Sea-coal* (which we are too busy with about this Town, where the Ground is naturally too hot and dry) but such as is apt to relent, and even the sprinkling of *Salt*, where it is wisely sown.

A *third* is, the permitting Vegetables, abounding in *fixed Salts*, to die into the Ground, *Pease haulm*, *Bracks*, all sorts of *Stubble* cast on about the beginning of *Winter*: So *Leaves* of Trees mingled with *Chalk*, and proper *Composts* of *Dungs*, to heat and preserve the Ground from sowing with them, when they are us'd alone.

A *fourth* is (what we have also touch'd) Heat and Comfort, procur'd by *Calcinations*, the burning of *Ling*, *Heath*, *Sedge*; covering the Ground with Bushes for a time; Enclosures of Walls and Mounds, when the Land lies in the eye of the Weather, and in other Cases, *Meridian* Exposures, and the Warmth of the woolly Fleeces of *Sheep* as well as manure, folded or pastur'd: And to this we may add, the very grazing of *Cattle*, which in some cases has succeeded better than the best dungy *Compost*, especially for old, and decay'd *Orchards*, which have been observ'd to recover to admiration, when mowing has been pernicious; for even the biting of *Cattle*, gives a gentle loosening to the Roots of the Herbage, and makes it to grow fine and sweet, and their very Breath and Treading, as well as Soil, and the comfort of their warm Bodies is wholesome, and marvellously cherishing: But this is to be understood of places where the Stems are of full growth, and where the Beast cannot reach to crop.

Lastly, *Irrigation*, and watering, both by admitting and excluding Moisture at pleasure: And certainly, this has (since his *Lordship's* time) been found one of the richest Improvements that ever was put in practice; especially, where they have the command of fat and impregnate *Waters*, without Grittiness, or being over-harsh and cold; whether it percolate through rich Ground, or, which is better, descending from Eminences, and moderate Declivities, from whence we find the Vallies so luxurious and flourishing.

To this belongs the cure of wet and *boggy Lands*, by cutting Trenches deeper than the Cause of the Evil, which proceeds from some conceal'd Springs hinder'd from emerging forth by the sluggish incumbent Earth: This makes the Ground to heave and swell, but not giving vent, to stagnate and corrupt both the Water and the Mould about it: And though it lie loose and hollow, yet it gathers no Vigor from above, but remains cold and insipid. * The remedy is, opening the Ground till you meet with a sound bottom, and cutting your Furrow upwards to the Bog, about a Foot beneath the spewing water: This is to be done in several places, and when the Drains appear to have wrought the effect, you may fill them up again with *Spray* and *Bavine*, great and rough *Flints*, *Brick-bats*, *Tileshards*, *Horse Bones*, the *Skulls* of the *Slaughter-house*, or any other Rubbish, which will remain loose and hollow, and cover them with the grassy side of Turf which you pared off, and laid apart; on *that*, throw your other Mould, which being cast up in

* See Mr. King's excellent Discourse concerning the cure of Bogs and Loughs, &c. Phil. Transact. Vol. XIV. N. 170. P. 947, & seq.

heaps for some time, will be much improv'd with spreading; lastly, sow it over with *Hay Seeds*.

But the Cure is yet easier, if the Land lie considerably sloping; and if it happen to be a planted Ground, then cut your Trench deeper than the Roots of your Trees, and apply the foresaid Rubbish to intercept the Moisture. About the latter end of *October*, trench the Ground all over, for near a foot and a half in depth, and when you are come within three or four foot of the Stem, cut off all their larger Roots, sloping inwards, sparing only the *Fibres*, and such of them as you find tender, and about as big as your Finger; leaving also the more perpendicular to keep the Tree steady: This done, cast in some Rubbish of *Brick-bats*, *Lime-stone* (not *Chalk*) and other materials, that the Mould may lie easy about them, and with a mixture of good *Earth*, plenty of rotten Stubble, or other Soil, apply it near the Root, and fill your Trench with the rest; and if your Ground require it, (as being too cold it commonly does) add to your Compost the *Dung of Sheep*, *Pigeons* or *Poultry* very well consum'd: And because *Moss* is oftener caused by starving and wet Grounds, than by hot and over-dry, (for both produce it) the Cure is likewise to be effected by *Ablaqueation*, and *baring* the *Roots*, as above; and for the latter, by a mixture of *Loam*, with the scouring of *Pond* or *Ditch Earth*, which of it self is the most excellent manure; and the planting your Trees at greater intervals, for admission of *Air* and *Sun*; since the scraping of it off (which may also be done in wet Weather) is but temporary, and if nothing else be perform'd, it will be sure to grow again. And here upon observation, how Men *carbonate* and cut so many Rills, and narrow Trenches irregularly crossing one another, to drain their Meadows and lower Grounds, (which take not up a little part of the Turf) I should rather recommend the cutting of so large a Trench through the whole length of the *Pan* and bottom of the Ground, and of competent depth, to receive and drain the weeping Springs, instead of those frequent Slashes and Gutters I have mention'd; since besides the Beauty of the *Canal*, the profit of the *Fish*, &c. the Earth and Mud cast out on both sides, and spread upon the depressed and lower parts of the Ground, will not only raise the unprofitable Marsh, but thereby improve it for Pasture. One needs go no farther to see the effects of this Husbandry, than to St. *James's Park*, where before the *Canal*, I remember all that pleasant Valley, now yielding most rich Pasturage, (with the *Fish*, *Decoy*, and Walks planted with fragrant *Lime*) was nothing but a noisom unwholsom Bog, and *Morafs* of *Moss* and *Rushes*. The use of the *Plough* is for this Work the most expeditious, and cheaper than the *Spade* alone, which after every Journey of the first, will be necessary to cast and shovel out the loosen'd Earth on both sides, to fill up the Hollows and Depressures of the Ground; and with the *Rake* to trim the Banks, and level the rest as is requisite: This undertaken in dry Summer-weather, the *Plough* still succeeding the *Spade*, (till the *Channel* be of convenient depth) will of all other be the most effectual; and if near the *Mansion-House*, a graceful addition to it. But to return to other Remedies.

Lands which are cold and dry, are (as we have hinted) to be improv'd by contraries; namely by application of *Composts*, which are hot and moist; as *Sheeps-dung*, burning and calcining of the *Earth*, with the *Vegetables* on it, and the like, to excite Heat and Fermentation; but which is not to be effected without repugnant Remedies, and such as are of *heterogenous* Parts, to stir and lift up the Mould,

and

and render it less unactive. If it be cold and clinging, as frequently 'tis found, there *Lime-rubbish*, the small harsher *Chalk*, *Sea-coal Ashes*, a moderate sprinkling of *Sand*, with some proper *Compost*, may perform the Cure.

Hungry Grounds require to have the Cause well look'd into; the *Water* turn'd (as above directed); or if it want, such as is well enrich'd.

Lands that are hot and burning, allay with *Swines-dung*, as (say some) the coldest; or with *Neats*, which will certainly refresh it.

For *Earth* which is too light, there's nothing better than *Pond-mud*, after a *Winter* has pass'd upon it.

Earth over-rank (for there may be some too fat, as well as too lean) *Sand* and *Ashes* will take down; but still with regard to what you design to plant upon it: neither the *Almond*, nor the *Hazel*, will endure a wanton Mould; and though it seem a *Paradox*, that any Soil should be too rich, (upon which some *Critics* have suspected the Text in *Theophrastus*, which asserts it twice in two successive Chapters); 'tis yet a Truth indubitable, and holds as well in *Plants* as *Animals*, which growing very fat, are seldom prolific. Some on the contrary are so emaciate and lean, dry and insipid, as hardly any Pains will make them fruitful. Such are *Mineral* and *Metallic* Soils, devouring *Clays*, light and *Ashy Sands*; so again are putrid and *fungous*; others, though fruitful, producing only venomous Plants, *Hemlock*, and the deadly *Aconitum*; and some, though wholesome Ground, may be poison'd with unskilful or malicious Mixtures, and with Damps and *Arsenical* Vapours, which sometimes (though *natural*) are yet but *accidental*, and for a season; as when after extraordinary Droughts and stagnant *Air*, the *Earth* hath not been seasonably open'd, refresh'd, and ventilated.

Lib. 2. Cap. 5,
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Moreover, Ground is sometimes barren, and becomes unfruitful by the Vicinity of other *Plants*, sucking and detracting the Juice of the *Earth* from one to another: For thus we see the *Reed* and *Fern* will not be made to dwell together; *Hemlock* and *Rue* are said to be inimicous; the *Almond* and the *Palm*, which are seldom fruitful but in Conjugation; and perhaps there are *Effluvia*, or certain inconspicuous *Steams* of dusty *Seeds*, which not only impregnate Places where never grew any before, but issue likewise from one to another, as in our *Junipers* and *Cypresses* I observe, flowering about *April*; which are Trees of Confort, and thrive not well alone. The *Ficus* never keeps her Fruit so well, as when planted with the *Caprific*. By what Irradiations the *Myrtle* thrives so with the *Fig*; the *Vine* affects the *Elm* and *Olive* (which is at Antipathy with the *Oak*, and imparts also such a Bitterness to the Mould, as kills *Lettuce*, and other subnascent *Plants*) is hard to say; and why some affect to live in Crouds, others in Solitude: But that *Firrs*, *Pine*, *Cedars*, *Elms*, and divers other Trees, aspire and grow so tall in Society, may be (as from other Causes) so from their not overglutting themselves with Nourishment (for *Compost* is not their Delight) which inclines them rather to shoot upwards, than expand and spread.

Lastly, By *Shade* Ground is render'd barren, and by the dripping of umbragious Trees. To these *Air* and *Sun* may be soon restor'd, by removing of the Skreens which intercept them; and yet all Shade is not unpropitious, where the Soil and Climate are benign, as well as that which casts the Umbrage: and of this we have a notable Instance somewhere amongst the *Astomori* even in *Africa*, where the Soil and the

the Air are reported to be so genial, that the *Olive* is said to grow under the *Date-tree*, the *Fig* under the *Olive*, under the *Fig-tree* the *Granade*, under that the *Vine*, under the *Vine* a Crop of *Corn*, and at the feet of the *Corn* a certain *Pulse*; none of them impeded by the more than reduplicated Shades. But there are some, we must confess, amongst us, which are not so propitious; Trees of all sorts (tho' the *perennial Greens* least) breathe as much after the Air as the Soil, and do not thrive without it, nor except it be wholesome.

But to return to barren *Earths*, which are either out of heart by being spent, or from the Nature of the Soil (in both which, the *Plants* which they produce, though never so unprosperous, run hastily to seed, or make an Offer) they are to be restored by the Plough, the Spade, and the Rake, by Stirring and Repose, Appositions and Mixtures of Earth, *Calcinations* and *Composts*; and above all, by the *Eye of the Master*, and *Dust of his Feet*, as the *Italian Proverb* has it. For after this Process, and innumerable other Trials, (mixtures of things being endless) all other sorts of *Earths* and imperfect Moulds may be treated and meliorated; namely, if it be too *hard* and close, to *mollify* and relax it; if too *loose*, to give it *ligature* and binding; if too *light*, Ballast; if too *meagre*, to fasten and *impinguate* it; if too *rich* and luxurious, *emaciate* and bring it down; if too *moist*, apply *Exsiccatives*; if too *cold*, fermenting *Composts*; if excessive *hot*, to *cool* and refresh it: for thus (as we said) *Earths* should be *married* together like *Male* and *Female*, as if they had *Sexes*; for being of so many several Complexions, they should be well consider'd and match'd accordingly, things (as was said) becoming *fruitful* from the Mixture of *repugnant Qualities*; so as *Cold* and *Driness* without a *warm* and cherishing *Moisture* produces nothing: for this therefore you see what Choice I have presented you of *Sand*, *Asbes*, *Chalk*, *Lime*, *Marl*, Mixture of Mould, *Calcinations*, *Air*, *Sun*, *Dew*, *Rain*, *Frosts* and *Snows*, *Trenching*, *Drilling*, *Watering*, *Infusions*; and finally, of *Animal Stercorations*, and other *Composts*, which is the next and last Part of this (I fear) over-tedious Discourse; since indeed it is not sufficient to find out even the best, and most grateful Mould in Nature, so as to rely for ever upon the same Performance without Supplies of all sorts; *stirring* and *repose*, constant *dressings*, and (after all we have said) artificial *Letations* likewise, to encourage and maintain it in Vigor.

We proceed then in the next place, to what farther Advancement we may expect from *Stercoration*, and manuring the Ground by *Composts*, and to discover the *Qualities* which may be latent in their several *Ferments*, and how to apply them by a skilful and *philosophical* Hand, without which they do always more hurt than good; and therefore, first, we will enumerate their several kinds, and next enquire, what it is we chiefly seek for, and expect from them; and lastly, how to treat them so as to render them fitting for our Service.

From *Animals* we have the Soil of *Horses*, and Beasts of Burden, *Neats*, *Sheep*, *Goats*, *Hogs*, *Pigeons*, *Poultry*, and *Fenny-fowl*: We have also *Flesh*, *Fat*, *Blood*, *Hair*, *Feathers*, *Urine*, *Shavings* of *Horn*, *Hoofs*, *Leather*, *Skins*, *Fish*, *Garbage*, *Snail-mud*, &c. From *Vegetables* (as of nearest affinity) we have *Vine-cuttings*, *Stalks*, *fallen Leaves*, *Marc* of the *Wine* and *Cider-presses*, *Lees* of *Wine*, *Oil*, *Rotten-fruit*, *Gourds*, *Weeds*, *Fern*, *Haulm*, *Stubble*, *Rotten Wood*, *Saw-dust*; Refuse of the *Tau-pit*, *Sea-wood*, *Linnen Clouts* and old *Rags*;

Rags; also *Brine*, *Pickle*, *Ashes*, *Soot*; and of things promiscuous, *Washing of Dishes*, *Bucks*, *Barrels*, *Soap-suds*, *Slime*, and *Scouring of Ponds* and *Highways*, *Dust*, *Sweepings*; in sum, whatsoever is apt to rot and consume in any competent time, and is either *salt*, *unctuous*, or *fatty*: To which let me add, impregnating *Rains* and *Dews*, *cold* and *dry Winters*, with store of *Snow*, which I reckon equal to the richest Manures, impregnated as they are with *Celestial Nitre*. But with all these Auxiliaries we are not yet to imagine, that any of them are therefore profitable and good, because they retain an heady *Scent*, are *hot*, *moist*, *rotten* and *slippery*, *fat* or *unctuous*, and the like; which are all Qualities, that *alone* and of *themselves* effect little, till they are corrected and prepar'd; but, for that amongst these Materials we detect the Causes of Fertility more eminently than in other Substances; partly from their *fixed Salts*, or some Virtue contained in them, or rather drawn from without, and imparted to the exhausted and defective Earth; and that by such a *Process*, as by converting them into a *Chyle* (as it were) it facilitates their being *insum'd*, *assimilated*, and made apt to pass into Nourishment, promoting *Vegetation*. This obtain'd, the next thing is, how skilfully to apply what we have prepar'd: and this indeed is a Difficulty worthy the *Heads* as well as *Hands* of the profoundest *Philosopher*; since it requires a more than superficial Knowledge and Penetration into *Causes*.

We know indeed, that the *Earth* is, without any artificial Auxiliaries, endu'd with a wonderful prolific Virtue; but this, for being possible to be lost and decay, (at least for a longer time than our Necessities can support) and from some Grounds never to be expected without such Helps, it may be worth our while a little to consider, by what Expedients of *Digestion*, or other ways, the desir'd Effect of perpetuating its Vigor might best be accomplish'd.

That the Secret we enquire after, and which does most apparently seem to *evirtuate* towards this end, is some vegetable *Salt* or Matter, I suppose is generally agreed: For *Salt* it is which gives *Ligature*, *Weight*, and *Constitution* to things, and is the most manifest Substance in all artificial *Composts*.

'Tis the *Salts*, which entice Roots to affect the upper and saline Surface of the *Earth*, upon which the *nitrous* Rains and Dews descend; and the Cause that some *Plants*, the most racy, and charg'd with Juice of all other, (for such is the *Vine*) thrive so well amongst Rocks and Pumices, and in whatever best maintains this vital Pickle.

'Tis *Salt*, which makes all cover'd and long shaded *Earths* to abound in Fertility, and renders the Dung of *Pigeons*, *Poultry*, and other *salacious* Corn-fed *Birds*, so eminently effectual, before the Soil of *Horses* and other Beasts, in which it less abounds, as having less Virtue to attract it.

'Tis *Salt*, that gives such Vigor to Places sprinkled with *Urine*, *Soot*, *Ashes*, &c. which have them not diluted; and to *Bones*, *Flesh*, *Horn*, *Hair*, *Feathers*, *Blood*, and the rest of those *animal* Excrements: And whence those *feminal Mosses* should proceed after *Calcination* of the *Earth*, when it comes to be expos'd again, is hard to divine; whence, I say, they should derive their Life and Energy, without being destroy'd by so powerful an Agent as *Fire*, unless they lurk in some vegetant and indissoluble *Salts*, (*volatile*, *fixed*, or *nitrous Earth*) from whence they (*Phoenix* like) emerge, though I do not say

without any other *specific* Rudiment: But 'tis strange, what, as I remember, Dr. *Morison* affirms of the *Erysimum* or *Irio*, so seldom seen to grow spontaneously in *England* before the late prodigious *Conflagration* of this *City*, when there appear'd more of it amongst the Ruins, than was known to grow in all *Europe* besides; it being a curious *Exotic*, to be found most about *Naples* in the time of *Fabius Colonna*, and but rarely elsewhere.

'Tis *Salt*, which *resuscitates* the dead and mortify'd *Earth*, when languishing, and spent by Indulgence to her verdant Offspring; her Vigor seems to be quite exhausted, as appears by the Rains and Showers which gently melt into her Bosom what we apply to it, and for which Cause all our *Composts* are so studiously made of Substances which most ingender or attract it.

'Tis *Salt*, which fertilizes and renders *Egypt* so luxuriously fruitful after the Inundations of *Nile*; and the *nitrous* Grounds of *Jamaica*, and other Places, which cause so stupendious a Growth of Plants and Trees.

'Tis the want of *Salt*, which *emasculates* the Virtue of *Seeds* too long macerated in hungry Water, and renders *floatated Wood* such unprofitable *Fuel*, and to turn into such insipid *Asbes*; and whatsoever it be some *Plants* may appear to affect, as to the external Differences of Appetite, some of them seeming to draw in more *Air*, some *Earth*, and others *Water* in extraordinary measure, according to the several Contextures of their Parts, or by whatever *Magnetisms* and Attractives, it is still to come at their *Salts*, which doubtless create that Inclination, compose the various *Saps* and *Juices* which they present us. Nay, what if I should say, that all the several Parts of *Vegetables* were endow'd with their peculiar and distinct *Salts*, through different *Motions*, *Complications*, and *Percolations*? Or, that so many *Earths*, so many kinds of *Salts* digested and transported by their different *Vehicles* and Strainers; and those also, though unlike in Quality, yet perfectly congruous to what they produce and nourish? But what this *Vehicle* or *Menstruum* is, I contend not; 'tis evident, that *Salts* unite best with Water, *Vernal* and *Autumnal* Showers and Dews, as the most apt to convey their Insinuations. You know who have dignify'd *Salt* with the Prerogative of being nam'd *Element-Earth*, the *Vigor* and *Close* of all things; yea, the first and last of *Elementated* Bodies: What shall I say, *Quid Divinum!* the Original of all *Fecundity*; nor can I say less, since there was nor *Sacrifice*, nor *Discourse* acceptable without it. And verily, upon serious Contemplation of the Premises, and the little Experience I have had of their Effects in this Work of *Vegetation*, as far as I am able to penetrate into Causes by them, I am not displeas'd at the magnificent *Epithets* which are given it. In the mean time, I know there be, who are so averse to this Doctrine, as to prefer Water alone before it; nor contend I with them, so they allow the near Affinity and Friendship which is between them, as I have deduc'd it at the Entry of this Discourse, where I describe my *Autoptical* Observations of the several *Earths*: All that I pretend from hence, being only to excite us to make diligent Enquiry, what may more likely be the Cause of *Vegetation*, and whether *Salt* have not a *Dominion* almost *Monarchical* in this great Work of Nature, being so absolute an Ingredient in all our *Dungs* and *Composts*, which I am next going to speak of. I cannot in the mean time but wonder, how a thing so eminently sacred, and fertile,

should

should come to be the *Symbol* of *Malediction*, when, as the Custom was, they us'd to sow *Salt* in the Place of *Cities* they had *eras'd* and *curs'd*; there being in all Nature nothing so pregnant and fruitful; unless it were to invite the *Plough* to go there, and that the Fertility of the Spot for *Corn* and *Grain* might divert them from rebuilding and covering it again with Houses. Indeed to apply *Salt* in Excess, burns the *Earth* for a time, so as nothing will grow upon it; but when once the Rains have well diluted it, it springs up more wantonly than ever. This I daily find by sifting common *Salt* upon the *Gravel-walks* of my *Garden*, and for which Cause I have left it off; and we find that the *Earth* itself over-marl'd, and too highly manur'd, is as unprofitable as if it were barren for the time, and that there is in all things a just Proportion to be observed.

But neither all this while do I pretend, much less determine, that the *Principle* I so much celebrate, is our common artificial *Salt*, compos'd of *Urine*, and the like, which of itself is so burning and destructive, till its *Acidity* be qualified by the *Air* and *Showers* from Heaven (which endows it with a natural *Magnetism* to receive their irradiant Virtues;) but a certain more *unctuous Spirit*, or *airy Nitre*, pregnant with a *vital Balm*, which is the thing we endeavour to find in the Materials of *Composts*: But whether it be *accidental* or *essential*, *corporeal* or more *spiritual*, *principal* or *organical*; or (to speak with the *Chymists* and later *Atomists*) whether communicated by *Effluvia*, *Salts embryonate*, or *undigested* and not *specificate*; from *Ferments*, *Spermatic Vapours*, *Influences Celestial*, or from *Liquor* only impregnated and concocted, I leave to those who affect to wrap up *easy* Notions in *hard* and uncertain Terms, whilst the thing would be of use to the *Philosophical Husbandman*, were their Reduction into just *Classes*, for the better discriminating of the several *Composts*; as what there's of them most abounds in *Nitrous*, or *Urinous Parts*; or what of the Nature of our crude, common *Salts*, and *Kali's Mineral*, or other; and thereby be able to pronounce, *where*, and *how*, we may apply them with Safety and Success: For some we know are plainly exitial and deadly to *Plants*, (such as the *Mineral*) others procreate too fast; and some are sluggish, and scarce advance them at all. It would therefore be consider'd, whether any *Salts* did universally nourish all *Plants* alike; or rather partly, some *one* Plant, some *another*; for upon the clear Decision of this *Secret* depends all that is truly curious in this Affair; laying, as I do, for *Position*, that the Improvement of all the *Earths* and *Soils* I have spoken of, result from some *Salt* or *Spirit* (call it which you please) as from an indispensable *Principle* in this of *Vegetation*, and perhaps the *first Rudiment of Life* in all things else: And till we shall arrive to this (by what I have observ'd in the discreet Use even of our common *Salt*, *Brine*, the Effects of *Urine*, and the like) I firmly believe, that were *Saltpetre* (I mean fictitious *Nitre*) to be obtain'd in Plenty, we should need but little other *Composts* to meliorate our Ground; since whether that which so fertilizes it by any Mixture we can yet devise, effect it from any other Cause, is greatly to be doubted; nor do I think, but the Charge of extracting it (at least sufficient to impregnate *Water* in convenient Quantity) might be compass'd by the industrious *Farmer* without much Inconvenience, or the least Difficulty, were he competently instructed in the Process of *Calcinat*ion, *Resolution*, *Percolation*, *Evaporation*,
and

and *Separation*, put into honest *English*, and easily to be learned? Soon we should then see, that this were not to be extracted altogether out of stinking *Dung*, and found in heady Trash, (which yet is material) but rather in the well impregnated and natural Mould itself, charg'd with a more generous Spirit, or medicinal *Nitre* (in congress with a certain *Sulphur*) capable to warm and excite to Vegetation, beyond all we can promise from any mere artificial *Ferments*, much less our common Mixtures, and ways of *Stercoration*, which in time grow cold and languish, and are so quickly check'd.

And now after all this, I dare not say, that there is nothing more than this meer *Salt*, or spirituous *Nitre*, which concurs to those desir'd Effects, that promote Fertility, and set the Ferment on working: What *ignite Particles* beside, and special *Composts* there may be of Consanguinity and near Alliance to the respective *Vegetables*, (which we know to be of vast Difference one from another) we pretend not to determine; for some *Plants* are very brisk and quick, others insulfe and flat; some are acid, others more *dulcorous* and sweet; they are *salt*, *sowre*, *luscious*, *austere*, *hot*, *bitter*, *moist*, *dry*, *astringent*, and of strangely different Qualities, not to speak of their Effects, which it were hard to number. Therefore, that the same *Compost* or Remedy should be promiscuously universal, is the more unlikely, and would be well consider'd: But admitting this to be salvable, and that we find by Experience, a well digested *Compost*, beneficial to almost all the vegetable Family; may it not in all Probability spring from its Participation of all those varieties of *Ferments*, (in some at least, though in different Proportion) which we have been speaking of? As by which each single *Species* draws and *assimulates* that only to its self, which it finds most *amicous* and congruous to its Nature; and if so it be, then have we no more to do, than to learn how to prepare our *Ferments*, and apply them accordingly; namely, *acid* to *acids*, *sweet* to *sweets*, *benign* to *benign*, and so the contrary, as we would promote its natural Quality; and this perhaps either by reducing some Parts of them into *Composts*, as their *Leaves Stalks, Fruit*; or by some more refin'd Extraction of their *Salts*, convey'd in proper *Vehicles*. And for the better administering of this, the nicer *Textures* of *Vegetables* should diligently be consider'd; their several Vessels, and *Organick* Parts; since every impregnate Liquor is not presently fit for all alike; the Figuration of their *Labiola*, and curious Pores (which 'tis likely draw several Juices and Spirits) being very different; as the most sagacious Dr. *Grew*, and learn'd *Malpighius* (both Ornaments of this illustrious *Society*) have begun, (I think I may say, well nigh *perfected*) the way to us, in those elaborate *Anatomizations*, which the World will * shortly admire. I insist the rather on this, because we find some *Plants* to reject divers rich compounded Liquors, especially such as pretend to work Miracles in the *Protean* Changes of *Colours*, and other Qualities, from *Mineral*, or other Substances; and that the very *Rains* and *Dews* differ in several *Climes*: So as even from this Reason alone, to instance in no more, all *Plants* do not easily become *Denizens* in all Places:

* Not published when this was presented, and first read to the Society.

——— *Nec omnis fert omnia tellus.*

I might add to this the Niceness of their *Palates*, and Fondness to their own *Homes*, and to live some in *Consort*, some in *Solitude*,

some

some on *dry Banks*, some in watry *Puddles*, and some as it were in the very *Air*, and fiery Soils; nay, some which are found to destroy the vegetable Virtue where they grow; for such are said to be *Wood*, *Hemp*, the *Scythian Lamb*, &c. and if it be true and constant, that all our Imbibitions of *Salts* and *Composts* signify little to *Earth* pre-impregnated with a *Salt* or Virtue different from what the *Plant* does naturally delight in, some obscure Footsteps of which every *Ploughman* seems to discover, which makes him change the Crop in some Places yearly: For the first, second, or third Burden of the same Grain, especially *Wheat*, will exhaust that which is its proper Aliment, and then leave the rest to more ignoble Grain, which will be found to thrive well enough, till at last several Successions of different Seeds quite wear it out, and then it must repose, or be manur'd with *Composts* for fresh Life and Vigor. And to this we may add, how some *Plants* again require little Change, or help of Art; such as most of the *perennial Greens*, and amongst these, the most *resinous* and oily, as the *Pine*, *Fir*, *Cedar*, &c. which thrive on barren Hills, and grow in rocky Crannies, without any Earth almost to cover and protect their Roots. Of this sort I have a *Cedar-Table*, which was saw'd out of a *Spur* only of a monstrous Tree growing in the *Barbadoes*, which held *six Foot* long, *five Foot* broad, and three Inches thick, form'd and wrought as it stands upon the Frame; and his *Royal Highness* had another of a much larger Dimension; namely, *eighteen Foot* in Length, and *nine* in Breadth, cut out of the Stem, which was of prodigious Growth, to be fed and nourish'd as it were between the barren Rocks. But to proceed; we find that most *esculent* and *culinary* Roots do rather chuse a rich, natural and light Mould, inclining to Sand, than what is forc'd, or over-muck'd; and how much they yield to Soil growing hard, short and fibrous, and contract the Smell and Relish of the *Ferments*, apply'd to accelerate their Growth (for according to the *Italian Proverb*, *Ogni pianta serba della sua radice*, every Plant has a smack of the Root) I have already mention'd; so as to confide in *Dungs*, as our vulgar *Gardeners* about this *City* do, is no Encouragement; and therefore some, not without good Reason, prefer the *Corn* and *Grain* which is reap'd from *Marl*, *Chalk*, *Lime*, and other more natural Manure, before what is produc'd from a Crop which grows on a *Dung-hill* in Comparison; Experience also shewing, that the Cause of *Smuttiness* many times proceeds from the Impurity and Rankness of the Dressing; and therefore we omit to enumerate amongst our Soils, *Stercus humanum*, which howsoever prefer'd by some before all other, and mention'd by *Columella*, with that of *Fowl* and *Cattle*, does (unless exceedingly ventilated and air'd) perniciously contaminate the Odor of *Flowers*, and is so evident in the *Vine*, as nothing can reconcile it.

To give some Instances of the Nature of particular and simple *Composts*, (for so I take leave to use a *Solecism*, till they are blended together with the rest, as we shall afterwards shew) whatever they be, they are by no Means fit for the *Earth*, and Use of the Husbandman, unless, besides their Richness, they be perfectly well digested, made short, sweet, and almost reduc'd to a crumbling Mould; so order'd, as not only not to lose any of their Virtue, but to improve it, and to excite, entertain, and communicate Heat and vegetative Spirits

to what you shall apply them: And that this is not done *per se*, that is, by immediate application, without prejudice (unless it be for the *Hot-bed*, which yet has an *Intermedium* of *Mould*) Experience tells us, especially in the Soil of *Animals*, which is of all other the most active, as consisting of *heterogeneous* Parts and Repugnances, without which no Fermentation could be obtain'd. Now since many of these being freshly made, are not only sensibly hot, but *mordacious* and burning, they are with caution to be us'd. That every kind of *Earth* (as well as the *Dung* of *Beasts*, &c.) has its peculiar *Ferment*, and operates accordingly, either by attracting something to it, or embasing what approaches it, sufficient has been said; together with Directions how to mingle and attemper it, as best may qualify it for Culture. That we may do the like with the several sorts of *Soil*, let us consider what their Natures are, what their Correctives, and how to apply them.

Horse-dung, the least pinguid and fat of any, taken as it falls, being the most fiery, excites to sudden *Fermentation* above any; wherefore, as we said, 'tis then fit only for the *Hot-bed*, and when that Fervour's past, may be spread on Fields, where we would have a rank Grass to spring; but is at no hand to be admitted into the *Garden*, or where you desire good *Roots* should grow, unless the Ground be very stiff, cold or wet, and then too it had need be well rotted, lest, instead of curing it, it leave *couch*, and pernicious Weeds, worse than the Disease; the *Seeds* of *Hay*, and other *Plants*, of which the *Horses* eat, coming oftentimes entire from them: And such *Vegetables* do commonly spring up from the *Soil* of *Cattle*, of which they chiefly eat; as long *Knot-grass* from this Beast; short, clean and sweet Pasture from *Sheep* and *Cows*; the *Sonchus*, or Sow-thistle from the *Swine*: So as Ground muck'd with *Horse-dung* is always the most infected of any, and if it be not perfectly consum'd, it makes your *Roots* grow forked, fills them with *Worms*, and imparts to them an unpleasing relish; but being laid on at the beginning of *Winter*, and turn'd in at *Spring*, it succeeds sometimes with *Pulse*.

The Soil of *Asses* is highly esteem'd, for its being better digested by the long *mastication* and chewing of that dull Animal; but since we have no quantity of it in this Country, it does the less concern us.

Neats Dung of all other is universally the most harmless, and the most useful; excellent to mingle with *sandy* and hot Grounds, lean or dry, and being apply'd before *Winter*, renders it the most like *natural Earth*, and is therefore for the *Garden* and *Orchard* prefer'd to any other. To use it therefore with the most certain success in such thirsty Grounds, apply a plentiful Surface of it, so blended, as the Rain and Showers may wash in the Virtue of it thoroughly; but this is best done by making the *Dung* the finer, and what is reduc'd to *Powder*, sprinkl'd for the *Garden*, or otherwise working it in at a soaking wet (not stormy) Season, and then leaving it also cover'd with it for some time, if the Rain descend in too great excess.

The next is *Sheeps Dung*, which is of a middle temper between that and *Pigeons*; profitable in cold Grounds, and to impregnate *Liquors*, of choice use in the *Garden*.

The *Dung* of *Swine* is esteem'd the coldest and least *acrimonious* (though some there be who contradict it) and therefore to be apply'd to *burning* Lands; but always so early *interr'd*, as never to appear above Ground,

Ground, where it is apt to produce *Weeds* in abundance, from the greedy devouring of what that *Animal* eats.

This, though not so proper for the *Garden*, (and the most stinking) is said yet to *edulcorate* and sweeten *Fruit* so sensibly, as to convert the bitterest *Almond* into sweet, and therefore recommended, above all others, for Experiments of *Change* and *Alteration*: Some qualify it with *Bran* or *Chaff* well consum'd, greatly comfortable to *Fruit-Trees*, but especially the *Hairs* and *Bristles* buried about the *Roots* of *Pear-Trees*.

Pigeons Dung, and that of *Poultry* (especially of *Aquatic Fowls*, which is too fiery) full of *volatile Salts*, is hot and burning, and therefore most applicable to the coldest Ground. There is nothing so effectual to revive the weak and languishing *Roots* of *Fruit-Trees* laid early to them; but first be sure they pass their *mordicant* and piercing *Spirits*, and be discreetly mixt: Be this therefore observ'd as a *constant Rule*, that the hotter *Composts* be *early* and *thinly* spread, *e contra*, the colder.

Very efficacious is this *Dung* to keep *Frosts* out of the *Earth*, and therefore of great use to cover the Mould in *Cases* of *Exotic* and tender *Plants*; but if the Heat be not well qualified, the very *Steam* will kill them in a moment; therefore let a full *Winter* pass over this *Latation* for most uses. The best way of preparing it, is to reduce it into *Powder*, and mingle it with the Mould, and to water with its *Infusion*, which alone does wonders; or, if it have been well expos'd and abated, you may use it at the *Spring* without addition: But if you desire something that is exquisite, macerate it well rotted in the *Lees* of *Wine*, stale *Urine*, and a little *Brimstone* beaten very fine, to mingle with your *Earth*, for one of the richest *Composts*. Then is this only to be noted, that, as the effect of this *Dung* is sudden, so it lasts not long, and therefore must the oftner be renewed.

The *Flesh* of *Carriion*, and dead *Animals*, being (as I think my Lord *Bacon* tells us) prepar'd already by so many curious *Elaborations* of its *Juices*, is highly effectual; but it should be very well consum'd, and ventilated, till it have quite lost its intolerable smell, and therefore never apply'd too crude.

Blood is excellent almost with any Soil where *Fruit* is planted, especially the *Mural*; to improve the *Blood* of the *Grape* of great advantage, being somewhat *diluted*, and pour'd about the *Roots*. It has been assuredly reported by divers *Eye-witnesses*, that after the *Battel* of *Badnam* Fields in *Devonshire*, (where the late Lord *Hopton* obtain'd a signal *Victory*) the *Carriage* being great, and happening in that place; the *Blood* of the slain did so fertilize the *Fields* (where *Corn* had been sown a little before) that the Year following produc'd so extraordinary a *Crop*, as most of the *Wheatstalks* bore *two, three, four, yea to seven* and some even to *fourteen* Ears, a thing almost incredible. The Owner of the Land seeing his Ground so miserably trodden by the *Horse* and *Soldiers* after the *Conflict*, intended to sow it, as believing all his former Labour lost; but being dissuaded from his purpose (perhaps to make the Experiment) it happen'd as you have heard.

Urine, for being highly spirituous and sharp, had need be well corrected, and then, being mingl'd with other *Composts* to allay its acrimonious Salt, it hardly has its equal.

Hair, Horn-shavings, Bones, Skins, Leather, &c. are deeply to be buried, and so as not to touch, but lie about the Roots: These, with *Rags, coarse Wool and Pitch-Marks*, improve the Earth, as being full of volatile Salts, drawing and retaining the Dews. And *Fish* is likewise spread to great advantage of Grounds, where 'tis to be had in plenty; and for being quickly consum'd, may soonest be apply'd. We come to *Vegetables*.

The *Marc* and Pressings of the *Grape* are good *Compost*, and so is the *Lees* of *Wine* mingled with the Mould: It is of singular comfort to the Roots of *Orange-Trees*, and *Case-Plants*; and if you sift a little *Brick-dust* with it, and bury it near the Roots of *Rosemary*, it will thrive wonderfully. It may be a laudable *Compost* for moist Grounds, where that Plant so unwillingly grows.

The *Leaves* of Trees are profitable for their own Fruit, and natural, being well rotted, and not musty: The *Peach-leaf*, hurtful to Cattle, is excellent for the Tree from which it falls; and the *Walnut-leaf*, noxious to the Grass, is helpful to the Tree.

Duck-weed, the slime and spongy *Ouze* of stagnant Waters, mixed with proper Mould, make a kind bed for *Aquatics*.

Saw-dust, Rotten-wood, found in the hollow of decay'd Trees, under the *Stacks*, and where Trees grow thick together, as in great and old Woods, but especially that which is taken out of an inveterate *Willow-Tree*, is preferable to any other for the raising of *Seedlings* of choice *Plants*, mix'd as it should be with a little *Loam, Lime-rubbish* and *Mould*, as we have taught. This and the rest should be well ventilated, and is of great effect to loosen and mellow Ground, as tenacious of Moisture.

Wood-ashes, rich and impregnate with *Salts*, are fit for wet Ground without mixture, and in Pasture excellent, not sifted on over thick. In the *West-Indies* near *Guatemala*, *Gage* tells us their *Manure* is the burning of Trees to *Ashes*, of which they do not spread above one *Bushel* upon an *Acre*: It likewise kills the Worm; but in Earth which is subject to over-heat and *chap* much, *Ashes* and burning *Composts* do but increase the Fever, and therefore contrary Remedies are to be sought, such as *Neats* and *Swines Dung*; but not so when Lands are naturally, or accidentally cold. Wherefore we should endeavour by all means to detect, as far as we are able, the Quality predominant both of the *Earth* we would improve, and the *Composts* we apply, and not throw them on promiscuously upon every thing without considering of what temper and constitution they be; for Grounds are as nice as our Bodies, and as obnoxious to Infirmities upon every defect and excess; and therefore it requires Skill, and no little Study, to be able rightly to *marshal* this *Materia Medica* (as I may call it) of *Composts*, the virtue of which does sometimes lie very hidden; at least, if that be true which *Sir Hugh Platt* affirms, that what we all this while seek after, is indeed altogether invisible to human Eyes, and to be discern'd only by the Eyes *intellectual*, because 'tis veil'd and clad under so many different Bodies, whereof some are more ponderous, such as *Marl, Chalk*, the Dung of *Beasts*, &c. some more light, as their *Flesh, Bones, Hair, &c.* and some yet lighter, as *Grain*, and generous *Seeds*; for in such as have Virtue to multiply their own *Species*, that Spirit is invested with a very thin and curious Integument, as in effect we have instanc'd in the *Blood and Flesh* of *Animals*, so much more powerful for the enriching of Land than their

Dung

Dung and *Excrements*; this industrious Man computing it to no less than *twenty* times, and to the same advance above this, *Hair*, *Wool*, and *calcin'd Bones*, &c. and as to the courser Soils, that the *Dung* of *Pigeons* and *Poultry* does as far exceed that of *Beasts* which feed on gross Vegetables; and tells us, it has been found upon experience, that one Load of any sort of *Seed* contains as much Vertue as *ten* load of ordinary *Dung*; and therefore 'tis advisable, that upon all removals of *Corn-ricks*, *Hay-stacks*, &c. the Husbandman reserve all he can of the *Bottom*, *Offal* and *Shakings*, and to mingle it with *Chimney-foot* and *Blood*, and with that to reduce it into the consistence of a *Paste*: To this add as much dry'd *Neats-dung*, temper'd with *Urine*, and made up in Cakes as big as Household Loves, and after all is well dry'd in the *Shade*, crumble them to Dust, to be sifted or *sprinkled* on the Ground for a very considerable Improvement; we say *sprinkled*, because they should never be too *thick*, especially for *Corn*, which it either cloy, or over-heats, according as 'tis qualified: Thus, *Pigeons-Dung* burns *Seeds* on hot Ground, but is excellent for *Barley*, &c. sown on the colder Mould.

Of like effect is *Earth* blended with *Malt-dust*, or purified and decay'd *Corn* reduc'd to *Meal*; so is the Dust of old *Furze-bushes*, (in *Devonshire* call'd *Dress*;) but this *last* should not be taken in *Seed-time*, lest it infect the Ground with a Plant not easily extirpable.

Lastly, The *Mud* of *Ponds* and stagnant Waters of *Ditches*, shovell'd up, and well air'd, is best apply'd to *Roots* of Trees, but especially the *Dust* of unstonny *High-ways*, where the drift of *Cattle*, and much Passage is: Let it be carried off from *March* to *November*; for it being already a kind of refined Soil continually stirr'd and *ventilated*, there is no *Compost* preferable to it for any use: It is prepar'd in the highest degree, and will need no Wintering, but may be us'd immediately; and so may *Straw*, *Haulm*, and other *Litter* tramp'd on in dirty Streets, after it is a while rotted and mingl'd. Mr. *Ray* tells us, that in some Places about the *Alps*, he found them sowing *Dust* upon the *Snow*, as he supposes, for Manure, and to fertilize the dissolution.

Thus with no little Industry are found out the several kinds of *Composts*, and Materials of Improvement, and what is the most genuine and true Medicament of every Soil for *Arable*, *Pasture*, or *Garden*. I do not say all, or as if there were no more; for what if indeed there should be as many sorts of *Composts*, as there are of *Ferments* or *Salts*; and as many sorts of *Salts* as there be of *Vegetables*, or any other putrifiable matter? The more there be, the greater ought to be our Industry and Skill to be able to distinguish them, and to know how and when rightly to apply them.

Nor is it sufficient to consider the nature of the *Earth*, *Mould*, and several *Composts*, but of the very *Plants* themselves, for the application of what you administer, be it for Food or Medicine; as if they be cold of Constitution, to make use of the hotter *Composts*; if hot, to prescribe the cold. For instance in a few of the most useful only:

Fruit-trees do generally thrive with the Soil of *Neats* and *Hogs*; most *Flowers* with that of *Sheep*, but especially *Roots*. *Peter Hondius* tells us (in his Book intitl'd *Dapes inemtæ*) that by the sole application of *Sheeps-dung*, he produc'd a *Reddish-root* in his *Garden* as big as half a Man's middle, which being hung up for some time in a Butcher's Shop, People took for an *Hog*.

Apples affect a pretty rich Soil, with a dash of *Loam*, but they will bear even in *Clay* well foil'd, and mix'd with *Chalk*, especially the more hardy Winter Fruit; and in *Chalk* alone for some Years; but they produce, though sweet, not so large Fruit: But both *Apples* and *Pears* have a better relish in Grounds that are not over-moist, and where they may stand warm, and the last will prosper well enough where the Soil is mixt with *Gravel*, and has an harder bottom.

Cherries, Summer and Stone-Fruit, such as have their Roots like Thrums, desire a fine light Mould, *Sand* or *Gravel*, with *Chalk* and good *Compost*, unless it be very coarse and stony, in which case it would be well foil'd, and the Pit you plant in, fill'd with rich Mould, as far as the Roots likely use to extend before they reach the *Gravel*, so as to make good spread; and this is to be renew'd every third or fourth Year; and for this reason it is profitable sometimes to bait sterile Grounds, by laying your *Composts* at reasonable intervals, thereby to tempt and allure the Roots towards it, and keep them from wandring, which they will be subject to do in search of fresh nourishment: For to bear constantly well, and much, *Fruit-trees* must have frequent *Lætations*. Nor are we to judge, that what is excellent Ground for one sort, is so for another; since that which is perfectly good for *Corn*, is not so for all *Fruit-trees*; and a slender Straw will be fed and brought up with a great deal less substance and virtue, than what will serve to furnish the Stem, Bulk and Head of a fertile and spreading Tree.

Vines, (than which there is no Plant more sensibly retains the different qualities of *Earth*, or whose Juice is of more variety) rejoices in light, but vigorous Mould, rather *sandy*, and inclining to dry, than either fat, luxurious or moist. *Lime* temper'd with *Blood*, exceedingly recreates it, after the first accidental Heats are pass'd over.

The *Fig-tree*, (though affected to dry Grounds) is no lover of *Stercoration*, yet in some Countries they apply *Oyl-Olive* and *Doves-dung* to cause them to bear early Fruit; but omitting the *Oil*, if the *Dung* be mingl'd with *Lime* and *Ashes*, it is not to be reprov'd: This *Fruit* thrives, and ripens even in the Shade, and *Northern* Exposures, with us in the *Meridional* Parts of *England*; but much better in the *South*, and best of all in *Caves*, and under *Shelter* in *Winter*; an Industry worth the Pains, for the most delicious Fruit in Nature, were it skilfully cultivated.

Artichokes thrive exceedingly with *Sheeps-dung*, which apply'd to the Roots, make them produce very great Heads: In the Island of *Jersey* they use *Sea-wreck*, to a wonderful improvement of that Plant.

Melons, *Asparagus*, and most hasty Growers, participate evidently of the Soil; and therefore we have already shew'd, how new and heady *Dung* contaminates; and this is amongst other the reason why in the more Southern Countries (where they are planted in the natural and unforc'd Mould) they are so racy and superior in Taste and Flavour to ours. I should therefore recommend the use of *Sheeps-dung*, well reduc'd or rather the *Ashes* of burnt *Straw*, and the hotter Dungs *calcin'd*, for some tryals to reform it; or, as they do in *Italy*, mingle *Dust* and *Earth* manur'd with *Sheeps-soil* and *Wood-ashes*; if after all we have said, the cause of our application of *Composts* and *Dungs* to these rarer and choice Productions, be not to prevent the *Rains* only; for other-

wise

wife too rich Soils impair the most delicious Fruits, rather than improve them; and *Grapes* and other Fruits are sooner ripened which stand near the Highways, much beaten by Passengers, than by all that you can lay to the Roots, or spread on the Ground for that Purpose, the *Dust* investing both the Tree and Fruit with a kind of refin'd Soil, mellow'd with the Dews and gentle Showers which fall from Heaven.

To give some Instances; *Roots*, as we have shew'd, desire deep Ground; *Fruit-trees* not so, which should never go deeper than the usual Penetrations of the Sun; for no farther is the Mould benign: Besides, that they but too propensely sink of themselves, especially *Bulbs* of *Flowers*, whose Fibres easily draw them down, and then they change their artificial and accidental Beauty, and (as we call it) degenerate; but *Trees* will grow and thrive, if planted on the very Surface, with little covering of the Mould, so it be oft refresh'd and establish'd against the Wind: Besides we find, that even the goodliest Fruit (as well as some *Timber-Trees*) have many times the hardest Footings with reasonable depth of Earth: So little does it import to have it profound; and therefore in soft and deeper *Sands*, they thrive nothing so well; as on *Chalk* and *Gravel*, so long as the Root can be kept from descending; in which Case you should (as we have shew'd) bait the Ground towards the Surface, and keep the Roots from gadding too far from the Stem; for the lower Roots are frequently starv'd by the upper, which devour the Nourishment before it arrive at them: Thus *Gardeners* should sometimes humour their *Plants*, cook and dress their *Foods* to their Appetite, and as they can well digest it: But by no means suffer the *Roots* of *Fruit-trees*, *Standards* or *Mural*, to be planted in *dunged Earth*, which is not exceedingly well digested, and little different from the natural Soil.

To give some other profitable Instances of this Nature; in *transplanting Trees* (beginning early, and when the *Earth* is most tractable) endeavour to make your Mould as *connatural* to that of the Place or Nursery from whence you remove them, as you can. 'Tis not therefore material it should be so much richer; but where *Imp-Gardens* are poor, the tender *Plant* (like a *Child* starv'd at *Nurse*) does seldom thrive wherever you set them; and therefore you should have fair and spreading Roots, and be well fed, whatever some pretend: For other rarer Shrubs and Plants, the *Orange* (*Herrera* tells us) thrives well with the *Ashes* of burnt *Gourds* and Leaves, and needs not Change of Mould, even in the *Case*, above twice a Year, and that towards the Surface; but *Amomum Plinii* is a strange waster of *Earth*, and should continually be enrich'd and planted as it were all in *Dung*; so the *Myrtil* and *Pomegranat*; whilst the *Red Rose*, *Capers*, *Sampier*, and other Shrubs and Plants thrive better in *Gravel* and Rubbish; *Sage* with *Ashes*; and so *Porcelain* with *Dust* and Sweepings: *Rue* affects the dry Mould, *Lettice* the moister; *Flowers* for the most part detest the *Dunghil*, but if any, that of *Sheep* or *Neat* mix'd with *Loam* and light *Earth*: *Tulips* delight in Change, and rather in poor than rich Mould; yea, sharp and hungry, to preserve their *Variations*: But because 'tis sometimes troublesome to transplant them yearly, place a Layer of short *Stable Litter* a Foot beneath your Mould, and you will find they may remain unremov'd for some Years without Prejudice. The *Iris* loves the dry Beds; *Crocus*, a mix'd,
rich

rich and light Soil: *Carnations* would have a *Loamy* Earth, qualified, if too stiff, with *Sea-sand*, and *Sheeps-dung*; if too poor, with richer Mould; so the *Peony*, *Anemomy*, *Ranunculus*, and other Flowers; but then lay it at the bottom, such as you take from the last Years *Hot-bed*, giving it a Surface of *Under-turf*, which has been foder'd on, sweet and air'd: In this to plant your Roots, but so as not to touch the *artificial* Soil, but rather let it lie about the *Pasture-Earth*, in which your *Bulbs* should always be planted: For all *dung'd* Earths canker the Roots of *Flowers*, whilst their Fibres, reaching the heartier Mould, draw from it without Danger. But if you would indeed be provided of excellent Earth to plant most *Flowers* in, lay *Turf* of *Pasture-ground* in Heaps for two *Winters*, [till it be perfectly consum'd: This is also admirable for *Tuberous* Roots, and indeed all upland Mould, whether *sandy* or *loamy*, may be made perfectly good with *Neats-dung* laid on the Surface about *Michaelmas* for one Year, that it may wash kindly in; then in *September* after, pare this Turf off as thin as you can, and for the first Foot depth of *Earth*, you have Bedding for *Bulbs* and *Tuberous* Roots superior to any other. Another proper Mixture (much in Esteem with our *Gardeners*) is hollow *Willow Earth*, a fourth Part, sifted from the grosser Sticks, with almost an equal Portion of *Sheeps-dung* (*Lauremberg* says *Goats* is better) with a little natural Mould; and indeed this is excellent to raise any *Seedlings* of *Flowers*; but for the more minute and delicate, such as *Cypress*, *Mulberry*, the *Samara* of *Elm*, and the like, prepare a Mould almost of Powder, gently refresh'd with a dewy *Sperge* or Brush, not with the Watering-pot, which plainly gluts it.

Auricula, *Anemonies*, &c. should be raised in the *Willow-mould* describ'd above, but planted forth where *Neats-dung* and *Loam* is sifted among the *Pasture Earth*.

The *Pine* and bigger *Kernels* make (as some affirm) great Advance by being coated with Dung, which being grown to great Trees, abhor it. Touching Change of *Crop*, something has been said already, and *Pease* degenerate betimes, at least in two or three Years, be the Land never so good; so 'tis observ'd, that most Plants long standing in the same Bed, impair both the Ground and themselves, especially *Sorrel*.

To conclude; for a general good *Garden-soil*, take the natural *Under-turf*, if it be not too stiff; add to it a quarter Part of *Neat* or *Sheeps-dung* perfectly consum'd: one Bushel of *slack'd Lime* to each Load of Mould, with some sweet, though rotten *Wood-pile* or *Willow-Earth*, mix it well together; and you have a choice Composition for all your rare *Exoticks*, *Oranges* and *Cafe-shrubs*; remembering to place the spray of rotten *Bavins*, *Hampers* or *Baskets*, to keep the Mould loose, with *Lime-stone*, *Brickbats*, *Shells* and other Rubbish at the bottom, that the Water may pass freely, and not rot the *Fibres*: And therefore be careful never to make your *Cases* close below, but rather so *bar'd*, as to be able to keep the course Materials from dropping through, whilst *Auger-holes*, (though never so thick bor'd) are apt to be stopp'd up, and then your Roots do certainly rot, and your Trees grow sick. The same is to be observ'd in *Pots*, and that you place them about an Inch from the Ground, that they may freely drain, and as freely receive refreshing. But I must not quit these Curiosities,

riofities, to fpeak of the cooler Composts, till I have describ'd the best *Hot-bed* that I know of.

Dig a Pit or *Fosse*, *hot-bed* Depth, (four Foot is fufficient) and of what Figure and Dimension you think will best entertain your Furniture for it; if it be twenty foot in Length, and ten foot broad, I think it competent: Line the Sides with a Wall of Brick and half thick; fill this Pit with fresh Soil from the Stable, trodden as other *Hot-beds* are, but without any Mould on the Surface. In *this* place half-inch *Wooden-cases*, made like *Coffins*, (but not contracted at the Extremes, nor lidded) of what Length and Breadth you think best, but not above a Foot in Depth; let these be dovetail'd, with wooden Handles at each End, to lift in and out; and lastly, bor'd full of Augreholes at the bottoms. Your *Cases* thus fitted, fill them with proper Mould, such as you would sow *Melou-seeds* in, or any other rare Seed, and thus place them in your Bed of *Dung*. The Heat will pass kindly through the Perforations, and continue a cherishing Warmth five times as long as by the common way of *Hot-bed*, and prevent you the Trouble of making new and fresh for the whole process of the *Melon*, or what other of choicer Plants require more than one Removal. The Heat of this Bed continues eight or ten Weeks without need of repairing; and if it should, 'tis but casting in some fresh-made Soil and *Litter* beneath and about your *Cases*, of which, some you may glaze *Cheveron-wise* at the top, and with *Spiracles* or *Casements*, to refresh and give them Air and Sun at pleasure. And these *Beds*, where you cannot conveniently sink them for want of Depth, because of Water, you may build above-ground as well; and you may, or may not, extend a Tent over it, to protect it from Rain, Wind and Sun, according as you find Occasion. But thus have you a neat and useful *Hot-bed*, as I have been taught to make it by the Right Honourable the late Lord Viscount *Mordant*, at *Parsons-Green*, whose Industry and Knowledge in all hortulan Elegancies requires honourable Mention. *Note*, That ordinary fresh Mould, so it be not poor, and very lean, or apt to clog, is a better Surface for the *Hot-bed*, and to entertain and cherish the most curious *Seeds*, than what *Gardeners* universally make Use of, *sticky* and *over-loose*, at least let a due Proportion of *natural Earth* be sifted amongst it.

And now at last I am come to set down the several ways of preparing *Composts* of *Dungs*, and those other Ingredients we have mention'd, and begin with the rudest, as that which best accommodates to the grosser Part of Husbandry, (which yet requires a special Maturation) and so descend to the more refin'd: And these I distinguish into the *moist*, the *dry*, and the *liquid* for *Irrigation*. But first, here by the way, greatly to be reprov'd is the heaping of a deal of indigested Soil, and other Trash, expos'd (as commonly we find it) to the heat of the *Sun*, continual *Rains*, and drying *Winds*, as it lies in the wide Field, without the least Coverture or Shade; by which Means all the Virtue is drawn forth and carried away, leaving little more than a dry and insipid Congestion of *Caput Mortuum*, and perhaps a florid green Circle, or *Fairy Dance* at the bottom, which the impregnated Rains have enrich'd with what it has wash'd from the Heap; wherefore to prevent this, and make one Load of our prepared Soil worth ten of it,

Cut a square or oblong *Pit*, of thirty or forty foot in length, at the least four foot in depth, and ten foot over, or of what Dimensions or Figure you think will suffice to furnish you with Store: Let one of the Sides or Edges be made so sloping, as to receive a Cart or Wheelbarrow to load and unload easily; let the Bottom and Sides also be so well pav'd, or laid with a Bed of small *Chalk*, *Clay*, or the like, that it may be capable of retaining Water like a Cistern: If to this you can commodiously direct any Channels or Gutters from your *Stable*, and other Sinks about the House, it will be much the better. The *Pit* thus prepar'd, and under Covert (for that I should have premis'd) so as at least the downright Rains may not fall upon it (but when you please;) cast into it, first, your *Stable-soil* with the *Litter*, a foot or more thick, according to the Depth of your *Pit*; upon this lay a Bed of *fine Mould*, on that another Bed of *Gyder-Marc*, *rotten Fruit*, and *Garden Offal*; on this a Couch of *Pigeons* and *Poultry-dung*, with more *Horse-dung Litter*; then a *Stratum* of *Sheeps-dung*, a Layer of *Earth* again, then *Neats-dung*; lastly, *Albes*, *Soot*, *Fern*, (a moist and a dry) bottom of *Wood-stack*, *Saw-dust*, dry Scourings of *Ponds* and *Ditches*, with all other Ingredients, as you happen to amass them, till the *Cistern* be full and heaped up: upon all this cast plentiful *Water* from time to time, which if you can have out of some Pond where Cattle use to drink and cool themselves in, it will be excellent. At the Expiration of two Years you may confidently open your *Magazine*, and separate the Layers as they rise, to cast them into other small *Pits* or Receptacles made a little concave to receive them; where you may stir, air, mingle, and work them in with fresh Mould, or one with the other, as you find cause, till they become comparatively sweet and agreeable to the Scent. Lastly, you may pass them through a *Screen* made of *Laths* placed at moderate Intervals, and with the Liquor remaining in your great *Cistern* sprinkle the several *Composts*, and make them up for use, casting the coarse remaining Stuff, which would not pass the *Riddle*, into the *Cistern* again for farther Mortification, and so keep your *Pit* fill'd with fresh Materials from time to time after the same Method: Others, in the mean time, lay their several *Ingredients* by themselves in some shady Corner, which being frequently stirr'd, after two or three Years, mingle them together at discretion.

There are some who advise us to suffer our Mixture to remain till it be quite dry, after it is thus refin'd; and then being beaten to dust, to strew it upon the Ground. And indeed this seems in *Pliny's* Time to have been the Custom; nor do I contradict it, provided you could water it, or were sure of a Shower before the *Sun* had drank too deeply of the Spirit and Vigor of it, which, reduc'd in this manner, it does easily part withal.

Now the Reason of our thus treating *Composts* of various Soils and Substances, is not only to dulcify, sweeten, and free them from the noxious Qualities they otherwise retain, and consequently impart, apply'd, as usually we find them, crude, indigested, and unactive; but for being immoderately hot and burning, or else rank, and apter to ingender *Vermin*, *Weeds*, and *fungous* Excrescences, than to produce wholesome *Plants*, *Fruits*, and *Roots* fit for the Table, and grateful to the Palate; for which Effect, it should be thoroughly concocted, air'd, of a Scent agreeable, and reduc'd to the next Disposition of a sweet and natural *Earth*, short and tractable, yet not so macerated as to lose
any

any of its Virtue. The proper Season therefore for this Work, is the Beginning of the Autumnal *Equinox*, and *Wind* westerly, both to prepare and lay it on your Land; that, whether it be of wet or dry Consistence, it may have a gentle soaking into the *Earth*. As for fresh *Dung*, such as *Sheep* make when they are folded, it is good Advice to cover it with Mould as soon as possible, before the Sun have over-dry'd it, for the Reason before hinted; and by this early Application you will find all that is stiff, and yet any ways contumacious, subdu'd, and perfectly prepar'd before you turn it in. If you would meliorate Ground for *Fruit-trees*, *Roots* and *Esculents* of the *Orchards* and *Olitory-Garden*, be cautious that the hotter *Dungs* approach not immediately to their Stems or Roots, without such a Circumposition of natural Mould as we have commended. But this is a Note for such as think fit to use the Soil *steaming* as it comes from the Heap; but if it be prepar'd as we have shew'd, there is no danger even of immediate Contact. And the same is to be observ'd in *Ablaqueation*, where we find Cause to *bare* the Roots of Trees, and expose them to the Air for fresh Influence, or to abate Exuberances; and that the Cavity be not fill'd all at once (when we conceive the Roots have been sufficiently air'd) but gradually from Month to Month, as from *October* till the beginning of *March*; and upon other Occasions, leaving the Surface rough, rather than too *compt* and exquisitely trimm'd, if only you dig your Ground; which once in two or three Years, four or five, (as you perceive your Trees to require Culture) is adviseable, and then to mingle the *Earth* with a thorough soiling, and refresh it with the impregnate Water of your *Cistern*, will exceedingly recover a worn-out Plantation. This *Irrigation* may also be yearly given to the Roots of your *Fruit-trees* about *June* and *July*; and the spreading of a little good Soil upon the Surface, and rough chopping it in with the Spade before Winter, is good Husbandry, to wash in amongst the Roots, and to draw them upwards, the shallow running of which is of so great Importance: But of this already.

And thus having shew'd how to prepare, ripen, separate, and apply the several *Composts* (which for distinction sake we call the *dry Mixture*); I am next to describe the *Liquid* in many particulars, not much differing from the former Procefs.

'Twixt *East* and *North* erect a *Pergola* or *Shed*, so contriv'd with a Cover, as to exclude or admit the *Rain*, *Snows*, and Weather at pleasure; sink a *Pit* for the *Cistern*, as you did the former under it; cast into it all the *acid* Plants, bitter and rank *Weeds* that come in your way, and grow in the neglected Corners of your Grounds; such as *E-sula*, *Hemlock*, *Docks*, *Thistles*, *Fumary*, *Tobacco-stalks*, *Wormwood*, *Cabbage-leaves* and *Stalks*, *Aconites*, the Leaves, Trash and Offal, such as Cattle will not touch; to these add *Pigeons* and *Poultry-dung*, with their *Quills* and *Feathers*; any sort of *Ashes*, *Soot*, *Hogs-hair*, *Horn*, *hard Bones*, such as the *Dogs* have gnawn; also *Urine*, *Blood*, *Garbage*, *Pickle*, *Brine*, *Sea-water*, (if conveniently to be had) otherwise Pond-water, to sprinkle it with, and keep it moist to accelerate Putrefaction; but when all is well consum'd, forbear the pouring on of insipid Liquors, and thus leave it till it be dry; then air, mingle and work your *Composts* as you were directed above, or boil it into *Petre*, casting what you find not well digested into the *Cistern* again for another Year, and with a little Addition it will give you half the Quantity of the former,

and, provided that you supply the *Magazine*, a continu'd and farther Increase. Indeed this *Salt* and *Compost* is not immediately fit for Use, till it be well dulcify'd and purg'd from its over Acrimony, therefore mix it well with your Mould, and dilute it as you see Cause. The *Receipt* is set down by old *Glauber* for the effecting of wonderful *Vegetation*, by the Assistance of certain *Circulatory* Vessels to prepare the *Oily Succus*, and pinguid Juice, which that Author teaches in his *Miraculum Mundi*, to extract not only out of these Materials, but out of *Turf*, *Wood* and *Stone* it self, by *calcining* and burning them in close and *reverberating* Furnaces, to which a *Tube*, adapted near the bottom, may convey the Spirits into a *Recipient*, as he describes the Process. I mention this the rather, for the real Effects which I have been told of this *Menstruum* from very good Testimony: And doubtless he who were skill'd to extract it in Quantity (and to dulcify and qualify it for Use) a true *spiritous Nitre* may do abundantly more, in the way of the Improvements we have celebrated, with a small Quantity, than with whole Loads, nay Hundreds of Loads of the best and richest of *dry Composts*, which he can devise to make. But besides this, any House of *Ordure*, or *rancid* Mold, strong *Salts*, *vinous* Liquors, *Urine*, *Asbes*, *Dust*, *Shovelings* of the *Kennels* and Streets, &c. kept dry and cover'd for three or four Years, will be converted into *Petre* without half this Trouble; especially if you mingle it with the Dung of *Pigeons*, *Poultry*, and other *salacious* Fowl which feed on *Corn*: Or those who would not be at the Charge of distilling for these Advantages, may make Experiment of the so famous *Muck-water*, not long since cry'd up for the doing Wonders in the Field: Throw off the shortest and best *Marl* into your *Cistern*, exceedingly comminute and broken, which you may do with an Iron Rake, or like Instrument, till the *Liquor* become very thick; cast on this the Dung of *Fowl*, *Conies*, *Sheep*, &c. frequently stirring it; to this add the Soil of *Horses* and *Cows*, *Grains*, *Lees* of *Wine*, *Ale*, *Beer*, any sort of Beverage, *Broths*, *Brine*, *fatty* and *greasy* Stuff of the *Kitchen*; then cast in a Quantity of *Lime*, or melting *Chalk*, of which there is a sort very unctuous; also *Blood*, *Urine*, &c. mixed with the Water, and with this sprinkle your Ground at seasonable times; and when you have almost exhausted the Cistern of the Liquid, mingle the Residue with the grosser *Compost* of your *Stable* and *Cowhouse*, and with Layers of *Earth*, *Sand*, *Lime*, &c. frequently moisten'd with uncrude Water; the taking up of which you may much facilitate, by sinking a *Tub* or Vessel near the corner of the *Cistern*, and piercing it with large Holes at the Bottom and Sides, by which Means you may take it out so clean, as to make Use of it through a great *Syringe* or watering Engine, such as being us'd to extinguish *Fire*, will exalt and let it fall by Showers on the Ground, and is much the more natural way of Irrigation, and dispatches the Work.

This *Liquor* has the Reputation also for Infuccation of *Corn*, and other Grain, to which some add a fine sifting of *Limedust* on it, and when that is dry, to repeat it with new Infusions and Siftings: But,

There is yet a shorter *Process*, namely, the watering with *Fish-mongers-wash*, impregnated with the Sweepings of *Ships* and *Vessels* trading for *Salt*, adding to it the *Blood* of the Slaughter-house, with *Lime*, as above; but this is also much too fierce for any present

sent Use, till it be perfectly diluted, which is a Caution indispensibly necessary, whenever you would apply such powerful Affusions, lest it destroy and burn up, instead of curing and enriching. Another take as follows:

Rain-water of the *Equinox*, q. s. boil'd with store of *Neats-dung*, till it be very strong of it, dissolve one Pound of *Saltpetre* in every Pottle of Water; whilst this is a little tepid, macerate your *Seeds* for twenty-four Hours, dry them gently, rather with a Cloth than by the Fire; sow in the barrenest *Earth*, or water Fruit-trees with it, for prodigious Effects. Or thus:

Take two Quarts of the same Water, *Neats-dung*, as before, boil'd to the Consumption of half; strain it, casting into the Percolation two Handfuls of *Bay-salt*, and of *Saltpetre ana*. Another:

Take *Rain-water*, which has stood till putrified, add to it *Neats*, *Pigeon* or *Sheeps-dung*, expose it for *Insolation* a Week or ten Days, then pass it through a coarse Strainer, infuse more of the same Soil, and let it stand in the *Sun* a Week longer, strain it a second Time, add to it *Common Salt*, and a little *Oxes Gall*, &c. Another:

Take *Quick-lime*, *Sheeps-dung* at Discretion, put into *Rain-water* four Fingers eminent; to ten Pints of this *Liquor*, add one of *Aqua-vitæ*, macerate your *Seeds*, or water with it any lean *Earth*, where you would plant for wonderful Effects.

Infuse three Pounds of the best *Indian Nitre* in fifteen Gallons of Water, irrigate your barren Mould; 'twas successfully try'd amongst *Tulips* and *Bulbs*, where the *Earth* should by no means (as we have said) be forc'd by *Composts*. But a gentler than either, is,

A Dilution of *Milk* with *Rain-water*, sprinkled upon unslack'd *Lime*, first sifted on your Beds, and so after every watering the *Lime* repeated.

These, with divers more which I might superadd, not taken and transcrib'd out of common *Receipt-Books*, and such as pretend to *Secrets*, but most of them experimented, I thought fit to mention; that upon repetition of Tryals, the Curious might satisfy themselves, and as they have Opportunity improve them, whilst perhaps, as to *Irrigations*, less exalted Liquors were more natural. And what if Effays were made of Liquors *per Lixivium*, the Plant reduc'd to Ashes; might it not be more connatural, since we find by more frequent Tryal, that the burning of *Stubble* before the Rains descend on it, impregnates Ground by the dissolution of its spermatick *Salts*? I only name the naked *Pblegm* of *Plants* distill'd either to Use alone, or extract the former *Salt*; but I say, I only mention them for the Curious to examine, and *ex abundanti*. For certainly (to return a little, and speak freely my Thoughts concerning them) most exalted *Mens-trua*, and (as they dignify them with a great Name) *Essentiated Spirits*; I say, all hasty Motions, and extraordinary *Fermentations*, though indeed they may give possibly sudden Rise, and seemingly exhalt the present Vigor of *Plants*, are as pernicious to them as *Brandy* and *Hot-waters* are to Men; and therefore where-ever these *ardent Spirits* are apply'd, they should be poured at convenient Distances from any part of the *Plant*, that the Virtue may be conveyed through some better qualified Medium. But when all is done, Waters moderately impregnated and imbodyed with honest *Composts*, and

set in the *Sun*, are more safe, and I think more natural: For, as the learned Dr. *Sbarrock* truly affirms, *Water* is, of its own Constitution alone, a Soil to *Vegetables*, not only as the most genuine *Vehicle* of the Riches which it imparts to *Plants*, through the several Strainers, and by means of which all Change and Melioration is effected; but for that it is, of all other Substances, best disposed for Ingression, to insinuate into, and fertilize the *Earth*, which is the reason that floated and *irriguous* Grounds are so pregnant. Besides, it is, of all that pretend to it, nearest of *Blood* (as I may say) to the whole *Vegetable* Family. For to assert with any Confidence, what part of the *mere Earth* passes into their Composition; or whether it serve (as we touch'd before) only for Stability, or as a *Womb* and Receptacle to their *Seeds* and *Eggs* (for so we are taught to call the *Seeds* of *Plants*) I shall not undertake to discuss. Every body has heard of *Van-Helmont's Ash-tree*; and may, without much Difficulty, repeat what has been experimented, by exquisitely weighing the Mould before and after a *Gourd* is planted in it, and till it be grown to Bulk and full Maturity, fed with *Water* only; how much *Liquor* is insum'd, and how little of the *Earth* consum'd, to make some Conjecture; though I do not yet conceive the *Earth* to be altogether so dull and unactive, as to afford no other Aid to the Generation of what she bears; the diversity of Soils being (as we have shew'd in this Discourse) so infinitely various, and the difference of invisible Infusions so beyond our *Arithmetick*. But if we give *Liquids* Prædominion, and at least the *Masculine* Preference, be they *Salts* or *Spirits* (that is, nitrous Spirits) conveyed into her Bosom how they will; sure we are, that *Water* and *Vegetables* are much nearer of Alliance, than either *Water* or *Air* are with the *Earth* and Mould. But neither do I here also by any means exclude the *Air*, nor deny its perpetual Commerce, and benign Influences, charg'd as it comes with those pregnant and subtil Particles, which insinuating into the *Earths* more steady, and less *volatile Salts*, and both together invading the *Sulphur*, (and freeing them from whatsoever they find contumacious) that intestine *Fermentation* is begun and promoted, which derives Life, and Growth, and Motion, to all that she produces. That by the *Air*, the most *efflete* and *elixiviated* Mould comes to be repair'd, and is qualified to attract the prolifick *nitrous* Spirits, (which not only disposes the *Earth* to this impregnating *Magnetism*, but converts her more unactive *fixed Salts* into quite another Genius and Nature,) the learned Dr. *Mayow* has ingeniously made out; and all this by a naked Exposure to the *Air* alone, without which it produces nothing: Nor can *Plants* (totally excluded from the *Air*) live, or so much as erect themselves to any thriving Purpose, as being depriv'd of that *Breath* and vital *Balm*, which no less contributes to their Growth and Nourishment, than does the *Earth* it self with all our Assistances: For that *Plants* do more than obscurely *respire*, and exercise a kind of *Peristaltick* Motion, I little doubt, from the wonderful and conspicuous Attraction and Emissions which some of them discover; particularly the *Aloes*, and other *Sedums*, and such as consisting of less cold and viscous Parts, send forth their *Aromatick* Wafts at considerable Distance.

Traſſat. Medico-Phys.

Besides,

Besides, we find that *Air* is nearer of kin and affinity to *Water*, than *Water* is to *Plants*; unless I should affirm, that *Air* it self were but a thinner *Water*; for how else are those *Vines*, and other *Trees* of prodigious growth, maintained amongst the barren *Rocks*, and thirsty *Pumices*, where *Rains* but seldom fall, if not from this *rorid Air*. Thus a *Birch-Tree* has been found to grow to a very considerable Substance and Bulk, whose *Roots* were twin'd and crumpl'd in the hard *Mortar* of an old dry *Wall*, and others that grew out of a porous and otherwise impenetrable *Stone*, by having *Water* only pour'd upon it. Such *Virtue* must either the *Dirt* or the *Air* impart, without any other visible Cause: Of which see the *Voyage to Siam*. Not to insist again, that perhaps even these *Rocks* themselves may once have sprung from liquid *Parents*; and how little, even such as are expos'd to continual *Showers* in other *Climates*, abate of their Magnitude, since we rather find them to increase; and that also the *Fruits* and *Juices* of *Vegetables* seem to be but the *Concretion* of better concocted *Water*, and may not only be converted into *lignous* and woody Substance, (as the learned *Dr. Beale* has somewhere instanc'd in a Discourse presented to you, and Recorded in the *Public Transactions*) but is apt enough to petrify and become arrant *Stone*.

Whatever then it be which the *Earth* contributes, or whether it contain universally a *Seminal Virtue*, so specified by the *Air*, *Influences*, and *Genius* of the *Clime*, as to make that a *Cinnamon-Tree* in *Ceylon*, which is but a *Bay* in *England*, is past my Skill to determine; but 'tis to be observ'd with no little wonder, what *Monsieur Bernier*, in his History of the *Empire* of the *Mogul*, affirms to us of a Mountain there, which being on one side of it intolerably hot, produces *Indian Plants*, and on the other, as intemperately cold, *European* and *Vulgar*. Not here to pass without notice at least, what even the most exhausted Mould will (to all appearance) produce spontaneously, when once it has been well expos'd to the *Air*, and heavenly *Influences*; if what springs up be not possibly from some *volatil Rudiments* and real *Seeds*, transported by *Winds*, higher than we usually place our Experiments, unless we cou'd fix them upon *Olympus* top: But *Porta* tells us with more Confidence, that he took *Earth* from a most profound and dry place, and expos'd it on such an Eminence, as to be out of reach even of the *Winds*; but it produc'd, it seems, only such *Plants* as grew about *Naples*, and therefore may be suspected.

To return then again from this Digression, and pursue our *Liquids*; where there is good *Water*, there is commonly good *Earth*, and vice versa; because it bridles and tempers the *Salts*, abates the *Acidity* and Fierceness of the *Spirits*, and imparts that useful ligature and connexion to the Mould, without which it were of no use for *Vegetation*. In the mean time, of all Waters, that which descends from Heaven we find to be the richest, and properest in our work, as having been already meteoriz'd, and circulated in that great Digestory, enrich'd and impregnated with *Astral Influences* from above at those propitious Seasons; whence that Saying, *Annus fructificat, non Tellus*, has just Title to a Truth we every Year's Revolution behold and admire, when the sweet Dews of *Spring* and *Autumn* (hitherto constipated by *Cold*, or consumed with too much *Heat*) begin to be loosened, or moderately condens'd, by the more benign temper of the *Air*, impregnating the prepared *Earth* to receive the *Nitrous Spirits* descending with their bal-

my Pearls, yet with such difference of more or less benign, (as Vapours haply, which the *Earth* sends up, may be sometimes qualified,) that nothing is more uncertain. And this we easily observe from the Labours of the industrious *Bee*, and her precious *Elixir*, when for some whole Months she gathers little, and at other times *stives* her waxen *City* with the harvest of a few propitious days. But I am gone too far, and therefore now shall set down only a few Directions concerning *watering*, and so dismiss the Subject and your Patience.

1. It is not good to water new-sown *Seeds* immediately, as frequently we do, and which commonly bursts them; but to let them remain eight and forty Hours in their Beds, till they be a little glutted with the natural Juice of the *Earth*: But then neither must you so neglect their *Beds*, as to become totally dry; for if once the *Seeds* crack through Heat, their little *Souls* exhale; therefore till they peep, you must ever keep them in a just temper for moisture, and be sure to purge them of predacious *Weeds* betimes: In a word, these *Irrigations* are to be conducted according to the quality of the *Seeds*, those of hard *Integuments* requiring more plentiful refreshings.

2. Never give much *Water* at one time; for the Surface of the *Earth* will often seem very dry, when 'tis wet enough beneath; and then the *Fibres* rot about *Autumn*, especially in *Pots* and *Cases*, winter'd in the *Green-house*. To be the more secure, we have already caution'd *Gardeners* to keep their bottoms hollow, that nothing stagnate and fix too long, which should be but transitory. If such Curiosities strike no Root by *September*, the Leaves desert them certainly at *Spring*. The reason is want of *Air*, not Moisture. Therefore in all Intervals of severer *Frosts*, and rigorous Winter-weather, be sparing of Refreshings, and unless you perceive their Leaves to crumple up and fall, (which is the language for *Drink*) give them as sparingly as you can. Indeed, during the *Summer*, and when they are expos'd, they require almost perpetual Irrigation, and that the Liquor be well impregnated with proper Compost. It is ever adviseable to *water* whilst the Ground is a little *moist*, and not totally *dry*, especially during the growing Seasons, for it *stunts* the *Plant*, and intercepts its progress. But in hard *Frosts*, or *foggy* Seasons, watering your housed Plants endangers them by Mustiness, and a certain *Mill-dew* which they contract. On the other hand,

Applications too *dry* create an intemperate Thirstiness, and then they drink unmeasurably, and fall into *Dropsies*, *Jaundies*, *Fevers*, swell, languish and rot; and if the Liquor prove too crude, (as commonly it does, if taken from running and hungry Fountains) it extinguishes the natural Heat, and obstructs the Pores; and therefore whenever you are constrain'd to make use of such Drink, expose it first to the warm *Sun* for better concoction, infusing *Sheep*, *Pigeons*, or *Neats-dung*, to give it body: But though *Spring-water* be so bad, slow running *River* is often very good, and *Pond-water* excellent, so it be sweet; but all stinking Pools, *Mineral* and *Bituminous* Waters, are not for our use; and often good *Air* is as needful as good Water; *Worms*, *Mouldiness*, *Cankers*, *Consumptions* and other *Diseases*, being the usual and fatal consequences of these Vices.

If you be to plant in fresh and new broken-up *Earth*, and that the Season or Mould be too dry, 'tis to be *water'd*; but then give it a competent sprinkling, or sifting of dry and fine Mould upon what you have

refresh'd,

refresh'd, and then beating it a little close with the back of your *Spade*, plant it successfully; for this you will find to be much better, than to *water* it after you have planted (as the Custom is) and as you may observe in setting *Violets*, *Auricula's*, *Primroses*, and other *Capillaries*, planted in Beds or Bordures, and then dash'd with a Flood of *Water*, which so soon as the *Sun* has look'd upon, resign and lose their Tinctures, scorch and shrivel up: Here therefore let *Gardeners* be cautious how they expose their *Exoticks* and choicer *Cafe-Plants*, which many times having born the Winter bravely in the *Conservatory*, dwindle away, and are lost on the sudden, by being too suddenly plac'd in the Eye of the *Sun* in *March*, (or later) when they most of all require the Protection of a thin *Hedge*, or *Canvas Curtain*, to break his scorching Darts, as well as defend them from our then too constant and rigorous *Etesians*. Lastly,

For the *Season* likewise of this Work, let it be towards the *Evening* in *hot* and *Summer* Days, for the Reason immediately assign'd; for the Moisture being in a short time drunk up, deserts the *Plant* to the burning *Planet*; and hence it is, that *Summer Mists* are so noxious, and *Meridian Waterings*; and therefore the best Expedient is, upon such Exigencies, to pour your Refreshings rather all over the *Area* on which your *Cases* of choice and rare Shrubs are plac'd, and among the Alleys and Paths between your *Beds* of *Flowers*, for the raising artificial *Dews*, (by which is unfolded no common Secret;) or water them *per lingulam*, and *guttatim*, than either with the Pot or Bucket: And after this manner, if at other Seasons they stand in need of Heat and Comfort of Warmth, by strewing *Sand* or *Cinders* on the same Intervals, the Reflection will recreate them upon all Emissions of the Sun-beams.

As for grosser *Plantations*, and Trees of old *Orchard-Fruits*, Moderation is also to be observed, and not to dash on such a quantity near the *Stem* and *Body*; but first with the *Spade* to loosen the *Earth* about them, especially towards the Extremities of the tenderest Roots, which generally sprout at the ends of the most woody, whose Mouths are shut with tougher Bark. These therefore may be cut sloping to quicken them a little, and make them strike fresh *Fibres*; especially if some rich and tempting Mould be seasonably apply'd: For Trees will (as we shew'd) with very little *Earth* to cover them, take fast Root (provided you stablish them against impetuous Winds, Shocks and Accidents of Force) and thrive exceedingly with this Refreshment.

Some make pretty large *Holes* with an *Iron Crow*, or (which is better) a pointed *Stake*, and pour the *Liquor* in at those Overtures; but besides that by this means they wound the Roots, (which *gangrenes*, and sometimes kills the Tree) if the Holes be not fill'd, the *Air* and Moisture mouldies them: So as when all is summ'd together, there's nothing comparable to frequent *stirring* up the Ground, opening the dry Clod, and *watering* upon that; and if you lay any *Fern-brakes*, or other Trash about them, capp'd with a little Earth, to entertain the Moisture, and skreen it from the Heat, let it not be wadded so close, or suffer'd to lie so long, as to contract any Mustiness; but rather loose and easy, that the *Air* may have free Intercourse, and to break the more intense Ardours of the scorching Sun-beams.

Thus I have exercis'd your *Lordships* and these noble *Gentlemen's* Patience with a dull Discourse of *Earth, Mould* and *Soil*; but, I trust, not altogether without some *Fruit*; or, at least, not improperly *pro hic & nunc*; as the Subject has relation to what has so lately been produc'd, and with happy Event made out by those learned Persons who have entertain'd this illustrious *Society* with the *Anatomy of Plants*.



P O M O

P O M O N A:

O R, A N

A P P E N D I X

C O N C E R N I N G

F R U I T - T R E E S,

In relation to

C I D E R,

The *Making*, and several ways of *Ordering* it.

—*Carpent tua Poma nepotes.*

VIRG. Eclog. ix.



To the Right Honourable

Thomas *Earl of Southampton*,
Lord High-Treasurer of *ENGLAND*, &c.

My LORD,

IF great *Examples* did not support it, the Dignity and Greatness of your *Person* would soon have given check to this Presumption: But since *Emperors* and *Kings* have not only gratefully accepted *Works* of this nature, but honour'd them likewise with their own sacred Hands, that *Name* of yours (which ought indeed never to appear but on Instruments of *State* and Fronts of *Marble*, consecrating your *Wisdom* and *Virtues* to *Eternity*) will be no way lessen'd by giving Patronage to these appendant *Rusticities*. It is from the Protection and Cherishment of such as your *Lordship* is, that these *Endeavours* of ours may hope one day to succeed and be prosperous. The noblest and most useful Structures have laid their Foundations in the *Earth*: If that prove firm *here* (and *firm* I pronounce it to be, if your *Lordship* favour it) we shall go on and flourish. I speak now in relation to the *Royal Society*, not myself, who am but a *Servant* of it only, and a *Pioneer* in the *Works*. But be its *Fate* what it will, your *Lordship*, who is a *Builder*, and a Lover of all *Magnificences*, cannot be displeas'd at these agreeable Accessories of *Planting*, and of *Gardening*. But, my *Lord*, I pretend by it yet some farther Service to the *State* than than of merely *Profit*, if in contributing to your Divertisement I provide for the *publick Health*, which is so precious and necessary to it in your excellent *Person*. Vouchsafe *POMONA* your *Lordship's* Hand to kiss, and the humble *Presenter* of these *Papers* the Honour of being esteem'd,

My LORD,

Your most Humble,

and most Obedient Servant,

J. EVELYN.



P O M O N A:

Or, An APPENDIX concerning

F R U I T - T R E E S,

In Relation to

C I D E R,

The Making, and several ways of Ordering it.

The P R E F A C E.



A T Quercus was the Proverb; and it is now time to walk ^{ANIS DVG:} out of the Woods into the Fields a little, and to consider ^{In eos, qui reliquo victu sordido, ad elegantiore} what Advancement may be there likewise made by the ^{lantiore} planting of FRUIT-TREES. For after the ^{digrediuntur.} Earth is duly cultivated, and pregnant with a Crop of

Grain; it is only by the Furniture of such Trees as bear Fruit, that it becomes capable of any farther Improvement. If then by discovering how this may best be effected, I can but raise a worthy Emulation in our Countrymen; this addition of noble Ornament, as well as of Wealth and Pleasure, Food and Wine, may (I presume) obtain some grateful admittance amongst all Promoters of Hortulan Industry.

But before I proceed, I must, and do ingenuously acknowledge, that I present my Reader here with very little of my own, save the Pains of collecting and digesting a few dispers'd Notes (but such as are to me exceedingly precious) which I have receiv'd; some from worthy, and most experienc'd * Friends of mine; and others, from the well-furnish'd Registers, and Cimelia of the ROYAL SOCIETY. Especially, those Aphorisms, and Treatises relating to the History of Cider, which by express Commands they have been pleased to enjoin I should publish with my Silva.

* Especially from the most excellently learned Dr. Beale of Yeovil in Somersetshire, a Member of the Royal Society.

It is little more than an Age, since Hops (rather a Medical, than Alimental Vegetable) transmuted our wholesome Ale into Beer; which doubtless much altered our Constitutions: That one Ingredient (by some not unworthily suspected) preserving Drink indeed, and so by custom made agreeable; yet repaying the Pleasure with tormenting Diseases, and a shorter Life, may deservedly abate our fondness to it; especially, if with this be consider'd likewise, the Casualties in planting it, as seldom succeeding more than once in three Years; yet requiring constant Charge and Culture; besides that it is none of the least Devourers of young Timber.

And what if a like Care, or indeed one quarter of it, were (for the future) converted to the Propagation of Fruit-trees, in all parts of this Nation, as it is already in some, for the benefit of Cider? (one Shire alone within twenty Miles compass, making no less, yearly, than Fifty thousand Hogsheads) the commutation would (I persuade my self) rob us of no great Advantage; but present us with one of the most delicious and wholesome Beverages in the World.

It was by the plain Industry of one Harris, (a Fruiterer to King Henry the Eighth) that the Fields, and Environs of about thirty Towns in Kent only, were planted with Fruit, to the universal Benefit, and general Improvement of that County to this day; as by the noble Example of my Lord Scudamor, and of some other Publick-spirited Gentlemen in those Parts, all Herefordshire is become, in a manner, but one entire Orchard: And when his Majesty shall once be pleas'd, to command the Planting but of some Acres, for the best Cider-fruit, at every of his Royal Mansions, amongst other of his most laudable Magnificences; Noblemen, Wealthy Purchasers, and Citizens, will (doubtless) follow the Example, till the preference of Cider (wholesome, and more natural Drinks) do quite vanquish Hops, and banish all other Drogues of that nature.

But this Improvement (say some) would be generally obstructed by the Tenant, and High-shoon-men, who are all for the present Profit; their Expectations seldom holding out above a Year or two at most.

To this 'tis answer'd; That therefore should the Lord of the Manor not only encourage the Work by his own Example, and by the Applause of such Tenants as can be courted to delight in these kinds of Improvements; but should also oblige them by Covenants to plant certain Proportions of them, and to preserve them being planted.

To fortify this profitable Design, It were farther to be desir'd, that (if already there be not effectual Provision for it, which wants only due execution and quickning) an Act of Parliament might be procur'd for the setting but of two or three Trees in every Acre of Land that shall hereafter be enclosed, under the Forfeiture of Six-pence per Tree, for some Publick and Charitable Work, to be levy'd on the Defaulters. To what an innumerable Multitude would this, in few Years, insensibly mount; affording infinite proportions, and variety of Fruit throughout the Nation, which now takes a Potion for a Refreshment, and drinks its very Bread-corn?

I have seen a Calculation of twenty Fruit-trees to every Five Pounds of yearly Rent; forty to Ten; sixty to Fifteen; eighty to Twenty; and so according to the proportion. Had all our Commons, and Waste-lands one Fruit-tree but at every hundred Foot distance, planted, and fenc'd at the Publick Charge, for the benefit

fit of the Poor, whatever might dye and miscarry, enough would escape able to maintain a Stock, which would afford them a most incredible Relief. And the Hedge-rows, and the Champion-Grounds, Land-divisions, Mounds, and Head-lands (where the Plough not coming, 'tis ever abandon'd to Weeds and Briars) would add yet considerably to these Advantages, without Detriment to any Man.

As touching the Species, if much have been said to the Preference of the Red-strake before other Cider-Apples, this is to be added; That as the best Vines, of richest Liquor and greatest Burthen, do not spend much in Wood and unprofitable Branches, so nor does this Tree: For though other Cider may seem more pleasant, (since we decline to give Judgment of what is unknown to us) we yet attain our Purpose, if This shall appear best to reward the Planter of any in present Practice, especially for the Generality; because it will fit the most Parts which are addicted to these Liquors, but miss of the right Kinds, and prove the most secure from external Injuries and Invaders. But to give Cider its true Estimation; besides that it costs no Fuel to brew it, and that the Labour is but once a Year; it is good of a thousand kinds, proper for the Cure of many Diseases, a kind Vehicle for any sanative Vegetable, or other medical Ingredients; that of Pippins a Specific for the Consumption; and generally, all strong and pleasant Cider excites and cleanses the Stomach, strengthens Digestion, and infallibly frees the Kidneys and Bladder from breeding the Gravel and Stone; especially if it be of the genuine Irchin-field Red-strake; not omitting how excellently it holds out good many Years to Improvement, if full-bodied and strong, even in the largest and most capacious Vessels; so as when for ordinary Drink, our Citizens and honest Countrymen shall come to drink it moderately diluted (as now they do six-shilling Beer in London, and other Places) they will find it marvellously conduce to Health; and labouring People, where it is so drank, affirm, that they are more strengthen'd for hard Work by such Cider, than by the very best Beer.

But not to refine any farther upon the rare Effects of Cider, which is above all the most eminent, soberly to exhilarate the Spirits of us Hypochondriacal Islanders, and by a specific Quality to chase away that unsociable Spleen without Excess; we must not forget that the very Blossom of the Fruit perfumes and purifies the ambient Air, which (as Dr. Beal well observes in his Herefordshire Orchards) is conceiv'd conduces so much to the constant Health and Longevity, for which that Country has been always celebrated, fencing their Habitations and sweet Recesses from Winds and Winter Invasions, the Heat of the Sun, and his unsufferable Darts: And if, saith he, we may acknowledge grateful Trifles, for that they harbour a constant Aviary of sweet Singers, which are here retain'd without the Charge of Italian Wires. To which I cannot but add his following Option, That if at any time we are in danger of being hindred from Trade in foreign Countries, our English Indignation may scorn to feed at their Tables, to drink of their Liquors, or otherwise to borrow or buy of them, or of any their Confederates, so long as our native Soil does supply us with such excellent Necessaries; and whether this be not prophetically seasonable in the present Conjuncture, I leave wise Men to consider.

Nor do we produce these Instances to redeem the Liquor from the Superstition, Prejudice and Opinions of those Men, who so much magnify the Juice of the Grape above it: But we will here add some Experiments from undeniable Success (in spite of Vintners and Bawds to Men's Palates) were they sufficient to convince us and reclaim the vitiated; or that it were possible to dispute of the Pleasantness, Riches and Precedency of Drinks and Diets, and so to provide for fit, competent, and impartial Judges; when by Nature, Nation or Climate (as well as by Custom and Education) we differ in those Extremes.

Most Parts of Africa and Asia prefer Coffee before our noblest Liquors; India, the Roots and Plants before our best-cook'd Venison; almost all the World crude Water before our Country Ale and Beer; and we English being generally more for insipid, luscious or gross Diet, than for the spicy, poignant, oily, and highly relish'd, (witness our universal Hatred of Oils, French Wine, or Rhenish without Sugar; our doating on Currants, Figs, Plumb-pottage, Pies, Pudding, Cake, &c.) renders yet the Difficulty more arduous. But to make good the Experiment.

About thirty Years since, one Mr. Taylor (a Person well known in Herefordshire) challeng'd a London-Vintner, (finding him in the Country) That he would produce a Cider, which should excel his best Spanish or French Wine. The Wager being deposited, he brings in a good Red-strake to a private House. On that Scene, all the Vintner could call to be Judges pronounce against his Wine; nor would any Man there drink French Wine without the Help of Sugar; nor endure Sack for a full Draught; and to those who were not accustomed to either, the more racy Canaries were no more agreeable than Malaga, too luscious for the Repetition. But this Wager being lost, our Vintner renews his Chartel upon these express Terms, of competent and indifferent Arbitrators. The Gentleman agrees to the Articles; and thus again after mutual Engagements it must be debated who were competent Judges, and absolutely indifferent. Mr. Taylor proposes Three, whereof the odd Number should by Vote determine. They must be of the fittest Ages too, or rather the fittest of all Ages, and such as were inur'd neither to Cider nor any Wine; and so it was agreed. The Judges convene, viz. a Youth of ten Years old, a Man of thirty, and a Third of sixty; and by All these also our Vintner lost the Battel. But this is not enough; 'tis assay'd again by nine Judges, the Ternary thrice over; and there 'tis lost also. To this we could add another, even the Cider of Ledbury, (which is not yet the best of Herefordshire) which, when an experienc'd London-Vintner had tasted, he wish'd had been Poison; for that if it were known where he dwelt, it would utterly undo his Trade. And here I will conclude, for I think never was fairer Duel; nor can more be reasonably pretended to vindicate this Blessing of God, and our native Liquor from their Contempt, and to engage our Propagators of it.

Tot beneficiis placere cogitur, & miramur noxium esse Vinum?

Plin. As 'tis most ingeniously cited by Dr. Charleton, in his excellent Discourse of the Adulterations of Wine, entered into the Register of the Royal Society; and (with those other most useful Pieces subjoined) since published, &c. See Regist. R^o Society, Num. 2. 17 Decemb. 28. Jan. 1662. p. 67. 116, &c.

tations,

tations, Adulterations, Bastardizings, Brewings, Trickings, *not to say, even Arsenical Compassings of the sophisticated God they adore; and that they had as true an Inspection into those Arcana Lucifera, which the Priests of his Temples (our Vintners in their Taverns) do practise; and then let them drink freely that will; 'Αεὶ δὲν μεν ὕδωρ:* Give me good Cider.

It is noted in our Aphorisms how much this Beverage was esteem'd by his late Majesty, and Court, and there referr'd to all the Gentry of the environing Country, (no strangers to the best Wines) when for several Summers in the City of Hereford (so encompass'd with store of it, and brought thither without Charge, or extraordinary Subductions) it was sold for Six-pence the Wine-quart, not for the Scarcity, but the Excellency of it: And for the Red-strake, that it has been seen there hundreds of times (with vehement and engaged competition) compar'd with the Cider of other the most celebrated Fruit, when after a while of Vapour, no Man insisted for any other Liquor in comparison.

But it is from these Instances, (may some say) when the World shall have multiplied Cider-Trees, that it will be time enough to give Instructions for the right Pressing and Preserving of the Liquor. The Objection is fair: But there are already more Persons better furnish'd with Fruit, than with Directions how to use it as they should; when in plentiful Years so much Cider is impair'd by the ignorant handling, and becomes dead and sowre, that many even surfeit with the Blessing; it being rarely seen in most Countries, that any remains good, to supply the defects of another Year; and the Royal Society would prevent all this hazard by this free Anticipation. And yet when all this is said, we undertake not to divine what excellent Cider other Soils may bear; nor do we positively extol the Red-strake farther than the bounds and confines of Herefordshire, for the Experiments we have produc'd; but because there are doubtless many such Soils sparsedly throughout this Nation; why should it not incite our Industry to its utmost effort, and the commendable emulation of endeavouring to raise a yet kindlier Cider-fruit if it be possible, and which may prove in its self as good, and as agreeable to the Soil where we plant it? And certainly, much of this may fairly be expected, from the Tryals, Culture, and Propagation of Kernel-fruits of innumerable sorts, and from hopeful Wildings, and the peculiarity of Grounds: I find that even in the West-Indies, at our Plantations of New-England, one Gentleman in Connecticut Colony, made 500 Hog-heads of Cider in one Year out of his own Orchard; and that though it be in great plenty among them, yet it is sold for ten Shillings the Hoghead.

It now remains, that I should make some Apology for my self, to extenuate the tumultuary Method of the ensuing Periods. Indeed it was not intended for a quaint or elaborate piece of Art; nor is it the design of the Royal Society to accumulate Repetitions when they can be avoided; and therefore in an Argument so much beaten as is that of dressing the Seminary, Planting, and modes of Graffing, it has been with Industry avoided; such rude, and imperfect Draughts being far better in their esteem (and according to my Lord Bacon's) than such as are adorn'd with more Pomp, and ostentous Circumstances, for a

pretence to Perfection. The time may come, when the Richness, and Fulness of their Collections may worthily invite some more industrious Person to accomplish that History of Agriculture, of which these Pieces (like the Limbs of Hippolytus) are but scatter'd Parts: And it is their greatest Ambition for the Publick Good, to provide such Materials, as may serve to raise, and beautify that most desirable Structure.

J. EVELYN.



P O M O-

P O M O N A.

CHAP. I.

Of the Seminary.

WE had not the least Intention to enlarge upon this *Title*, after we had well reflected on the many and accurate Directions which are already published, as well in our *French Gardiner*, as in fundry other *Treatises* of that Nature, had not a most worthy *Member* of the *Royal Society* (to whom we have infinite Obligations) furnished us with some Things very *particular* and *remarkable*, in order to the *Improvement* of our *Seminaries*, *Stocks*, &c. which are indeed the very *Basis* and *Foundation* of *Cider-Orchards*. It is from those precious *Papers* of *his*, and of some *others* (whose *Observations* also have richly contributed to this *Enterprize*) that we shall chiefly entertain our *Planter* in most of the following Periods.

Dr. Beale of
Yeavil in So-
merfetshire.

Whosoever expects from the *Kernel* of a rich or peculiar *Apple* or *Pear* to raise *Fruit* of the *same Kind*, is likely to find many *Obstructions* and *Disappointments*: For the *Wilding*, (*Crab* or *Pear*) *Pomus Sylvestris*, being at the best the natural *Product* of the soundest *Kernel* in the firmest *Land*, and therefore the *Gust* of the *Fruit* more strongly austere, fierce and sharp, and also the *Fruit* less and more woody; and the pleasanter or plumper and larger *Apple* being the effect of some *Inteneration*, which inclines to a kind of *Rebatement* of the natural *Strength* of the *Tree*; the best *Choice* of *Kernels* for *Stocks* indefinitely, (and on which we may graff what we please) should be from the soundest *Wilding*. For,

A *Kernel* taken from any *Grafted-Apple* as *Pippin*, *Pear-main*, &c. does most naturally propend to the wildness of the *Stock* on which 'twas inserted, as being the natural *Mother* of the *Kernel*, which is the very *Heart* of the *Apple*; and also from a more deep and secret *Reason*, to be hereafter unfolded.

Apples and *Pears* requiring rather a vulgar and ordinary *Fieldland*, than a rich *Garden-mould*, (as has been often seen to succeed by frequent *Observations*) it has been found that *Kernels* sowed in a very high *Compost*, and rank *Earth*, have produced (*large* indeed, but) *insipid* *Fruit*, hastily rotting on the *Trees*, before all the *Parts* of it were mature, and disposing to *Cankers*. *Vid. Aphor. 33.*

And sometimes when they seemed in outward *Figure* to bear the Shape of grafted *Apples*, from whence the *Kernels* came, yet the *Gust* did utterly deceive, wanting that *Vivacity* and pungent *Agreeableness*.

If the *Kernels* of natural *Apples* (or of *ungrafted Trees*) should produce the same, or some other variety of *Apples*, (as sometimes it succeeds) yet would this Care be seldom *operæ pretium*, and at best but a Work of *Chance*, the Disappointment falling out so often through the Sickliness of the *Soil*: Or admit *that* the most proper and constant, yet would the very *Dews* and *Rain*, by various and mutable Seasons, and even by the *Air* it self, (which operates beyond vulgar Perception, in the very Changes as well of the *Mould*, as of the *Seeds* and *Fruit*) create almost infinite Alterations: And the Choice having been in all places (apparently for some *thousands* of Years) by propagating the most delicate of *Fruits* by the *Graffs*, 'tis almost a desperate Task to attempt the raising of the *like*, or *better* Fruit from the Rudiments of the *Kernel*.

Yet since our Design of relieving the want of *Wine*, by a *Succedaneum* of *Cider*, (as lately improv'd) is a kind of *Modern Invention*, we may encourage and commend their Patience and Diligence, who endeavour to raise several kinds of *Wildings* for the trial of that excellent Liquor; especially since by late Experience we have found, that *Wildings* are the more proper *Cider-Fruits*; some of them growing more speedily, bearing sooner, more constantly, and in greater abundance in leaner Land, much fuller of *Juice*, and that more masculine, and of a more *winy* Vigor.

Thus the famous *Red-strake* of *Herefordshire* is a pure *Wilding*, and within the Memory of some now living, firnamed the *Scudamores-Crab*, and then not much known, save in the *Neighbourhood*, &c. Yet now it would be difficult to shew that *Red-strake* which grew from a *Kernel* in that whole *Tract*, all being since become *grafted* Trees. Thus 'tis also believ'd, That the *Bromesbury Crab* (which carries the Fame in some Parts of *Gloucestershire*) and many of the white *Musts*, and green *Musts*, are originally *Savages*; as now in *Somersetshire* they have a generous *Cider*, made of promiscuous *Kernels*, or *ungrafted Trees*, which fills their Confidence that no other *Cider* does exceed it; and 'tis indeed strong, and of a generous Vigor.

Nor dare we positively deny, but that even the best of our *Table-Fruit* came also originally from the *Kernel*: For it is truly noted by my Lord *Bacon*, *That the Fruit does generally obey the Graff, and yields very little to the Stock*; yet some little it does.

The famous *Bezy d'Hery*, an excellent Musky *Pear*, was brought into the best *Orchards* of *France* from a *Forest* in *Bretany*, where it grew *wild*, and was but of late taken Notice of.

But now to the deep *Reason* we lately threatned: We have by an Experiment found some near Affinity between the *Kernel* of the *Apple*, and the *Heart* or Interior of the *Stock*: For I saw, (says Dr. Beale) *an old rotten Kernel-Tree bearing a delicate Summer-fruit, yielding store of smooth Cyder, ('tis call'd the French-Kernel-Tree, and is also a Dwarf as is the Red-strake;)* and examining divers *Kernels*, many Years successively, of that hollow and decay'd Tree, I found them always very small of Growth, and empty meer Skins of *Kernels*, not unlike to the emasculated Scrotum of an Eunuch; another younger Tree issuing from the sounder part of a Root of the same old Tree, had full and entire *Kernels*.

And from some such Observation might the Production of *Berberries*, &c. without *Stones* be happily attempted; an *Instrument* fitted to take out the *Marrow* or *Pith* of the *Branches*, (as the same *Dr. Beal* perform'd it;) for from the *numerical* Bush of that *Fruit* he found *some* *Branches* produce *Berberries* that had no *Stones*, *others* which had; and in searching for the *Cause* of the *Effect*, perceived, that the *Pith* or *Heart* was taken from the *Radical*, or main *Branches*, as the other was full of *Pith*, and consequently the *Fruit* in *Perfection*; of all which (he writes me word) he made several *Trials* on other *Fruit*, but left the *Place* before he could see the *Event*. But he adds:

These many Years (almost twenty) I have yearly try'd *Kernels* *in* *Beds* *of* *clean* *Earth*, *Pots* *and* *Pans*, *and* *by* *the* *very* *Leaves* *(as* *they* *appear'd* *in* *first* *springing* *for* *one* *Month)* *I* *could* *discern* *how* *far* *my* *Essays* *had* *civiliz'd* *'em*: *The* *Wilder* *had* *shorter*, *stiffer*, *brown* *or* *fox* *colour'd* *Leaves*; *the* *more* *ingenuous* *had* *more* *tender*, *more* *spreading* *Leaves*, *and* *approaching* *the* *lighter* *Verdure* *of* *the* *Berberry* *Leaf* *when* *it* *first* *appears*. He adds:

Some *Apples* *are* *call'd* *Rose-Apples*, *Rosemary-Apples*, *Gilly-flower-Apples*, *Orange-Apples*, *with* *several* *other* *Adjuncts* *denominating* *them*, *from* *what* *Reason* *I* *know* *not*. But if we intended to try such *Infusions* upon the *Kernels* (as should endeavour to alter their *Kinds*) we should not approve of the bedabbling them with such *Infusions*, (for *over-moisture* would rather enervate than strengthen them) but rather prepare the *Earth* the *Year* *before* with such *Insuccations*, and then hinder it from producing any *Weeds*, till ready for the *Kernels*; and then in dewy Times, and more frequently when our *Climate* were furcharg'd with *Rain*, cover the *Beds* and *Pots* with the small *Leaves* of *Rosemary*, *Gilly-flowers*, or other odoriferous *Blossoms*, and repeat it often, to the end the *Dews* may *meteorize*, and *emit* their finer *Spirits*, &c. Or if any shall please to be so liberal of their *Salts* and *Calcinations* of peculiar *Virtues*, (though possibly the *Essay* may endanger their *Seeds*) yet the Mixture of such *Salts* finely reduc'd and strew'd discreetly on their *Beds* may be a more probable Means, than those *Liquid Infusions* which have hitherto been so confidently boasted. For thus also we are in this *Age* of ours provided of more vigorous *Ingredients* for *Trials*, than were known to the *Antients*. Finally,

From what has been deduc'd from the *wilding* of several *Parts*, it may manifestly appear, how much more *congeneal* some *Soil* is than other, to yield the best *Cider-fruit* from the *Kernel*; and the *hazle* *Ground*, or quicker Mould warm and light, much better than the more obstinate *Clay*, or ranker *Earth*, heavy, cold, or wet. In hot *Gravelly-Grounds*, where almost no sort of *Fruit* will grow, *Pears* will thrive; and a Friend of mine assures me of *One* that clave a *Rock*, and filling it with a little good *Earth*, planted a *Pear-Tree* therein, which prosper'd exceedingly; and at this Time, in the Town not far from my Dwelling, there is a *Bonne Chrestienne* *Pear-Tree* plentifully bearing very goodly *Fruit*, which grows in a narrow Court pav'd with *Flint* and *Pebbles*, and unless a little in the Morning, shaded from all the benign Aspects. I add this, that none may go hence without Encouragement.

C H A P. II.

Of Stocks.

THE former thus establish'd, after all *Humours* and *Varieties* have been sufficiently wearied, we shall find the *Wilding* to be the hardiest and most proper *Stock* for the most delicate *Fruit*. This confirm'd by *Varro*, Lib. i. Cap. 40. *In quamcunque arborem inferas*, &c. and 'tis with Reason: However they do in *Herefordshire*, both in Practice and Opinion, limit this Rule; and to preserve the Gust of any delicate *Apple*, (as of the *Pear-main*, *Quince*, *Apple*, *Stockin*, &c.) rather graff upon a *Gennet-Moyle* or *Cydoddin-Stock*, (as there called) than a *Crab-stock*; but then indeed they conclude the Tree lasts not so long; and 'tis observ'd, that *Apples* are better tasted from a clean, light Land, &c. than from stiffer Clay, or the more pinguid and luxurious Soil; whence we may expect some Assistance from the Civility of the *Stock*, which is a kind of prepared Soil, or Foundation to the *Graff*; even as our very *Transplantations* into better Ground is likewise a kind of *Graffing*.

Thus in like manner our Master *Varro*, *loco citato*, concerning *Pears*; *Si in Pyrum Sylvaticam*, &c. The *Wild-stock* does enliven the dull and phlegmatick *Apple*, and the Stock of a *Gennet-Moyle* sweeten and improve an *Apple* that seems *over-tart*, as the *Pomeroy*, or some *Greening*, &c. or may rather seem to abate at least some *Apple* over-tart and severe.

Your *Crab-stock* would be planted about *October*, at thirty two Foot Distance, and not *graffed* till the third *Spring* after, or at least not before the *second*.

But if your Design be for *Orchard* only, and where they are to abide, an *Interval* of sixteen Foot shall suffice for the *Dwarfish* Kind, or in the Grounds where the *Redstrake*, or other *Fruit-trees*, are of small Bulk, provided the Ground be yearly turn'd up with the *Spade*, and the Distance quadrupled where the *Plough* has Privilege; this being the most expedite for such as have no *Nursery* Ground.

C H A P. III.

Of Graffs and Infitions.

Make Choice of your *Graffs* from a constant and well-bearing Branch, or else you will have a late and slow Return.

And as the *Stock* hath a more verdant Rind, and is capable to yield more Plenty of *Juice*, so let the *Graff* have more *Eyes* or *Buds*: Ordinarily three or four *Eyes* are sufficient to give Issue to the *Sap*; but as well in *Apples* and *Pears*, as in *Vines*, those *Graffs* or *Cions* are preferr'd, in which the *Buds* are not too far asunder, or distant from the Foot thereof: And such a Number of *Buds* usually determining the length of the *Graff*, there may divers *Cions* be made of one *Branch*, where you cannot procure Plenty of them for severals.

As to the success of *grafting*, the main point is, to join the inward *Rind* of the *Cion* to the inward *Rind* of the *Stock*, so that the *Sap* of the *One* may there meet with the *Sap* of the *Other*, and these *Parts* should be join'd closely, but not too forceably; that being the best and most infallible way, by which most of the quick and juicy parts are mutually united, especially towards the bottom.

If the *Stock* be so big as to endanger the pinching of your *Graff*, when the *Wedge* is drawn out of the *Cleft*, let the inner-side of the *Graff*, which is within the wood of the *Stock*, be left the thicker, that so the *woody* part of the *Cion* may bear the stress, and the *sappy* part be preserved from bruising. Some by an happy hand do with good success *graft* without cleaving the *Stock* at all, only by *Incisions* in the *Rind*, as the *Industrious* Mr. *Austin* teaches us: But since this is not for every *Rustic* hand, nor seems to fortify so strongly against impetuous *Winds* before the Union be *secure*, there had need be some extraordinary *Defence*.

Chuse the straightest and smoothest part of the *Stock* for the place where you intend to *graft*: If the *Stock* be all knotty (which some esteem no impediment) or crooked, rectify it with the fittest posture of the *Graff*.

For a *Graff* covet not a *Cion* too slender; for the *Sun* and *Wind* will sooner enforce it to wither: Yet are we to distinguish, that for *Inoculation* we take the *Bud* from a Sprig of the last year's shoot; and must allow that the *Cion* should also have some of the former with it, that it may be the stronger to *graft*, and abide to be put close into the *Stock*, which is thought to advance it in bearing.

In *Herefordshire* they do frequently chuse a *Graff* of several years growth; and for the *grafting* of such large *Stocks* as are taken out of the *Woods* or *Nurseries*, and fitted into Rows for *Orchards*, they chuse not the *Graffs* so small as in other Countries they require them; which has, it seems, occasion'd some complaint from them that understand not the reason of the first breach of this Note. Once for all, the stumpy *Graff* will be found much superior to the slender one, and make a much nobler and larger Shoot. This upon experience.

Graff your *Cions* on that side of the *Stock* where it may receive the least hurt from the *South-west* Wind, it being the most common, and most violent that blows in *Summer*; so as the *Wind* may blow it to the *Stock*, not from it. And when the *Zephyrs* of the *Spring* are stirring, chuse that *Season* before all others for this work.

Some there are who talk of removing the *Stock* about *Christmas*, and then also *graft* it; which there be that glory they can successfully do even by the *Fire-side*, and so not be forc'd to expect a two or three Years rooting of the *Stock*: But in this *adventure* 'tis adviseable to plunge the *Graff* three or four Inches deep in the *Stock*. Lastly,

Be careful that the *Rain* get not into the *Clefts* of your young grafted *Stocks*: Yet it has been noted, That many old Trees (quite decay'd with an inward hollowness) have born as full Burdens, and constantly, as the very soundest, and the Fruit found to be more delicate than usually the same kind from a perfect and more entire *Stock*.

Except some former case requires it, leave not your *Graffs* above four, five, or (at most) six Inches of length above the *Stock*; for by the length it draws more feebly, and is more expos'd to the shocks of the *Wind*, or hurt by the *Birds*; and you shall frequently perceive the *Summities* and *Tops* of such young *Graffs* to be mortified and die.

The *Genet-moyle* is commonly propagated by cutting off the *Branch* a little below a *Burr-knot*, and setting it without any more ceremony; but if they be also *grafted* first as they grow on the *Tree*, and when they have *covered* the *head*, cut off below the *Burr*, and set, it is far better. In this separation cut a little beneath the *Burr*, and *peel* off, or *prick* the *Bark* almost to the *Knot*. Thus also if the *Branch* have more *Knots* than *one*, you may *graft*, and *cut off* yearly, till within half a foot of the very *Stem*, which you may *graft* likewise, and so let stand.

Now for encouragement in transporting *Graffs* at great distance, we find that with little care (their *Tops* uncut and unbruised) they will hold good, and may support the Transportation by *Sea* or *Land* from *October* or *November* to the very end of *March*: See Sir H. Plott's *Offers*, Paragr. 75. To which may be added, That if the *Graff* receives no hurt by lying in the *Stock* expos'd to all Rain, Dews, and severities of *Winter* Frosts, from *December* to *Spring*, (as has been experimentally noted;) then (by a stronger presumption) in oiled, or rather waxen Leather, it may undoubtedly escape. Some prescribe, That the *Ends* shall be stuck in a *Turnip*: And many excellent *Graffers* (*Gentlemen*, some of very good credit) have assured us, That the *Graffs* which seemed withered, and fit to be cast away, have proved the best when try'd. Thus in honest *Barnaby Googes* noble *Heresbachius* you will find it commended to gather your *Cions* in the *Wane* of the *Moon*, at least ten days before you *graft* them; and *Constantine* gives this reason for it, That the *Graff* a little wither'd, and thirsty, may be the better receiv'd of the *Stock*. I know some who keep them in *Earth*, from the end of *October* till the *Spring*, and will hardly use them before. There are also other Inducements for this practice, as *Simon Harwood*, Page 4. has shew'd us; but none beyond our own *Experience*, who have known *Graffs* gather'd in *December* thrive and do perfectly well.

The best Expedient to convey *Graffs*, is, to stick the *cut ends* in *Clay*, envelop'd with a *Clout* to preserve it from falling off; and to wrap the other part of the *Twigs* in dry *Hay* or *Straw-bands*, which will secure them both from the *Winds*, *Galling*, and other *Injuries* in Transportation: Nay, I have known them sent many *hundred Miles* from beyond the *Seas* accommodated to an ordinary Letter, and though somewhat short, and with very few *Buds*, yet with excellent success; and if this course were more universally consider'd, we might be furnish'd with many great *Curiosities* with little difficulty or charge.

C H A P. IV.

Of Variety and Improvements.

IF any Man would have *Variety* of unexpected and unknown *Apples* and *Pears*, for the Improvement of *Cider*, or *Palate-fruit*, there is more hope from *Kernels* rais'd in the *Nursery* (as has already been directed) than from such tryals of *graftings* as we have yet seen in present use.

But

But if we would recover the Patience and the Sedulity of the *Antients* (of which some brief Account will follow) or listen to some unusual Proposals, then may we undertake for some Variety by *Insitions*.

To delude none with Promises, we do much rather recommend the Diligence of enquiring from all *Countries* the best *Graffs* of such *Fruits* as are already found excellent for the Purpose we design: As from the *Turgovians*, for that Pear of which Dr. *Pell* gives so good and weighty Informations; and of which I had presented me some *Graffs*, together with a Taste of the most superlative *Perry* the *World* certainly produces: both which were brought near 800 Miles, without suffering the least Diminution of Excellency, by my worthy Friend Mr. *Hake*, a Member of the *Royal Society*, in the Year 1666, and tasting as high and as rich as ever to the present Year I am writing this *Paragraph*; when with this *Regale* I entertained the late Earl of *Leicester*, (then Lord *Lisle*) Sir *Kenelm Digby*, and Sir *John Denham*, (Persons of great Note, and critical Palate) who honour'd my poor Habitation at *Sayes-Court* near *Deptford* with a Visit, and were surpriz'd with the Richness of the Liquor.

But as some Sorts are to be enquired after for the *Palate* and the *Table*, so 'tis now our main Business to search after such as are excellent for their *Liquor*, either as more pleasant, more *winy*, or more lasting; of which sort the *Bosbury* bare-land Pear excels. The *Red-strake*, *Brombury-Crab*, and that other much celebrated *Wilding* called the *Oaken-pin*, as the best for *Cider*; though for sufficient Reasons we do yet prefer the *Red-strake*, to oblige the *Emulation* of other *Countries*, till they find out a *Fruit* which shall excel it, and which we do most heartily wish.

But to pursue the Diligence of the *Antients*, we direct the Eye to a general Expedient for all kind of *Varieties* imaginable, and which we hold far better than to present the World with a *List* of the Particulars either known or experimented: For who indeed but a *Fool* will dare to tell *Wonders* in this severe Age, and upon an *Argument* which is so environ'd with *Imposture* in most *Writers* old or new? Much less pretend to *Experiments*, which may fail to succeed by default of an unhappy *Occasion*, when the *Conclusion* must be, *Penes Authorem sit fides*.

And truly Men receive no small Discouragement from the ugly Affronts of *Clowns*, and less cultivated Persons, who laugh and scorn at every thing which is above their Understanding. For Example: I knew a Man, (writes Dr. *Beale* to me) and he a most diligent Planter and Graffer, who for thirty or forty Years made innumerable Essays to produce some Change of an Apple by grafting: It seems he was ambitious to leave his Name on such a Fruit, if he could have obtained it, but always fail'd; for he perpetually made his Trials upon Crab-stocks, or such (at least) as did not greatly differ from the Kind; and he ever found that the Graff would predominate. And how infinitely such Men having lost their own Aims will despise better Advice, we leave to Observation.

However, let us add, That where nothing is more facile than to raise new kinds of Apples (in infinitum) from *Kernels*; yet in that *Apple-Country* (so much addicted to *Orchards*) we could never encounter more than two or three Persons that did believe it: but in other Places we meet with many that, on the other side, repute *Wildings*, or (as

they call them) *Kernel-Fruit*, at all adventure, and without choice, to be the very best of *Cider-fruit*, and to make the most noble Liquor. So much does the common Judgment differ in several *Countries*, tho' at no considerable Distance, even in Matters of visible *Fact*, and *Epidemical* Experience.

It has been soberly affirmed, That by *grafting* any *White Apple* upon an *Elm*, it changes the *Apple*, and particularly to a *red* Colour: I have a Direction where we may be Eye-witnesses of the Proof; whatever the Truth of it be, we are not over-hastily to erect *Hercules's Pillars*, but rather to encourage the *Experiment*.

To gratify yet the *Ingenious*, instruct others, and emancipate us from all these *Bastinado Clowns*, we are furnish'd with many *Arguments* and *Proofs* to assure a good Success, at least for Variety and Change, if not for infinite Choice: Two or three antient *References* being duly premis'd; namely,

1. That 'tis in vain to expect Change of *Apples* from *grafting* upon differing *Stocks* of *Crabs* or *Apples*.

2. In vain also are we to look for a kind Tree from a very much differing *Stock*; as an altered *Pear* to grow kindly on a *Crab* or *Apple-stock*, & *contra*. There go about indeed some *Jugglings*, but we disdain to name them.

It is one thing to find the kindest *Stock* for the Improvement of any Fruit; as the *Crab-stock* for the delicate *Apple*; the *Wild* or *Black Cherry-stock*, for the *Graffs* of the fairest *Cherries*; the largest *Vine*, (whose Root makes best shift for Relief) to accept the *Graff* of the more delicate *Vine*; the *White Pear-Plumb Stock*, for the *Abricot*, &c. And another thing it is to seek the *Stock* which begets the Wonder, Variety, and that same transcendent and particular Excellency we enquire after: For this must be at more remote Distance; and we offer from the Ancients to shew how it may be at any Distance whatsoever: But the whole Expedient seems to be hinted at by Sir *H. Plat*, Page 72. where he affirms, That if two Trees grow together, that be apt to be grafted one into another, then let one Branch into another, workmanly joining Sap to Sap. This our *Gardeners* call *grafting* by *Approach*, and is explicated at large by *Columella*.

But in this express *Rule* he is too narrow for our Purpose, and far short of old Experience; as we find in *Paragr.* 63. where he affirms, *We may not graft a contrary Fruit thereon*. Against this we urge, That any contrary *Fruit* may be adventured, and any Fruit upon any fruitless *Stock* growing in Propinquity in the same *Nursery*; as it is not only affirm'd, but seriously undertaken, and experimentally proved by the sober *Columella*, in several of his Treatises: Turn to the 11th Chapter of his 5th Book, (*Stephens's* Edition) *Sed cum antiqui negaverint posse omne genus surculorum in omnem Arborem inseri, & illam quasi finitionem, qua nos paulo ante usi sumus, veluti quandam legem sanxerint, eos tantum surculos posse coalescere, qui sint cortice, ac libro, & fructu consimiles iis arboribus quibus inseruntur, existimavimus errorem hujus opinionis discutiendum, tradendamque posteris rationem, qua possit omne genus surculi omni generi Arboris inseri*. And the Example follows in a *Graff* of an *Olive* into a *Fig-stock* by *Approach*, (as we call it) which he also repeats in the 27th Chapter of his Book *De Arboribus*, without altering a Syllable. But possibly at this Check at the *Ancients* he might aim at old *Varro*, whom we find threat-

threatning no less than *Thunderbolts* and *Blasts* to those who should attempt these strange *Marriages*, and did not fort the *Graff* with the *Tree*; consult *lib. 1. cap. 40.* And yet you may see this *Art* assum'd by *Columella* for his own *Invention* (1500 Years since) to be no news to *Varro* 200 Years older; where he goes on, *Est altera species ex arbore in arborem inferendi nuper animadversa in arboribus propinquis, &c.* Though here again we may question our Masters *nuper animadversa* too; since before he was born *Cato* relates it as usual to graff Vines in the manner by them prescrib'd, *cap. 41. Tertia insitio est: Terebra vitem quam inferes, &c.* Which by the way makes us admire how the witty *Walchius* in his Discourse *De vitibus fructuariis*, Page 265. could recount the *grafting* of *Vines* amongst the *Wonders of Modern Inventions.*

But it seems *Varro* and his *Contemporaries* did extend the Practice beyond *Cato*; and *Columella* proceeded further than *Varro*, even to all sorts of *Trees*, however differing in *Nature*, *Quality*, *Bark*, or *Season*: And then *Palladius* assumes the result, and gives us the particulars of the success in his *Poem, De Insitionibus.* And to these four as in chief (no fantastical or counterfeit persons) we refer the *Industrious.*

But be pleas'd to take this note also: As soon as your *Graff* hath attained to a *second*, or at farthest a *third* Years growth, take it off the *Stock*, and then graff it upon a *Stock* of a more *natural* kind: For in our own *Tryals* we have found a *Graff* prosper the second Year exceeding well; yet the third the whole Growth at once blasted quite to the very *Stock*, as if *Varro's* *Augurs* had said the word.

To this add, the making use of such *Stocks* as in this Experiment may contribute some special aid to several kinds of human *Infirmities*: As, suppose the *Birch* Tree for the *Stone*, the *Elm* for *Fevers*, &c. For 'tis evident, that by such *Insitions*, the *Branch* may convert the *Sap* of the *Root* even of another *species* into its own nature, and alter all its *properties*; though in some they *domineer*, as the *Branch* of the *Apple* in *Rhamnus*, or *Mezerea*, acquires a *Purgative* quality. And by these means why may not the *Fruit* by effectual *Marriages* be rendered *Cordial*, *Astringent*, *Purgative*, *Sudorific*, *Soporiferous*, and even *Deleterious* and *Mortal*? But this we only hint.

Moreover, To graff rather the *Wilding*, or *Crab*, than the *Pippin*, because the *Wilding* is the more *natural*; and *Nature* does more delight in *Progress*, than to be *Retrograde* and go backwards.

I should also expect far more advance from a more *pungent Sap*, than from *insipid*; as generally we see the best and vigorous *Juices* to salute our *Palats* with a more agreeable *Piquancy* and *Tartness*; for so we find the relish of the *Stocking-Apple*, *Golden Pippin*, *Pearmain*, *Eliot*, *Harvy*, and all (both *Russetings* and *Greenings*) be more *poignant* than of others.

And here we note from *Palladius*, That the *Antients* had the success which we all, and particularly Sir *H. Platt*, does so frequently deny, as in the particular of *grafting* the *Apple* on the *Pear*, & *contra.* Let us hear him *de Pomo*:

The *Grafted-Crab* its bushy Head does rear,
Much *meliorating* the inserted *Pear*:
Its self to leave its *Wildness* does invite,
And in a *Nobler Issue* to delight.

*Infita proceris pergit concrefcere ramis,
Et fociam mutat malus amica Pyrum:
Séque feros fylvis hortatur linquere mores,
Et partu gaudet nobiliore frui.*

PALLAD. de Infitionib. lib. xiv.

But poffibly *Palladius* affum'd this *Poetical* Expreflion, upon prefumption that no Man in his days durft degrade the moft excellent *Quince* to fupport the *Cyon* of another *Fruit*, which then muft be of lefs efteem; but we by our *Luxury* have found the fuccefs.

And we have good Argument to believe, that *Virgil*, and *Columella*, in feveral of their wonderful Relations of thefe kinds of mixture, (which but for the prolixity we might now recite) did not fo far affect *Wonders* as to defer the Truth.

You may alfo obferve, That as well the *French Gardiner*, and our *Modern Planters*, have found the fame benefit from the *Stock* of the *Quince*, as old *Palladius* did, it feems, acknowledge; yet (as he conceiv'd) more hofpitable ftill with its own *Kindred*; and that,

Though the *Quince-stock* admit all other *Fruit*,
Its *Cyon* with no other *Stock* will fuit:
Scorning the *Bark* of Foreign Trees, does know
Such lovely *Fruit* on no mean *Stem* can grow;
But the *Quince-graff* to the *Quince-stock* is join'd,
Contented only to improve its kind.

*Cum præftet cunâis fe fulva cydonia pomis,
Alterius nullo creditur hofpitio.*

*Roboris externi librum afpernata fuperbit,
Scit tantum nullo crefcere poffe decus:*

*Sed propriis pandens cognata cubilia ramis,
Stat, contenta fuum nobilitare bonum.*

PALLAD. de Malo Cidonio.

Laftly, We did by unexpected chance find the facility of *grafting* the very youngft *Stocks*, even of one Years growth, by the *Root*: At a fecond removal of the *Stocks*, (being then of two Years growth) we obferved fome *Roots* fo faft clofed together into one, as not to be divorced: Hereupon we concluded, If Cafualty, or Negligence, chance of Spade, or oppreffion of Neighbourhood did this, by *Art* it might be done more effectually, and poffibly to fome defirable purpofe; for then the *Stock* was more apt to receive a maftering *Impreffion*; and any *Garden Plant* whatfoever might by this *procefs* interchange and mingle their *Roots*. But this can extend no farther than the *Stock* may prevail with the *Graff*.

And thus we have prefented our diligent *Ciderift* with what Obfervations and Arguments of Encouragement, grounded on frequent *Experience*, we have receiv'd from our moft ingenious *Correfpondents*, efpecially the Learned and truly Candid Dr. *Beale*, in whole *Perfon* we have fo long entertain'd you: And to thefe we could add fundry others, were it not now time (whilft we difcourfe of *Poffibilities*) to conclude with fomething certain, and to fpeak of what we have.

For the kinds then of *Cider-Apples* in being; *Glocefterfhire* affects the *Bromsbury-Crab*; it affords a fmart, winy *Liquor*, and is peculiarly

peculiarly hardy, but not so proper for a cold and late-bearing *Climat*e, it being not *ripe* in *hot Land* till the end of *Autumn*, nor fit to be ground for *Cider* till *Christmas*, lying so long in Heaps and Preparation.

It is in the same *Shire* that they likewise much esteem of the *white* and *red Must-Apple*, the sweetest as well as sowrest *Pippin*, and the *Harvy-Apple*, which (being boil'd) some prefer to the very best of all *Ciders*; though from any Experience we have yet seen, we cannot recommend it, and it will want more particular and infallible *Directions*, before we can be reconciled to the *Adventure*, which we have observed so frequently to miscarry.

But about *London*, and the more *Southern Tracts*, the *Pippin*, and especially the *Golden*, is esteemed for the making of the most delicious of that *Liquor*, most wholesome, and most restorative; and indeed it may (in my poor Judgment) challenge those *Perfections* with very good Reason.

By others the *Pearmain* alone is thought to come in Competition with the best; but, say they, the *Cider* is for the most part found of the weakest, unless encourag'd with some agreeable *Pippin* to inspirit it; whereas this is to be taken according to the Constitution of the *Fruit*; for even *Pippins* do differ as much from *Pippins* in Taste and Liquor, as the *Kind* and the *Soil* dispose them; nay, though of the same *Species*; so as the *Cider* of the *Pearmain* (though likewise very different) does not seldom exceed it in that Briskness which others attribute to the *Pippin*, which is for the most part more smooth, and less *poinant*: I conceive a good way of extracting the *Spirits* of these *Fruits*, might prove a likely *Criterion* to ground our Judgments on in all these Niceties; whilst by the way, we may note, that of all *Apples* that bear one general Name, the *Pippin* seems the most to differ, and the *Cider* from the genuine *Cider-Fruit*, keeps nearest to the same Strength and Relish.

Some commend the *Fox-whelp*; and the *Gennet-moyle* was once prefer'd to the very *Red-strake*, and before the *Bromsbury-Crab*; but upon more mature Consideration, the very *Criticks* themselves now *recant*, as being too effeminate and soft for a *judicious* Palate.

The *Red-strake* then amongst these accurate *Tasters* hath obtained the absolute preeminence of all other *Cider-fruit*, especially in *Hereford-^{See Aphor. 42.}* *shire*, as being the richest and most *vinous* Liquor, and now with the more earnestness commended to our Practice, for its celerity in becoming an *Orchard*, being ordinarily as full of *Fruit* at ten Years growth as other Trees are at twenty; the *Pippin* or *Pear-main* at thirty: And lastly, from that no contemptible Quality, that though the Smiles of it entice even on the *Tree*, as being indeed better than most other *Table-fruits* whilst hanging, yet it needs no *Priapus* for Protector, since (as beautiful as 'tis) it has no such Temptation to the *Taste*, till it be either *baked*, or converted into *Cider*. The same may be affirmed also of the *Bromsbury-Crab*, *Bearland Pear*, and many other *Wildings*, who are no less at their *Self-defence*; yet the *Gennet-Moyle* at due *Maturity*, has both a gentle, and agreeable Relish; their unagreeableness to the *Palate* (as elsewhere noted) proceeding only from the Separation the *Juice* makes from the *Pulp*, which even *Children* do remedy by *contusing* them on their sharpned Elbows; which (if thoroughly weigh'd) seems to *dispute*, if not *overthrow* some *Hypotheses* of *Fermentation*.

See C. Taylor's Discourse
of Cider.

In Sum, the *Red-strake* will at three Years *grafting* give you fair Hopes, and last almost an hundred Years; if from sundry Mens *Experience* of more than Sixty Years, we may divine, and that it agree with the *Soil*. And the *Gennet-Moyles* hasten to an *Orchard* for *Cider*, without Trouble of *Art* or *Grafting*: But Note, that this *Tree* is very apt to contract a *Bur-knot* near its Trunk, where it begins to divide; and being cut off under that *Boss*, commonly grows (if so set) and becomes speedily a *Tree*, except it encounter an extraordinary dry *Summer* the first Year to give it Check. And though the Knack of *grafting* be so obvious, yet this more appearing Facility does please the lazy *Clowns*, that in some places they neither have nor desire any other *Orchards*; and how this Humour prevails, you may perceive by the hasty Progress of our *Kentish Codlin* in most Parts of *England*. But this hasty Growth and Maturity of the *Tree* is by another *Instance* confirm'd to us from that worthy *Gentleman* Mr. *Blount* of *Orleton*, who writes me word, that some of the rejected Spray, or Prunings of the *Gennet-Moyle*, taken by Chance to rice a Plot of *Pease*, (though stuck into the Earth but at *April*) put forth Root, grew, blossom'd, and bore *Apples* the same Year.

But to advance again our *Red-strake*, even above the *Pippin*, and the rest (besides the celerity of the Improvement and constant Burthen) consider we the most incredible Product, since we may expect from each *Apple* more than double the Quantity; so as in the same *Orchard*, under the same *Culture*, thirty *Red-strake* *Trees* shall at ten Years *grafting* yield more *Cider* than a hundred of those *Pippins*, and surmount them in Proportion during their Period at least sixty or seventy Years: So that granting the *Cider* of the *Golden Pippin* should excel, (which with some is precarious) yet 'tis in no wise proper for a *Cider-Orchard*, according to our general Design, not by half so soon bearing, nor so constantly, nor in that Quantity, nor Fulness or Security; for as 'tis no tall Tree, so is it less expos'd to Blasts and the like Inconveniencies; besides it is a good *Kitchen-fruit* for the Season it continues.

Apb. 43.
Apb. 34.

Concerning *Perry*, the *Horse-Pear*, and *Bear-land Pear* are reputed of the best, as bearing almost their Weight of spritful and vinous Liquor. The experienced prefer the *tawny* or *ruddy* Sort, as the Colour of all other most proper for *Perry*: They will grow in common *Fields*, *gravelly*, *wild* and *stony* Ground, to that largeness as one only *Tree* has been usually known to make three or four *Hogsheads*: That of *Bosberry*, and some others, are so tart and harsh, that there is nothing more safe from Plunder, when even a *Swine* will not take them in his Mouth. But thus likewise would the Abundance preserve these Fruits, as we see it does in *Normandy*.

Some have reckon'd the *Codlin* among the *Cider-fruits*; it is a *Tree* of Comfort, propagated by *Cuttings*, improv'd by *Grafting*, continable to *Cont'espaliers* or *Hedges*, but more plentifully bearing when more at Liberty.

C H A P.

C H A P. V.

Of the Place and Order,

WE do seriously prefer a very wild *Orchard*, as mainly intended for the publick Utility, and to our purpose of obliging the People, as with a speedy *Plantation* yielding Store for *Cider*: Upon this it is that we do so frequently inculcate how well they thrive upon *Arable*, whilst the continuing it so accelerates the Growth in almost half the Time: And if the *Arable* can be so levell'd (as commonly we see it for *Barley* Land) then without Detriment it may assume the Ornament of *Cyrus*, and flourish in the *Quincunx*.

If it be *shallow* Land, or must be rais'd with high *Ridges*, then 'tis necessary to have more regard of planting on the tops of those Eminencies, and to excuse the unavoidable Breach of the *Decussis*, as my Lord *Verulam* excuseth the Defect of our human *Fancies* in the *Constellations*, which obey the Omnipotent Order rather than ours: Add to this the Rigor of the *Royal Society*, which approves more of *Plainness* and *Usefulness*, than of *Niceness* and *Curiosity*; whilst many putting themselves to the vast Charge of levelling their Grounds, oftentimes make them but the worse; since where the Places are full of gasty Inequalities, there may be planted some sorts of *Cider-fruit*, which is apt by the great Burden to be press'd down to the Ground, and there (whilst it hides *Irregularities*) to bear much better, and abundantly beyond Belief; for so have been seen many such recumbent *Pear-Trees* bear each of them *two, three, yea, even to six* or more *Hogsheads* yearly.

And for this *Cider*, whilst we prefer some sorts of *Wildings* which do not tempt the *Palate of a Thief*, by the Caution we shall not provoke any Man to repent his Charge from the Necessity of richer and more reserv'd *Enclosures*; though we have frequently seen divers *Orchards* successfully planted on very poor *Arable*, and even in stony *Glebe, Gravel and Clay*, and that pretty high on the Sides and declivities of *Hills*, where it only bears very short Grass, like to the most ordinary *Common*, not worth the Charge of *Tillage*: And yet even there the *Tenants* and *Confiners* sometimes enclose it for the *Fruit*, and find their Reward, though not equally to such *Orchards* as are planted on better Ground, and in the *Vallies*. Hence we suggest, that if there be no *Statute* for it, 'twere to be wished there were a *Law* which should allow *Endeavours* of this Nature out of the *common Field*, to enclose for these *Encouragements*, since both the *Publick* and the *Poor* (whatever the Clamour is) are advantaged by such *Enclosures*, as *Tusser* in his old Rhimes, and all indifferent Observers apprehend with good Reason.

True indeed it is, that all Land is not fit for *Orcharding*, so as even where to form just *Enclosures* being either too *shallow* and *dry*, or too *wet* and *starving*; But this (saith the judicious Mr. *Buckland*) we may aver, That there are few *Parishes or Hamlets* in *England*, where there are not some fat and deep *Headlands* capable of Rows of Trees; and that (as hath been said) the raised Banks of all *Inclosures* generally by the Advantage of the *Depth, Fatness, and Health*

Health of their Mould, yield ready opportunity for planting; (yea, and in many Countries Multitudes of Crab-stocks fit to be grafted;) in which latter (saith he) I have frequently observed very goodly Fruit-bearing Trees, when in the same Soil Trees in Orchards have been poor and worth nothing. To conclude,

If the Soil be very bad and unkind, any other *Fruit* (which it may more freely yield without requiring much depth, and less *Sun*) may be planted instead of *Apples*. In the mean time, for those who should rather chuse to confine their *Cider Plantation* into a narrower Circle, it has been calculated, That one *Acre* of Ground may contain an hundred *Red-strakes* at Twenty Foot interval; which (supposing to have cost *Five Pounds* to perfect the *Orchard*) may well yield the Owner an *Hundred Bushels*, one Tree with another, at seven Years growth; which at but *Six-pence per Bushel* amounting to *Fifty Shillings*, and the *Herbage* twenty, ought to be no discouragement to the Planter; since by the eighth or ninth Year he may expect at the least *three hundred Bushels*, and in fruitful Years *five hundred Bushels*, worth *Eighteen-pence the Bushel*; an extraordinary Improvement, as will appear upon calculation.

C H A P. VI.

Of Transplanting, and Distance.

TH E most proper Season for *Transplanting* is before the hard Frosts of *Winter* surprize you, and that is a competent while before *Christmas*: And the main point is, to see that the *Roots* be larger than the *Head*; and the more ways that extends, the better and firmer.

If the *Stock* seems able to stand on its own three or four Legs, (as we may call 'em) and then after settlement some Stones be heaped or laid about it, as it were gently wedging it fast, and safe from Winds, (which *Stones* may after the second or third Year be removed) it will salve from the main danger: For if the *Roots* be much shaken the first *Spring*, it will hardly recover it.

You may transplant a *Fruit-Tree* almost at any tolerable *Season* of the *Year*, especially if you apprehend it may be spent before you have finish'd your work, having many to remove: Thus, let your *Trees* be taken up about *Allhallontide*, (or as soon as the *Leaf* begins to fall;) then having trimm'd and quicken'd the *Roots*, set them in a *Pit*, forty, fifty, or a hundred together, yet so as they may be covered with Mould, and kept very fresh: By the *Spring* they will be found well cured of their *Wounds*, and so ready to strike root and put forth, that being *Transplanted* where they are to stand, they will take suddenly, and seldom fail; whereas being thus cut at *Spring* they recover with greater hazard. I allow the general Opinion is, the early transplanting of most Trees, *Fruit* or *Forest*. Let us hear that noble Lover of these useful Diversions, Mr. Reede of *Lingwardin* in *Herefordshire*, has found of so great success, by deferring the Work about the middle of *February*, however mild the Season prove; finding by experience, that the rigid and severe Cold of *Winter*, retards the motion and thriving

a great

a great deal more than the Drowth of the most parching Summer, and that more die and languish with that Fever, than starve with Cold in Winter: Since the dryest Spring or hottest Summer may be supply'd with discreet Watering, Refreshing, and Shade; whilst the otherwise sudden irradicating of Trees for an early Transplantation, expose them to a tedious and uncertain Tryal how they will bear it; all hasty alterations in Climate and Air being as dangerous in Vegetables as Animals: This Gentleman, therefore, it seems, prunes, dresses, and fits such Trees as he designs to remove in dead of Winter, in order to a later Season, as in what we have said of the Pit, whereby they preserve their Vigor; and in this Operation he favours the large and most spreading Roots, which others cut them short, to furnish new ones; which therefore is the better, we leave to experience, and whether so applicable to *Foresters* as the *Orchard*: But this indeed belongs to the Chapter of * *pruning* rather: In the mean while, what Trees and Plants should stand without removing, a *Gardiner* should learn, and even get by heart, the excellent Rules given by Mr. de la Quinteny, Part VI. Cap. VII. and from Page 61 to 186. * Cap. VIII.

The very *Roots* of *Trees* planted in the Ground, and buried within a quarter of an Inch, or little more, of the level of the *Bed*, will sprout and grow to be very good *Stocks*. This and the other being Experiments of our own, we thought convenient to mention.

By the oft removal of a *Wild-stock*, cutting the ends of the *Roots*, and dis-branching somewhat of the *Head* at every change of place, it will greatly abate of its natural *Wildness*, and in time bring forth more civil and ingenuous Fruit; Thus *Gilly-flowers* do (by oft removals, and at *Full-Moon* especially) increase and multiply the Leaves.

Plant not too deep; for the *over-turf* is always richer than the next Mould. How material it is to keep the coast or side of the *Stock*, as well in *Fruit-Trees* as in *Forest*, we have sufficiently discuss'd; nor is the Negative to be prov'd. See Aphor. 35.

For the distance in *Fields*, they may be set from thirty two to sixty Foot, so as not to hinder the *Plough*, nor the benefit of Manure and Soil; but in Hedge-rows as much nearer as you please, Sun and Air consider'd.

C H A P. VII.

Of the Fencing.

SEeing a *Cider-Orchard* is but a wild Plantation, best in *Arable* well enclos'd from *Beasts*, and yet better on the Tops, Ridges, and natural Inequalities, (though with some loss of Order, as we shew'd) one of the greatest Discouragements is the *preserving* of our *Trees* being planted, the raising of them so familiar.

We have in our *Silva* treated in particular of this, as of one of the most material *Obstacles*; wherein yet we did purposely omit one *Expedient*, which came then to our hands from the very Industrious Mr. *Buckland* to the learned Dr. *Beal*: You shall have it in his own Words.

This of Fencing single Trees useth to be done by Rails at great charges; or by Hedges and Bushes, which every other Year must be renew'd, and the Materials not to be had in all places neither. I therefore prefer and commend to you the ensuing form of Planting and Fencing, which is more cheap and easy, and which hath other Advantages in it, and not commonly known. I never saw it but once, and that imperfectly performed; but have practis'd it my self with Success: Take it thus.

Set your Tree on the Green-sward, or five or six Inches under it if the Soil be very healthy; if moist or weeping, half a foot above it; then cut a Trench round that Tree, two foot or more in the clear from it: Lay a rank of the Turfs, with the Grass outward, upon the inner side of the Trench towards your Plant, and then a second rank upon the former, and so a third, and fourth, all orderly plac'd, (as in a Fortification) and leaning towards the Tree, after the form of a Pyramid, or larger Hop-hill: Always as you place a row of Turfs in compass, you must fill up the inner part of the Circle with the loose Earth of the second Spit which you dig out of your Trench, and which is to be two foot and half wide, or more, as you desire to mount the Hillock, which by this means you will have rais'd about your Plant near three foot in height. At the Point it needs not be above two foot or eighteen Inches diameter, where you may leave the Earth in form of a Ditch, to convey the Rain towards the Body of the Tree; and upon the top of this Hillock prick up five or six small Briars or Thorns, binding them lightly to the Body of the Plant, and you have finish'd the Work.

The Commodities of this kind of Planting are,

First, Neither Swine, nor Sheep, nor any other sort of Cattle can annoy your Trees.

Secondly, You may adventure to set the smaller Plants, being thus rais'd and secur'd from the reach of Cattle.

Thirdly, Your Trees fasten in the Hillock against violence of Winds, without Stakes to fret and canker them.

Fourthly, If the Soil be wet, it is hereby made healthy.

Fifthly, If very dry, the Hillock defends from the outward Heat.

Sixthly, It prevents the Couch-grass, which for the first Years insensibly robs most Plants in sandy Grounds apt to graze. And,

Lastly, The Grazing-Bank will recompence the niggardly Farmer for the waste of his Ditch, which otherwise he will sorely bethink.

In the second or third Year, (by what time your Roots spread) the Trench, if the Ground be moist, or Seasons wet, will be near fill'd up again by the treading of Cattle; for it need not be cleansed; but then you must renew your Thorns: Yet if the Planter be curious, I should advise a casting of some small quantity of rich Mould into the bottom of the Trench the second Year, which may improve the growth, and invite the Roots to spread.

In this manner of Planting, where the Soil is not rich, the exact Planter should add a little quantity to each Root of Earth from a frequented High-way, or Yard where Cattle are kept; one Load will suffice for six or seven Trees; this being much more proper than Rotten Soil or Looie Earth; the fat Mould best agreeing with the Apple-Tree.

The broader and deeper your Ditch is, the higher will be your Bank, and the securer your Fence; but then you must add some good Earth in the second Year, as before.

I must subjoin, That only Trees of an Upright Growth be thus planted in Open Grounds; because spreading of low growing Trees will be still within reach of Cattle as they increase: Nor have I met with any Inconvenience in this kind of Transplanting (which is applicable to all sorts of Trees) but that the Mole and the Ant may find ready Entertainment the first Year, and sometime impair a weak rooted Plant; otherwise it rarely miscarries. In sum,

This manner of Fencing is soon executed by an indifferent Workman, who will easily set and guard six Trees in a Winter Day. Thus far Mr. Buckland. To which we shall only add, That those which are planted in the Hedge-rows need none of these Defences; for (I am told) in Herefordshire, in the Plantations of their Quicksets, or any other, all Men did so superstitiously place a Crab-stock at every twenty foot distance, as if they had been under some rigorous Statute requiring it; and I am of Opinion, that 'twere better to be content with Fruit in the bordering Mounds, than to be at all this trouble to raise Tumps, or temporary Banks in the midst of an Inclosure; or if Pears will thrive in the Plain of the Orchard, as we frequently see them, (where neither Apple or Fruit could in appearance be expected) then Crabs, which may be raised on the Mounds, will kindly mix the Liquor into very good Beverage. And now we mention Crabs, I cannot but approve what the Reverend Mr. Walker of Great-Billing near Northampton suggests in an obliging Letter to me, concerning the fencing of Fruit-Trees planted abroad in the Fields; namely, the setting about each Tree three or four Crab-stocks or White-thorn, well rooted, and about four Foot high, at competent distance from the Fruit-Tree, and somewhat bending with their Tops towards it; since these, if they grow, will not be so apt to be stolen, as either dead Thorns or Posts: Nor the Tree probably be more depriv'd of its Nourishment than by a Quick-set Hedge: Besides, the Tree may be ty'd to one of the stoutest of them instead of a Stake.

C H A P. VIII.

Of Pruning Fruit-Trees.

THE Branches are to be lopp'd in proportion to the Bruises of the Roots, whose Fibres else should only be quickned, not altogether cut off nor intangled: For the Top, let a little of each Arm be lopp'd in Cider-fruit only; but for the Pears, cut two or three Buds deep at the Summities of their aspiring Branches, just above the Eye flanting; this will keep them from over-hasty mounting, reduce them into Shape, and accelerate their bearing.

To this we add again out of Dr. Beal's Herefordshire Orchards, Pag. 23. In a grafted Plant every Bough should be lopped at the very tops, in Apples and Pears, as in Cherries and Plums, if transplanted without violation of Roots, which only indeed renders it less necessary.

In most kinds of natural Plants the Boughs should not at all be lopped, but some taken off close to the Trunk, that the Root at first Transplantation be not engaged to maintain too many Suckers: This to be understood though of such as grow naturally from the Kernel, or the Bur-knot; especially if removed after they are well rooted. And this must be done with such Discretion, that the Top-branches be not too close together; for the natural Plant is apt to grow spiry, and thereby fails of Fruitfulness. Therefore let the reserved Branches be divided at a convenient roundness: In short, let our Gardiner on all occasions of this necessary work, of Trimming or Pruning either Fruit or Forest-Trees, consult those excellent Rules of Monl. de la Quinteny.

The Branches of those we call Natural Plants (for usually the Grafted generally fail) that are cut off, may be set, and will grow, though slowly.

If the Top prove spiry, or the Fruit unkind, then the due Remedy must be in re-graffing. See Chap. xxviii. in Silva.

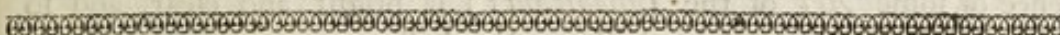
Besides the Perries, dry'd and preserv'd Fruit, useful is the Pear-Tree (and best the most barren, or Pigtail, as they call it, which is the wild Pyrafler) for its excellent colour'd Timber, hard and levigable (seldom or not ordinarily Worm-eaten) especially for Stools, Tables, Chairs, Pistol-Stocks, Instrument-Makers, Cabinets, and very many works of the Joiner (who can make it easily to counterfeit Ebony) and Sculptor, either for flat or emboss'd Works, and to Engrave upon, because the Grain intercepts not the Tool. And so is likewise both the Black-Cherry (especially for the Necks of Musical-Instruments) and the Plum-Tree.





ANIMADVERSION.

IF some of the following Discourses seem less constant, or (upon Occasion) repugnant to one another, they are to be consider'd as relating only to the several Gusts and Guises of Persons and Countries, and not to be looked upon as recommended Secrets, much less impos'd, farther than upon Tryal they may prove grateful to the Publick, and the different Inclinations of those who affect these Drinks: Nor in Reason ought any to decry what is propos'd for the universal Benefit; since it costs them nothing but their Civility to so many obliging Persons.



General Advertisements

CONCERNING

C I D E R.

By Dr. BEALE.

1.



That would treat exactly of *Cider* and *Perry*, must lay his Foundation so deep as to begin with the *Soil*: For as no Culture or Graffs will exalt the *French Wines* to compare with the *Wines* of *Greece*, *Canaries*, and *Montefiasco*; so neither will the *Cider* of *Bromyard* and *Ledbury* equal that of *Hamlacy* and *King's-Capell*, in the same small County of *Hereford*.

2. Yet the Choice of the *Graff* or *Fruit* hath so much of Prevalency, that the *Red-strake Cider* will every where excel common *Cider*, as the *Grape* of *Frontignac*, *Canary*, or *Baccharach*, excels the common *French Grape*; at least, till by Time and Traduction it degenerateth.

3. I cannot divine what *Soil* or what *Fruit* would yield the best *Cider*; or how excellent *Cider* or *Perry* might be, if all *Soils* in common and all *Fruit* were tried; but for *thirty Years* I have tried all sorts of *Cider* in *Herefordshire*, and for three Years I have had the best *Cider* in *Somerſetſhire*, and for ſome Years I have had the best *Cider* of *Kent* and *Effex* at my Call; yet hitherto I have always found the *Cider* of *Herefordshire* the best, ſo adjudged by all good *Palates*. But I ſhall rejoice to be better informed, and truly, from all other *Countries*; and do both wiſh and hope, that in a ſhort time we ſhall every where be rich in many *Improvements*.

4. I cannot undertake to particularize all kind of *Soil*, no more than to compute how many *Syllables* may be drawn from the *Alphabet*; the Number of Alphabetical *Elements* being better known than the *Ingredients* and *Particles* of *Soil*, as *Chalk*, *Clay*, *Gravel*, *Sand*, *Marle*, (the Tenaciouſneſs, Colour, and innumerable other Qualities, ſhewing endleſs Diverſities;) and the Fruit of *Crabs*, *Apples* and *Pears*, being as various as of *Grapes*, *Figs* and *Plums*.

5. Yet in groſs, this I note, that as *Bacchus amat colles*, and a light Ground, ſo our beſt *Cider* comes from the hot *Rye-Lands*: In fat *Wheat-Land* it is more ſluggiſh; and in white ſtiff *Clay-Land* (as in *Wooll-hope* in *Herefordshire*) the common *Cider* retains a thick Whey-colour, and not good: Only ſuch as riſeth there (by the Diligence or ſome *Art* of the *Inhabitants*) is bright and clear, and ſo lively, that they are apt to challenge the beſt.

6. Some *Cider* mixeth kindly with *Water* in the *Cider-Mill*, and will hold out a good ſmall *Wine*, and leſs inflaming, all the following *Summer*. Some *Cider* (as of *Long-hope*, a kind of ſowre *Woodland* Country of *Herefordshire*) will not bear any Mixture of *Water*, but ſoon decay, and turn more harſh and ſowre. And thus we noted in *France*, ſome coarſe *Wines* ſtuck like Paint in the *Glaſs*, unwilling to incorporate with the *Water*: *Vin d'Aye*, and other delicate *Wines*, did ſpread themſelves more freely, as *Gold* is more *ductile* than baſer *Metals*.

7. Some would, for a Fit, extol the *Cider* of *Pearmains*, ſome of *Pippins*; (and of *Pippins* I have found a congenial *Liquor*, leſs afflicting *splenetick* Perſons, as in my own Experience I conceiv'd:) And Sir *Henry Lingen* once extolled the *Cider* of *Eleots* (as richly bedewing the Glaſs like the beſt *Canaries*;) and full Hogsheads of the *Stocking-Apple* have been try'd amongſt us, but diſappointing our Expectation, though perhaps by evil-ordering: Yet Mr. *Gritten* highly boaſted a Mixture of *Stocking-Apples* and *May-Pears*, tried (as I take it) by himſelf. After many Years Trial of thoſe and many other Kinds, the *Red-ſtrake* carried the common Fame, and from moſt of thoſe reduced Admirers. The *Gennet-Moil Cider* was indeed more acceptable to tender *Palates*; and it will require *Cuſtom* and *Judgment* to underſtand the Preferency of the *Red-ſtrake*, whoſe mordicant Sweetneſs moſt agreeably gives the Farewel, endearing the Reliſh to all fragrant *Palates*; which both obliges, whets and ſharpens the *Stomach* with its maſculine and *winy* Vigor; and many thouſands extol it for exceeding the ordinary *French Wine*: But grant it ſhould not be ſo ſtrong as *Wine*; let me ask how many ſober Perſons abroad addiſt themſelves to mere *Wine*? Then compare *this* with diluted *Wine*, as uſually for temperate Men; and then let the Trial

be made, whether the *Pippin-Cider* or *Red-strake* will retain the *winy* Vigor in greater Proportion of *Water*. Add to this, that they commonly mingle *Water* in the *Press* with *Apples* (a good Quantity) whilst they grind the *Apple*; and the *Water* thus mixed at that Time, does so pleasingly incorporate in the Grinding, Fermentation, and Maturity of Vesseling, that 'tis quite another and far more pleasant Thing than if so much, or half so much *Water* were mingled in the *Cup* at the Drinking-time; as *Salt* on the *Trencher* will not give *Beef*, *Pork*, or *Neats-Tongue*, half that same Relish which duly *powder'd* and timely season'd.

8. I did once prefer the *Gennet-Moile Cider*, but had only the *Ladies* on my Side, as gentler for their sugary *Palates*, and for one or two sober Draughts; but I saw Cause to recant, and to confess the *Red-strake* to warm and whet the *Stomach*, either for *Meat* or more *Drink*.

9. The right *Cider-fruit* is far more *succulent*, and the *Liquor* more easily divides from the *Pulp* of the *Apple*, than in best *Table-fruit*, in which the Juice and the *Pulp* seem friendly to dissolve together on the *Tongue's* End.

10. The *Liquor* of best *Cider-fruit* in the *Apple*, in best Season of Ripeness, is more brisk and smart than that which proves duller *Cider*: And generally the fiercest *Pears*, and a kind of tamer *Crabs*, (and such was the *Red-strake* called in my Memory) makes the more *winy Cider*.

11. *Palladius* denieth *Perry* to bear the Heat of *Summer*: but there is a *Pear* in *Bosbury*, and that Neighbourhood, which yields the *Liquor* richer the *second* Year than the *first*, and so by my Experience very much amended the *third* Year: They talk much higher; and that's beyond my Account.

12. As *Cider* is for some time a Sluggard, so by like Care it may be retained to keep the *Memorials* of many *Consuls*; and these smoaky Bottles are the *nappy Wine*. My Lord *Scudamore* seldom fails of three or four Years; and he is nobly liberal to offer the Trial.

13. As *red Apples*, so *red Pears* (and amongst them the red *Horse-pear* next to the *Bosbury*) have held out best for the *Stomach* and *Durance*: But *Pears* do less gratify the *Stomach* than *Apples*.

14. The Season of *grinding* these *harsh Pears* is after a full Maturity, not till they have dropp'd from the Tree, and there lain under the Tree, or in Heaps, a *Week*, or thereabouts.

15. And so of *Cider-Apples*, as of *Grapes*, they require full *Maturity*, which is best known by their natural *Fragrancy*; and then also, as ripe *Grapes* require a few mellowing Days, so do all *Apples*, as about a *Week* or little more, so they be not bruised, which soon turns to Rottenness; and better found from the Tree than rotten from the Heap; though yet the Juice of *Apples* and *Pears* (yea, of *Cherries* or *Grapes*) is not altogether destroy'd, or quite putrified, as soon as the *Pulp* seems to be *corrupted*; neither haply needs there such Curiosity, to cull and pick them so accurately, as some prescribe, though doubtless the cleaner, and less contaminated the better.

16. That due Maturity, and some Rest on the Heap, does make the *Liquor* taste rather of *Apples* than *winy*, hath no more Truth, (if the *Cider* be kept to fit Age) than that very *old Cheese* doth taste of a *Posset*.

17. The

17. The harsher the *Wild-fruit* is, the longer it must lie on Heaps; for of the same Fruit, suddenly ground, I have tasted good *Verjuice*; being on Heaps till near *Christmas*, all *Good-fellows* called it *Rhenish Wine*.

18. The *Grinding* is somewhat considerable, rather too much than too little: Here I saw a *Mill* in *Somersetshire*, which grinds half a *Hogshead* at a *Grist*, and so much the better Ground for the frequent Rolling.

* See for this excellent Directions in Mr. Newburgh's preserving of the Surface; C. Taylor's Vessel, and Dr. Smith's closing of it up.

19. * Soon after *Grinding* it should be *press'd*, and immediately be put into the *Vessel*, that it may ferment before the *Spirits* be dissipated; and then also in fermenting Time, the *Vent-hole* should not be so wide as to allow a prodigal waste of the *Spirits*; and as soon as the Ferment begins to allay, the *Vessels* should be filled of the same, and well stopped.

20. Of late 'tis much commended, that before it be *press'd*, the *Liquor* and *Must* should for four and twenty Hours ferment together in a *Vat* for that Purpose, covered, as *Ale* or *Beer* in the *Yeast-Vat*, and then tunned up. This is said to enrich the *Liquor*, and to give it somewhat of the *Tincture* of some *red Apples*, as I have seen, and very well approved.

21. As *Sulphur* hath some Use in *Wines*, so some do lay *Brimstone* on a *Rag*, and by a *Wire* let it down into the *Cider-Vessel*, and there fire it; and when the Vessel is full of the *Smoak*, the *Liquor* speedily pour'd in, ferments the better. I cannot condemn this, for *Sulphur* is more kind to the *Lungs* than *Cider*, and the Impurity will be discharged in the Ferment.

22. *Apples* over-long hoarded before *Grinding*, will for a long time hold the *Liquor* thick; and this *Liquor* will be both pleasant, and as I think, wholesome; and we see some rich *Wines* of the later *Vintage*, and from *Greece*, retain a like Crassitude, and they are both *Meat* and *Drink*.

23. I have seen thick harsh *Cider* the second *Summer* become clear, and very richly pleasant; but I never saw clear *acid Cider* recover.

24. *Wheat* or *Leven* is good and kind in *Cider*, as in *Beer*; *Juni-per-Berries* agree well and friendly for *Coughs*, weak *Lungs*, and the Aged, but not at first for every *Palate*. The most infallible and undiscerned Improver, is *Mustard*, a *Pint* to each *Hogshead*, bruised, as for *Sauce*, with a Mixture of the same *Cider*, and applied as soon as the Vessel is to be closed after Fermenting.

25. *Bottling* is the next Improver, and proper for *Cider*; some put two or three *Raisins* into every *Bottle*, which is to seek Aid from the Vine. Here in *Somersetshire* I have seen as much as a *Walnut* of *Sugar*, not without Cause, used for this Country *Cider*.

26. *Crabs* do not hasten the Decay of *Perry*, but preserve it, as *Salt* preserves *Flesh*. But *Pears* and *Crabs* being of a thousand Kinds, require more *Aphorisms*: This only I would Note, that *Land* which refuses *Apples* is generally civil to *Pears*; and *Crabs* mingled with them, make a rich and wholesome *Cider*, and has sometime challenged even the best *Red-strake*.

27. Neither *Wheat*, *Leven*, *Sulphur*, nor *Mustard*, are used but by very few; and therefore are not necessary to make *Cider* last well for two, three, or four Years.

28. The time of drawing *Cider* into *Bottles* is best in *March*, it being then clarified by the *Winter*, and free from the Heat of the *Sun*.

29. In drawing, the *best* is nearest the *Heart* or middle of the *Vessel*, as the *Yolk* in the *Egg*.

30. *Red-strakes* are of divers kinds, but the Name is in *Herefordshire* appropriated to one kind, which is fair and large, of a high purple Colour, the Smell *Aromatic*, the *Tree* a very *Shrub*, soon bearing a full burden, and seldom or never failing till it decays, which is much sooner than other *Apple-Trees*. 'Tis lately spread all over *Herefordshire*; and he that computes speedy Return, and true *Wine*, will think of no other *Cider-Apple*, till a better be found.

31. I said the *Red-strake* is a small *Shrub*, 'tis of small Growth where the *Cider* proves richest, for ought we have yet seen in *Herefordshire*, viz. in light quick Land; and if the Land be very dry, jejune and shallow, that and other *Cider-fruit* (especially the *Gennet-moyle*) will suspend the store of Fruit alternatively every other Year; except some *Blasts* or surprizing *Frosts* in the *Spring* alter that *Method*; for two bad Years seldom come together, very hardly three.

32. In good Soil, I mean of common *Field* (for fat Land is not best for *Cider-fruit*, but common *arable*) I have seen the Trees of good growth, almost equalling other *Cider Trees*, the *Apple* larger and seldom failing of a good *Burthen*; thus in the *Vales* of *Wheat-lands*, in strong *Glebe* or *Clay*, where the *Cider* is not so much extoll'd: But still *Sack* is *Sack*, and *Canary* differs from *Claret*; so does the *Red-strake Cider* of the *Vale* exceed any other *Cider* of the foresaid Soil, such as is already celebrated for its kindness to good *Cider*.

33. Yet this distinction of *Soil* requires much *Experience*, and great heed, if we insist upon accurate Directions; for as *Lauremberg* saith, *In pingui solo non seruntur omnia recte, neque in macro nihil*. And for *Gardens*, *Flowers*, and *Orchards*, I would chuse many times such Lands as do not please the *Husbandman*, either for *Wheat* or sweet *Pasture*, which are his chief Aims; and thus *Lauremberg*, *In arida & tenui terra facilius proveniunt Ruta, Allium, Petroselinum, Crocus, Hyssopus, Capparis, Lupini, Satureia, Thymus; Arbores quoque tenue & macilentum solum amant; itemque frutices plerique hujusmodi arbores sunt, Pomus, Pyrus, Cerasus, Prunus, Persica, Cotonea, Morus, Juglans, Corylus, Staphylodendrum, Mespilus, Ornus, Castanea, &c. Frutices, scil. Vitis, Berberis, Genista, Juniperus, Oxyacantha, Periclymenum, Rosa, Ribesium, Uva, Spina, Vaccinia, &c.*

34. But here also we must distinguish, that *Pears* will bear in a very stony, hungry, gravelly Land, such as *Apples* will not bear in; and I have seen *Pears* bear in a tough binding hungry *Clay*, when *Apples* could not so well bear it (as the smooth Rinds of the *Pear-trees*, and the Mossy and Canker'd Rinds of the *Apple-Trees* did prove) the *Root* of a *Pear-Tree* being it seems more able to pierce a stony and stiff Ground. And *Cherries*, *Mulberries* and *Plums* can rejoice in a richer Soil, though by the smallness of the *Roots*, the shallower Soil will suffice them. And the *Quinces* require a deeper Ground and will bear with some degrees of hungry Land, if they be supply'd with a due measure of *Succulency*, and neighbouring Moisture; and the other *Shrubs*, according to the smallness of their *Roots*, do generally bear a thinner Land. I have seen a *Soil* so much too rank for *Apples*

and *Plums*, that all their Fruits from Year to Year were always *worm-eaten*, till their lives were forfeited to the Fire.

35. To take up from these *Curiosities*, the most useful result to our purpose; we have always found those *Orchards* to grow best, last longest, and bear most, which are frequently tilled for *Barley Wheat*, or other *Corn*, and kept (by *Culture* and seasonable *Rest*) in due strength to bear a full *Crop*. And therefore, whereas the *Red-strake* might otherwise without much Injury be planted at *fifteen* or *twenty* foot distance, and the best distance for other *Cider-fruit* hath heretofore been reputed *thirty*, or *two* and *thirty* foot; very good *Husbands* do now allow in their largest *Inclosures* (as of 20, 40 or 100 *Acres*) *fifty* or *sixty* foot distance, that the *Trees* may not much hinder the *Plough*, and yet receive the benefit of *Compost*; and a *Horse-teem* well governed will (without any damage or danger) *plough* close to the *Trees*.

36. In such Soil as is here required, namely of good *Tillage*, an *Orchard* of *grafted Red-strakes* will be of good growth, and good burthen, within *ten* or *twelve Years*, and branch out with good store to begin an encouragement at three *Years* *grafting*; and (except the Land be very unkind) will not yield to any decay within *sixty* or *eighty Years*, which is a *Man's Age*.

37. In some *Sheets* I render'd many *Reasons* against Mr. *Austin* of *Oxford*, why we should prefer a peculiar *Cider-fruit*, which in *Herefordshire* are generally called *Musts*; (so we name both the *Apple*, and the *Liquor* and *Pulp*, as mingled together in the confusion) as from the Latin *Mustum*. *White-Musts*, of divers kinds; *Red-cheek'd* and *Red-strak'd Musts* of several kinds; *Green-Musts* called also *Green fillet*, and *Blew spotted*: Why, I say, we should prefer them for *Cider*, before *Table-fruit*, as *Pippins*, *Pearmains*, &c. And I do still insist on them:

1. The *Liquor* of these *Cider-fruits*, and of many kinds of austere *Fruit*, which are no better than a sort of full succulent *Crabs*, is more sprightly, brisk and *winy*. For *Essay*, I sent up many *Bottles* to *London*, that did me no *Discredit*. Secondly, one *Bushel* of the *Cider-fruit* yields twice or thrice as much *Liquor*. Thirdly, The *Tree* grows more in three or four *Years* than the others in ten *Years*, as I oft-times remarked. Fourthly, The *Tree* bears far greater store, and doth more generally escape *Blasts* and *Frosts* of the *Spring*. I might add, that some of these, and especially such *Pears* as yield the best *Perry*, will best escape the hand of the *Thief*, and may be trusted in the open *Field*.

38. By the *first*, *second* and *fourth* of these *Reasons*, I must exclude the *Gennet-Moyle* from a *right Cider-fruit*, it being dry and very apt to take *frosty Blasts*; yet it is no *Table fruit*, but properly a baking *Fruit*, as the ruddy Colour from the *Oven* shews.

39. I said that the *right Cider-fruit* generally called *Musts*, and deserving the *Latin Name Mustum*, is of divers kinds; and I have need to note more expressly that there is a *Red-strake Must*, (as I have often seen) but not generally known, that is quite differing from the famous *Red-strake*, being much less, somewhat oblong and like some of the white *Musts* in shape, and full of a very good *winy Liquor*. I could willingly name the *Persons* or *Place* where the distinct kinds are best known: It was first shewed me by *John Nash* of *Ashperton* in *Herefordshire*; and for some *Years* they did in some places distinguish a *Red-strake*, as yielding a richer *Red-strake Cider* of a more *fulvous* or *ruddy* colour; but this difference, as far as I could find, is but a choice of a

better

better *insolated* or ruddy Fruit of the best kind, as taken from the *South Part* of the *Tree*, or from a *Soil* that renders them richer. But my Lord *Scudamore's* is safely of the best sort: And Mr. *Whingate* of the *Grange* in *Dimoc*, and some of *Kings-capel*, do best know these and other differences, *Straked-Must*, *right Red-strake*, *red Red-strake*, &c.

40. The greenish *Must*, (formerly called in the *Language* of the *Country*, the *Green-fillet*) when the *Liquor* is of a kindly ripeness, retains a *Greenness* equal to the *Rhenish-glass*; which I note for them that conceive no *Cider* to be fit for use till it be of the colour of *old Sack*.

41. To direct a little more *Caution*, for enquiry of the right *Red-strake*, I should give notice that some *Months* ago, Mr. *Philips* of *Mountague* in *Somersetshire*, shewed me a very fair large *Red-strake Apple*, that by smell and sight seem'd to me and to another of *Herefordshire*, then with me, to be the best *Red-strake*; but when we did cut it, and taste it, we both denied it to be *right* (the other with much more confidence than my self) but Mr. *Philips* making *Cider* of it, this Week invited me to it, assuring that already it equals or resembles *High-country Wines*. It had not such plenty of Juice as our *Red-strakes* with us, and it had more of the Pleasantry of *Table-fruit*, which might be occasion'd, for ought I know, by the purer and quicker Soil. This *Apple* is here called *Meriot-Tsnot*, and great store of them are at *Meriot*, a *Village* not far distant: Possibly, this *Meriot* may prove to be the *Red-strake* of *Somersetshire*, when they shall please to try it apart with equal diligence and constancy as they do in *Herefordshire*: This *Fruit* is of a very lovely hue, and by some conceiv'd to be of affinity to the *Red-Jersey Apple*, which is reported to *tinge* so deeply: In truth, there can hardly be a deeper *Purple*, than is our right *Herefordshire Red-strake*, having a few *Strakes* towards the *Eye*, of a dark colour, of *Orange-tawny* intermingled: But, 'tis no wonder if an *Apple* should change its *Name* in travelling so far beyond the *Severn*, when even in this *Country*, most sorts of *Apples*, and especially *Cider-fruit*, loseth the *Name* in the next *Village*.

42. I may now ask why we should talk of other *Cider-fruit* or *Perry*, if the best *Red-strake* have all the aforesaid Pre-eminences of richer and more *winy Liquor*, by half sooner an *Orchard*, more constantly bearing, &c. An *Orchard* of *Red-strakes* is commonly as full of Fruit at *ten Years*, as other *Cider-fruit* at *twenty Years*, or as the *Pippin* and *Pearmain* at *thirty* or thereabout.

43. To this may be answered, that all *Soil* bear not *Apples*, and to some *Soils* other *Apples* may be more kind; and if we be driven to *Perry*, much we may say both in behalf of the *Perry*, and of the *Pear*, of the *Fruit*, and of the *Tree*: It is the goodlier *Tree* for a *Grove*, to shelter a *House* and *Walks* from *Summers Heat* and *Winters cold Winds*, and far more *lasting*; the pleasantest *Cider-Pear* of a known *Name* amongst them, is the *Horse-Pear*. And it is much argued, whether the *White-horse Pear*, or the *Red-horse Pear* be the better; where both are best, within two *Miles* they differ in Judgment. The *Pear* bears almost its weight of *sprightful winy Liquor*; and I always preferred the *tawny* or *ruddy Horse-pear*, and generally that *Colour* in all *Pears* that are proper for *Perry*.

44. I rejected *Palladius* against the durability of *Perry*; his Words are, *Hyeme durat, sed prima acescit astate*, Tit. 25. Febr. possibly so
of

of common *Pears*, and in hotter Countries; but from good *Cellars* I have tasted a very brisk lively and *winy Liquor* of these *Horse-Pears* during the end of *Summer*; and a *Bosbury-Pear* I have named and often tryed, which without *bottling*, in common *Hogsheads* of vulgar and indifferent *Cellars*, proves as well pleasanter as richer the *second Year*, and yet also better the *third Year*. A very honest, worthy and witty *Gentleman* of that Neighbourhood would engage to me, that in good *Cellars*, and in careful custody, it passeth any account of decay, and may be *heightned* to a kind of *Aqua-vitæ*. I take the Information worthy the *Stile* of our modern *Improvements*.

The *Pear-Tree* grows in *common Fields* and wild *stony Ground*, to the largeness of bearing one, two, three or four *Hogsheads* each Year.

45. This *Bosbury-tree*, and such generally that bear the most lasting *Liquor* and *winy*, is of such *insufferable taste*, that hungry *Swine* will not *smell* to it; or if *Hunger* tempt them to taste, at first crush they shake it out of their *Mouths*; (I say not this of the *Horse-Pear*) and the *Clowns* call other *Pears*, of best *Liquor*, *Choak-Pears*, and will offer Money to such as dare adventure to taste them, for their *sport*; and their *Mouths* will be more *stupidified* than at the root of *Wake-robin*.

46. A row of *Crab-Trees* will give an Improvement to any kind of *Perry*; and since *Pears* and *Crabs* may be of as many *kinds* as there are *Kernels*, or different kinds or mixtures of *Soils*; in a general *Character* I would prefer the largest and fullest of all austere Juices.

47. Mr. *Lill* of *Mark-hill* (aged about ninety Years) ever observ'd this Rule, to graff no *wild Pear-Tree* till he saw the *Fruit*; if it proved *large, juicy, and brisk*, it failed not of good *Liquor*. But I see cause to say, that to graff a young Tree with a riper *Graff*, and known *Excellency*, is a sure Gain, and hastens the return.

48. Mr. *Speke* (last *High-Sheriff* of *Somersetshire*) shewed me in his *Park* some store of *Crab-Trees*, of such huge *Bulk*, that in this fertile Year he offered a *Wager*, that they would yield one or two *Hogsheads* of *Liquor* each of them; yet were they small dry *Crabs*.

49. I have seen several sorts of *Crabs* (which are the natural *Apple*, or at worst but the *Wild-Apple*) which are as large as many sorts of *Apples*, and the *Liquor* *winy*.

50. I have disclaimed the *Gust* of *Juniper-berries* in *Cider*; I tried it only *once* for *my self*, and drank it before *Christmas*: Possibly in more time the *Relish* had been subdu'd or improv'd, as of *Hops* in *Stale-Beer*, and of *Rennet* in good *Parmaisan*. Neither was the *Gust* to me otherwise unpleasant than as *Annis-seeds* in *Bread*, rather *strange* than *odious*; and by custom made grateful; and it did hasten the *Clarification*, and increase the *Briskness* to an endless *sparkling*: Thus it indulgeth the *Lungs*, and nothing more *cheap*; where *Juniper* grows, a *Girl* may speedily fill her Lap with the *Berries*.

If *Barbadoes* *Ginger* be good, cheaper, and a more pleasant Preserver of *Beer*, it must probably be most kind for *Cider*: For first, of all the Improvers that I could name, bruised *Mustard* was the best; and this *Ginger* hath the same quick mordicant Vigor in a more noble and more *Aromatic* Fragrancy. Secondly, *Cider* (as I oft complain) is of a sluggish and somewhat windy nature; and for some *Months* the best of it is chain'd up with a cold *ligature*,

as we fancy the Fire to be lock'd up in a cold *Flint*. This will relieve the *Prisoner*. And, thirdly, will assist the *winy* Vigor for them that would use it instead of a sparkling *Wine*. Fourthly, 'tis a good sign of much Kindness, and great Friendship: It will both enliven the *Ferment* for speedier Maturity, and also hold it out for more Duration; both which Offices it performs in Beer.

51. *Cider* being *windy* before Maturity, some that must not wait the Leisure of best *Season*, do put Sprigs of *Rosemary* and *Bays* in the *Vessel*; the *first* good for the *Head*, and not unpleasant; the *second* an *Antidote* against *Infections*; but less pleasant till Time hath incorporated the Tastes.

52. And why may we not make mention of all these *Mixtures*, as well as the *Ancients* of their *Vinum Marrubii*, *Vinum Abrotonites*, *Absynthites*, *Hissopites*, *Marathites*, *Tbymites*, *Sydonites*, *Myrtites*, *Scillites*, *Violaceum*, *Sorbi*, &c.

53. And for *Mixtures*, I think we may challenge the *Ancients*, in naming the *Red-raspy*; of which there is in this County a *Lady* that makes a *Bonella*, the best of *Summer-drinks*. And more yet, if we name the *Clove-july-flower*, or other *July-flowers*, a most grateful *Cordial*, as it is infused by a *Lady* in *Staffordshire*, of the Family of the *Devereux's*, and by some *Ladies* of this Country.

54. I could also give some Account of *Cherry wine*, and *Wine of Plums*; the *last* of which (in the best Essay that I have yet seen) is hardly worthy to be named. But, I conceive, and have ground for it, that some good *Liquor* and *Spirits* may be drawn from some sorts of them, and in *Quantity*: And the vast Store of *Cherries* in some Places, under a *Penny the Pound*, and of *Plums* that bend the *Trees* with their *Burdens*, and their expedite Growth, makes it cheap enough; and as in the other, so in these, the large *English* or *Dutch* sharp *Cherry* makes the *Cherry-wine*; and the full, black, tawny *Plum*, as big as a *Walnut*, (not the kind of *Heart Cherries*, nor the *Plum* which divides from the *Stone*) make the *Wine*. Their Cheapness should recommend them to more general Use at *Tables*, when dried like *Prunella's*, (an easy Art) and then wholsomer.

55. To return to *Red-strake*; 'tis a good Drink as soon as well fermented, or within a *Month*; better after some *Frosts*; and when clarified, rich *Wine*, when it takes the Colour of old *Sack*. In a good *Cellar* it improves in *Hogsheads* the second Year; in *Bottles* and sandy *Cellars* keeps the *Records* of late *Revolutions* and old *Mayoralities*. Quære the manner of laying them up in *Sand-houses*?

56. I tried some *Bottles* all the *Summer* in the bottom of a *Fountain*; and I prefer that way where it may be had. And 'tis somewhat strange, if the Land be neither dry for a *Sand-house*, nor *fountainous* for this better Expedient. When *Cider* is settled, and altogether, or almost Clarify'd, then to make it *sprightful* and *winy*, it should be drawn into well cork'd and well-bound *Bottles*, and kept some time in *Sand* or *Water*; the longer the better, if the kind be good. And *Cider* being preserv'd to due Age, bottled (and kept in cool Places, *Conservatories*, and *refrigerating Springs*) it does almost by Time turn to *Aqua-vitæ*; the *Bottles* imoak at the Opening, and it catches *Flame* speedily, and will burn like *Spirit of Wine*, with a fiery Taste; and it is a laudable way of trying the Vigor of *Cider* by its Promptness to burn, and take *Fire*, and from the Quantity of *Aqua-vitæ* which

which it yields. *Cider* affords by way of *Distillation*, an incomparable and useful *Spirit*, and that in such Plenty, as from *four Quarts*, a *Pint* has been extracted.

57. I must not prescribe to other *Palates*, by asserting to what Degree of *Perfection* good *Cider* may be raised, or to compare it with *Wines*: But when the late *King* (of blessed Memory) came to *Hereford* in his Distress, and such of the *Gentry* of *Worcestershire* as were brought thither as *Prisoners*; both *King*, *Nobility*, and *Gentry*, did prefer it before the best *Wines* those Parts afforded; and to my Knowledge that *Cider* had no kind of *Mixture*. Generally all the *Gentry* of *Herefordshire* do abhor all Mixtures.

Yet if any Man have a Desire to try *Conclusions*, and by an harmless *Art* to convert *Cider* into *Canary wine*; let the *Cider* be of the former Year, *Masculine*, and in full Body, yet pleasant and well Tasted. Into such *Cider* put a *Spoonful*, or so, of the *Spirit* of *Clary*, it will have so much of the *Race* of *Canary*, as may deceive some who pretend they have discerning *Palates*.

Sir Paul Neile's Discourse of C I D E R.

My LORD,

I N Obedience to the *Commands* of this *Honourable Society*, I have at length endeavour'd to give this brief *Account* of that little which I know concerning the *ordering* of *Cider*; and in that I shall propound to my self *six* Things.

First, To shew that *Cider* made of the best *Eating-Apples* must needs be *once* the best, (that is to say) the pleasantest *Cider*.

Secondly, That hitherto the general Opinion hath been otherwise; and that the Reason of that Mistake was the not apprehending the true Cause why the *Pippin-Cider*, &c. did not retain its Sweetness, when the *Hard-Apple-Cider* did.

Thirdly, What is the true Cause that *Pippin-Cider*, used in the ordinary Method, will not retain its Sweetness.

Fourthly, How to cure that *Evil* in *Pippin-Cider*.

Fifthly, A probable Conjecture how in some Degree by the same Method to amend the *Hard-Apple-Cider*, and *French-Wine*.

Sixthly, That what is here propounded cannot chuse but be *wholesome*, and may be done to what Degree every Man's *Palate* shall wish.

Having now told your *Lordship* what I will endeavour to do, before I enter upon it, I must declare what I will not in the least pretend to do.

1. I do not pretend to any Thing concerning the *planting* and *grasfing* of *Trees*, &c.

Nor what *Trees* will soonest bear, or last longest.

Nor what *sorts* of *Trees* are the best *Bearers*, and may with least Danger grow in *common Fields*.

Nor what *sort* of *Fruit* will yield the greatest store of *Cider*.

Nor

Nor what *Cider* will keep the longest, and be the strongest and wholesomest to *drink* constantly with *Meat*.

The only Thing I shall endeavour, being to prescribe a way to make a sort of *Cider* pleasant and quick of Taste, and yet wholesome to *drink*, sometimes, and in a moderate Proportion. For if this be an *Herefy*, I must confess my self guilty; that I prefer *Canary-wine*, *Verdea*, the pleasantest *Wines* of *Greece*. and the *High-country-wines* before the *harsh Sherries*, *Vin d'Hermitage*, and the *Italian* and *Portugal* rough *Wines*, or the best *Graves-wines*; not at all regarding that I am told, and do believe, that these *harsh Wines* are more comfortable to the *Stomach*, and a *Surfeit* of them less *noxious*, when taken; nor to be taken but with drinking greater Quantities than can with Safety be taken of those other pleasant *Wines*: I satisfying my self with this, that I like the *pleasant Wines* best; which yet are so wholesome, that a Man may drink a moderate Quantity of them without Prejudice.

Nor shall I at all concern my self, whether this sort of *Cider* I pretend to is so *vinous* a Liquor; and consequently will yield so much *Spirit* upon *Distillation*, or so soon make the *Countryman* think himself a *Lord*, as the *Hard-Apple-Cider* will do: Nor whether it will last so long; for it is no part of my *Design* to persuade the *World* to lay by the making of *Hard-Apple-Cider*; but rather in a degree to show how to improve that in point of Pleasantness; and that by the making and rightly ordering of *Cider* of the best *Eating-Apples*, as *Golden-Pippins*, *Kentish-Pippins*, *Pearmains*, &c. there may be made a more pleasant *Liquor* for the Time it will last, than can be produced from those *Apples* which I call *Hard-Apples*; that is to say, *Red-strakes*, *Gennet-Moyles*, the *Bromsbury-Crab*, &c. which are so *harsh* that a *Hog* will hardly eat them.

Nor shall I at all meddle with the making of *Perry*, or of any mixed Drink of the Juice of *Apples* and *Pears*; though possibly what I shall say for *Cider*, may be aptly applied to *Perry* also.

For the *first* Particular, I asserted that the best *Apples* would make the pleasantest, which in my Sense is the best *Cider*; (and I account those the best Apples, whose Juice is the pleasantest at the Time when first pressed before Fermentation.) I shall need (besides the Experience of the last *ten Years*) only to say, that it is an undeniable Thing in all *Wines*, that the pleasantest *Grapes* make the richest and pleasantest *Wines*; and that *Cider* is really but the *Wine* of *Apples*, and not only made by the same way of *Compression*, but left to it self, hath the same way of *Fermentation*; and therefore must be liable to the same Measures in the Choice of the Materials.

To my second *Affertion*, that this Truth was not formerly owned, by reason that in *Herefordshire*, and those Countries where they abound both with *Pippins* and *Hard-Apples* of all Sorts, they made *Cider* of both Sorts, and used them alike; that is, that as soon as they ground and pressed the *Apples* and strained, the *Liquor*, they put it into their *Vessels*, and there let it lie till it had wrought; and afterwards was settled again and *fined*; as not thinking it wholesome to drink till it had thus (as they call it) *purg'd* its self; and this was the frequent Use of most Men in the more *Southern* and *Western* Parts of *England* also. Now when *Cider* is thus used, it

it is no wonder that when they came to broach it, they for the most part found their *Pippin-Cider* not so pleasant as their *Moyle* or *Red-strake-Cider*; but to them it seemed a wonder, because they did not know the *reason* of it (which shall be my next work to make out) for till they knew the *reason* of this *effect*, they had no cause but to think, it was the Nature of the several *Apples* that produced it; and consequently to prefer the *Hard-Apple-Cider*, and to use the other Apples (which were good to eat *raw*) for the *Table*: Which was an use not less necessary, and for which the *Hard-Apples* were totally improper.

To my *third* Assertion, which is, that in *Herefordshire* they knew not what was the true cause why their *Pippin-Cider* (for by that name I shall generally call all sorts of *Cider* that is made of *Apples* good to eat raw) was not, as they used it, so good as the *Cider* made of *Hard-Apples* (for by that Name, for brevities sake, I shall call the *Cider* of *Moyle*, *Red-strake*, and all other sorts of *barsh Apples*, not fit to eat raw.) First, I say, for all *Liquors* that are *vinous*, the cause that makes them sometimes harder or less pleasant to the taste, than they were at the first pressing, is the too much *fermenting*: If *Wine* or *Cider* by any *accidental* cause do ferment twice, it will be harder than if it had fermented but once; and if it *ferment* thrice, it is harder and worse than if it had *fermented* but twice; and so onward, the oftner it *ferments*, and the longer it *ferments*, it still grows the harder. This being laid as a *Foundation*, before we proceed further we must first consider what is the Cause of *Fermentation* in *Wine*, *Cider*, and all other *vinous Liquors*. Which (in my poor opinion) is the gross part of the *Liquor*, which 'scapes in the straining of the *Cider* (for in making of *Wine* I do not find that they use the Curiosity of straining) and which is generally known by the name of the *Lee* of that (*Wine* or) *Cider*. And this *Lee* I shall, according to its Thickness of Parts, distinguish into the *gross Lee*, and the *flying Lee*.

Now, according to the old Method of making and putting up of *Cider*, they took little care of putting up *only* the clear part of the *Cider* into their Vessels or *Cask*; but put them up thick and thin together, not at all regarding this *Separation*; for experimentally they found that how thick soever they put it up, yet after it had thoroughly wrought or *fermented*, and was settled again, it would still be clear; and perchance that which was put up the soonest after it was pressed, and the thickest, would, when the *Fermentation* was over, be the clearest, the briskest, and keep the longest. This made them confidently believe that it was not only not inconvenient to put it up quickly after the *pressing*, but in some degree necessary also to put it up soon after the *pressing*, so that it might have so much of the *Lee* mixed with it, that it might certainly, soon, and strongly put it into a *Fermentation*, as the only means to make it *wholesom*, *clean* and *brisk*; and when it either did not (or that they had reason to doubt that it would not) work or *ferment* strongly enough, they had used to put in *Mustard*, or some other thing of like nature, to increase the *Fermentation*.

Now that which in *Cider* of *Pippins* hath been a cause of greater *Fermentation* than in *Cider* of *Hard-Apples*, being both used after the former method, is this, that the *Pippins* being a softer Fruit, are in the *Mill* bruised into smaller *Particles* than the harder sorts of *Apple*; and consequently more of those small parts pass the Strainer in the *Pippin-Cider*, than in the *Cider* of *Hard-Apples*, which causeth a

stronger *Fermentation*, and (according to my former *Principle*) a greater loss of the native Sweetness, than in that of *Hard-Apple-Cider*; and not only so, but the *Lee* of the *Hard-Apple-Cider* being compounded of greater *Particles* than the *Lee* of the *Pippin-Cider*, every individual *Particle* is in itself of a greater weight than the *Particles* of the *Lee* of the *Pippin-Cider*; and consequently less apt to rise upon small Motions, which produceth this effect; that when the *Fermentation* of the *Hard-Apple-Cider* is once over, unless the Vessel be stirred, it seldom falls to a second *Fermentation*; but in *Pippin-Cider* it is otherwise: For if the *gross Lee* be still remaining with the *Cider*, it needs not the Motion of the Vessel to cause a new *Fermentation*, but every Motion of the *Air* by a change of *Weather* from dry to moist will cause a new *Fermentation*, and consequently make it work till it hath destroy'd it self by losing its native Sweetness. And this alone hath been the Cause, why commonly when they *broach* their *Pippin-Cider* they find it so unpleasant, that generally the *Hard-Apple Cider* is preferred before it, although at first it was not so pleasant as the *Pippin-Cider*. Yet after this Mischiefe hath prevail'd over the *Pippin-Cider*, it is no wonder to find the *Hard-Apple-Cider* remaining not only the stronger, but even the more pleasant tasted. This to me seems satisfactory for the discovery of the Cause, why in *Herefordshire* the *Hard-Apple-Cider* is preferred before the *Pippin-Cider*. But perhaps it may by some be objected, that they have before the *ten Years*, in which you pretend you found this to be the cause of spoiling the *Pippin-Cider*, been in *Herefordshire*, and tasted the best *Cider* that *Country* did afford, and yet it was not like the *Pippin-Cider* they had before then tasted in other Parts. To this I do answer at present briefly, That by some Mistake, or Chance, the Maker of this *Pippin-Cider*, which proved good, had done that, or somewhat like that, which under the next *Affertion* I shall set down, as a *Method* to cure the Inconveniencies which happen to *Pippin-Cider*, by the suffering it to ferment too often, or too strongly; but till that be explained, it would be improper to shew more fully what these particular *Accidents* might possibly be, which (without the intention of those Persons which made the *Cider*) caused it to prove much better than their expectation, or indeed better than any could afterwards make: They possibly assigning the Goodness of that *Cider* to something that was not really the Cause of that Effect.

To justify my fourth *Affertion*, and shew a *Method* how to cure the Inconveniency which happens to *Pippin-Cider* by the over-working, I must first take notice of some things which I have been often told concerning *Wine*, and which indeed gave me the light to know what was the Cause which had made *Pippin-Cider* that had wrought long, hard when it came to be clear again. The thing I mean, is, that in divers Parts, and even in *France*, they make three sorts of *Wine* out of one and the same *Grapes*; that is, they first take the *Juice* of the *Grapes* without any more pressing than what comes from their own weight in the *Vat*, and the bruising they have in putting into the Vessel, which causeth the ripest of those *Grapes* to break, and the *Juice* without any pressing at all makes the pleasantest and most delicate *Wine*: And if the *Grapes* were red, then is this first *Wine* very pale. The second sort they press a little, which makes a redder *Wine*, but neither so pleasant as the first, nor so harsh as the last, which is made by the utmost pressing of the very *Skins* of the *Grapes*, and is by much more

harsh, and of deeper Colour than either of the other two. Now I presume the *Cause* of this (at least in part) to be, that in the first sort of *Wine*, which hath little of the Substance, beside the very *Juice* of the *Grape*, there is little *Lee*, and consequently little *Fermentation*; and because it doth not work long, it loseth but little of the original Sweetness it had: The second sort being a little more pressed, hath somewhat more of the Substance of the *Grape* added to the *Juice*; and therefore having more of that part which causeth *Fermentation* put with it, *ferments* more strongly, and is therefore, when it hath done working, less pleasant than the first sort, which wrought less. And for the same reason the third sort being most of all pressed, hath most of the Substance of the *Grape* mingled with the *Liquor*, and worketh the longest: But at the end of the working when it *settles* and is *clear*, it is much more harsh than either of the two first sorts. The Thought of this made me first apprehend that the *Substance* of the *Apple* mingled with the *Juice* was the cause of *Fermentation*, which is really nothing else but an endeavour of the *Liquor* to free itself from those *beterogenous* Parts which are mingled with it: And where there is the greatest proportion of those *dissimular* parts mingled with the *Liquor*, the endeavour of *Nature* must be the stronger, and take up more time to perfect the *Separation*; which when finished leaves all the *Liquor* clear, and the gross parts settled to the bottom of the *Vessel*; which we call the *Lee*. Nor did this apprehension deceive me; for when I began (according to the *Method* which I shall hereafter set down) to separate a considerable part of the *Lee* from the *Cider* before it had *fermented*, I found it to retain a very great part of its original Sweetness, more than it would have done if the *Lee* had not been taken away before the *Fermentation*; and this not once, but constantly for *seven Years*.

Now the *Method* which I used was this: When the *Cider* was first strained, I put it into a great *Vat*, and there let it stand *twenty four hours* at least (sometimes more, if the *Apples* were more ripe than ordinary) and then at a *Tap* before prepared in the *Vessel*, three or four *Inches* from the bottom, I drew it into *Pails*, and from thence filled the *Hogshead* (or lesser *Vessel*) and left the greatest part of the *Lee* behind; and during this time that the *Cider* stood in the *Vat*, I kept it as close covered with *Hair-cloths* or *Sacks*, as I could; that so too much of the *Spirits* might not evaporate.

Now possibly I might be asked why I did not, since I kept it so close in the *Vat*, put it at first into the *Vessel*? To which I answer, that had I put it at first into the *Vessel*, it would possibly (especially if the *Weather* had chanced to prove wet and warm) have begun to *ferment* before that time had been expired; and then there would have been no Possibility to have separated any Part of the gross *Lee*, before the *Fermentation* had been wholly finished; which keeping it only covered with these Cloths was not in danger: For, though I kept it warm in some degree, yet some of the *Spirits* had still Liberty to *evaporate*; which had it been in the *Hogshead* with the *Bung* only open, they would not so freely have done; but in the first 24 hours it would have begun to *ferment*, and so my Design had been fully lost: For those *Spirits*, if they had been too strongly *reverberated* into the *Liquor*, would have caused a *Fermentation* before I could have taken away any Part of the gross *Lee*. For the great My-

stery of the whole thing lies in this, to let so many of the *Spirits* evaporate, that the *Liquor* shall not *ferment* before the *gross Lee* be taken away; and yet to keep *Spirits* enough to cause a *Fermentation* when you would have it. For if you put it up as soon as it is *strain'd*, and do not let some of the *Spirits* evaporate, and the *gross Lee* by its Weight only be separated without *Fermentation*, it will *ferment* too much, and lose its Sweetness; and if none be left, it will not *ferment* at all; and then the *Cider* will be dead, flat, and fowre.

Then after it is put into the *Vessel*, and the *Vessel* fill'd all but a little, (that is, about a *Gallon*, or thereabout) I let it stand (the *Bung-hole* being left only covered with a *Paper*, to keep out any Dust or Filth that might fall in) for 24 Hours more; in which time the *grossest* Part of the *Lee* being formerly left in the *Vat*, it will not *ferment*, but you may draw it off by a *Tap* some two or three Inches from the bottom of the *Vessel*, and in that second *Vessel* you may stop it up, and let it stand safely till it be fit to *bottle*; and possibly that will be within a Day or more: But of this time there is no certain measure to be given, there being so many things that will make it longer or less while before it be fit to *bottle*. As for *Example*: If the *Apples* were *over-ripe* when you stamped them, or ground them in the *Mill*, it will be the longer before it will be clear enough to *bottle*; or if the *Weather* prove to be warmer or moister than ordinary; or that your *Apples* were of such kinds, as with the same Force in the stamping or grinding they are broken into smaller *Particles* than other *Apples* that were of harder kinds.

Now, for knowing when it is fit to *bottle*, I know no certain Rule that can be given, but to *broach* the *Vessel* with a small Piercer, and in that *Hole* fit a *Peg*, and now and then (two or three times in a day) draw a *little*, and see what Fineness it is of; for when it is *bottled* it must not be perfectly fine; for if it be so, it will not *fret* in the *Bottle*, which gives it a fine Quickness, and will make it *mantle* and sparkle in the *Glass*, when you pour it out: And if it be too thick when it is *bottled*, then, when it hath stood some time in the *Bottles*, it will *ferment* so much, that it may possibly either drive out the *Corks*, or break the *Bottles*, or at least be of that sort (which some call *Pot-gun-drink*) that when you open the *Bottles* it will fly about the House, and be so *windy* and *cutting*, that it will be inconvenient to drink: For the right Temper of *Bottle Cider* is, that it *mantle* a little and *sparkle* when it is put out into the *Glasses*; but if it *froth* and *fly*, it was *bottled* too soon. Now the *Temper* of the *Cider* is so nice, that it is very hard when you *bottle* it, to foretel which of these two Conditions it will have: But it is very easy within a few Days after (that is to say, about a Week or so) to find its *Temper* as to this Point. For first, if it be *bottled* too soon, by this time it will begin to *ferment* in the *Bottles*; and in that case you must open the *Bottles*, and let them stand open two or three minutes, that that abundance of *Spirits* may have *vent*, which otherwise kept in would in a short time make it of that Sort I called before *Pot-gun-drink*; but being let out, that Danger will be avoided, and the *Cider* (without danger of breaking the *Bottles*) will *keep* and *ferment*, but not too much. Now this is so easy a *Remedy*, that I would advise all Men rather to err on the hand of bottling it too soon, than let it be too *fine* when they *bottle* it; for if so, it will not *fret* in the *Bottle* at all, and consequently want that *Briskness* which is desirable. Yet

Yet even in this Case there is a Remedy, but such a one as I am always very careful to avoid, that so I may have nothing (how little soever) in the *Cider* but the *Juice* of the *Apple*: But the Remedy is, in case you be put to a Necessity to use it, That you open every *Bottle*, after it hath been *bottled* about a Week or so, and put into each *Bottle* a little piece of white *Sugar*, about the Bigness of a *Nutmeg*; and this will set it into a little *Fermentation*, and give it that *Briskness* which otherwise it would have wanted. But the other way being full as easy, and then nothing to be added but the *Juice* of the *Apple* to be simply the Substance of your *Cider*, I chuse to prefer the Error of being in danger to *bottle* the *Cider* too soon, rather than too late: Nay, sometimes in the *bottling* of one and the same Hogshead (or other Vessel) of *Cider*, there may the first part of it be too *fine*, the second part *well*, and the last not *fine* enough: And this happens when it is broach'd first *above* the *Middle*, and then *below*; and then when it begins to run low, *tilted* or raised at the further End, and so all drawn out. But to avoid this Inconvenience, I commonly set the *Bottles* in the order they were filled, and so we need not open all to see the Condition of the *Cider*; but trying one at each end, and one in the middle, will serve the turn. And to prevent the Inconveniency, *broach* not at all above the *middle*, nor too *low*; and when you have drawn all that will run at the *Tap*, you may be secure it is so far of the same *Temper* with the first *Bottle*. And then *tilt* the Vessel; but draw no more in three or four hours at the least after, and set them by themselves, that so, if you please, you may three or four days after pour them off into other *Bottles*, and leave the *Gross* behind: And by this means, though you have a less Number of *Bottles* of *Cider* than you had, yet this will continue good, and neither be apt to *fly*, nor have a Sediment in the *Bottle*, which after the first Glass is filled will render all the rest of the *Bottle* thick and muddy.

By all this which I have said, I think it may be made out, that those Persons which I mentioned in the End of the last Paragraph, that sometimes had *Pippin-Cider* better than ordinary, and indeed than they could make again, were beholding to Chance for it; either that their *Apples* were not so full ripe at that, as at other times, and so not bruised into so small Parts; but the *Fermentation* was ended in the Vessel, and the *Lee* being then *goofs*, settled before the *Cider* had *fermented* so long as to be hard.

Or else, by some Accident, they had not put it so soon into the Vessel, but that in part it was settled before they put it up, and the grossest Part of the *Lee* left out of the Vessel.

Or else, the *Bung* being left open, some Part of the Spirits evaporated; and that made the *Fermentation* the weaker, and to last the less time.

Or else they put it up in such a Season, that the Weather continued *cold* and *frosty* till the *Fermentation* was quite over; and then it having wrought the less time, and with the less Violence, it remained more pleasant and rich than otherwise it would have done.

Now for the *Time* of making *Pippin-Cider*, I chuse to do it in the Beginning of *November*, after the *Apples* had been gather'd and laid about three Weeks or more in the *Loft*, that so the *Apples* might have had a little time to *sweat* in the House before the *Cider* was made, but not too much; for if they be not full ripe before they be gathered,

and

and not suffered to lie a while in the *Heap*, the *Cider* will not be so pleasant; and if they be *too ripe* when they are gathered, or lie too long in the *Heap*, it will be very difficult to separate the *Cider* from the *gross Lee* before the *Fermentation* begins: And in that case it will work so long, that when it *finer*, the *Cider* will be *hard*; for when the *Apples* are too *mellow*, they break into so small *Particles*, that it will be long before the *Lee* settles by its Weight only; and then the *Fermentation* may begin before it be *separated*, and so destroy your Intention of taking away the *gross Lee*. And if the *Apples* be not *mellow* enough, the *Cider* will not be so pleasant as it ought to be.

This being said for the Time of making the *Pippin-Cider*, may (*mutatis mutandis*) serve for all other Sorts of *Summer-Fruit*; as the *Kentish-Codlin*, *Marigolds*, *Gilly-flowers*, *Summer-Pearmains*, *Summer-Pippins*, *Holland-Pippins*, *Golden-Pippins*, and even *Winter-Pearmains*. For though they must not be made at the same Time of the *Year*, yet they must be made at the time when each respective Fruit is in the same Condition that I before directed that the *Winter-Pippin* should be. Nay, even in the making of that *Cider*, you are not tied to that time of the *Year* to make your *Cider*; but as the Condition of that particular *Year* hath been, you may make your *Cider* one, two, three, or four Weeks later; but it will be very seldom that you shall need to begin to make *Kentish-Pippin Cider* before the Beginning of *November*, even in the most *Southern* Parts of *England*.

The next thing I shall mention, is the ordering of your *Bottles* after they are filled; for in that consists no small Part of causing your *Cider* to be in a just Condition to *drink*: For if it does *ferment* too much in the *Bottle*, it will not be so convenient to *drink*, neither for the Taste nor Wholsomeness; and if it *ferment* not at all, it will want that little *Fret* which makes it *grateful* to most Palates. In order to this you must observe, First, Whether the *Cider* were *bottled* too early, or too late, or in the just time: If too early, and that it hath too much of the *flying Lee* in it, then you must keep it as cool as you can, that it may not work too much; and if so little that you doubt it will not work at all, or too little, you must, by keeping it from the Inconvenience of the external Air, endeavour to hasten and increase the *Fermentation*. And this I do, by setting it in Sand to cool, and by covering the *Bottles* very well with Straw, when I would hasten or increase the *Fermentation*.

And if I find the *Cider* to have been *bottled* in its just time, then I use *neither* in ordinary Weather; but content myself that it stands in a close and cool *Cellar*, either upon the Ground, or upon Shelves; saving in the time that I apprehend *Frost*, I cover it with Straw, which I take off as soon as the Weather changeth; and consequently about the time that the cold *East Winds* cease, which usually with us is in the Beginning of *April*, I set my *Bottles* into Sand up to the Necks. And by this means I have kept *Pippin-Cider* without Change till *September*, and might have kept it longer, if my Store had been greater: For by that time the Heats were totally over, and consequently the Cause of the Turn of *Cider*.

Having now declared what is (according to my Opinion) to be done to preserve *Cider*, if not in its original Sweetness, yet to let it lose as little as is possible; I shall now fall upon my *fifth Assertion*, which is, That it is probable that somewhat like the former Method may, in

some degree, mend *Hard-Apple Cider*, *Perry*, or a Drink made of the Mixtures of *Apples* and *Pears*; and not impossible that somewhat of the same Nature may do good to *French Wines* also.

First, for *French Wines*, I think what I have in the Beginning of this *Discourse* declared, as the Hint which first put me upon the Conject, that the over-fermenting of *Cider* was the Cause that it lost its original Sweetness, (*viz.* the making of *three* Sorts of *Wine* of one Sort of *Grapes*) is a Testimony that the first Sort of *Wine* hath but little of the *gross Lee*, and consequently *ferments* but little, nor lo- seth but little of the original Sweetness; which makes it evident that the same thing will hold in *Wine*, which doth in *Cider*: but the great Difficulty is, (if I be rightly inform'd) that they use to let the *Wine* begin to *ferment* in the *Vat* before they put it into the *Hogheads*, or other Vessels; and thus they do, that the *Husks* and other *Filth* (which in the way they use must necessarily be mingled with the *Wine*) may rise in a *Scum* at the top, and so be taken off: Now if they please, as soon as it is *pressed*, to pass the *Wine* through a *Strainer* without expecting any such *Purgation*, and then use the same *Method* formerly prescrib'd for *Cider*, I do not doubt but the *gross Part* of the *Lee* of *Wines* being thus taken away, there will yet be enough left to give it a *Fermentation* in the *Bottles*, or second *Vessel*, where it shall be left to stand, in case you have not *Bottles* enough to put up all the *Wine* from which you have thus taken away the *gross Lee*.

This *Wine* I know not whether it will last so long as the other used in the ordinary way, or not; but this I confidently believe, it will not be so harsh as the same would have been, if it had been used in the ordinary way; and the Pleasantness of *Taste*, which is not unwholesome, is the chief thing which I prefer both in *Wine* and *Cider*.

Now for the *Hard-Apple Cider*, that it will receive an Improvement by this way of ordering, hath been long my Opinion; but this Year an Accident happen'd, which made it evident that I was not mistaken in this Conjecture. For there was a *Gentleman* of *Herefordshire*, this last *Autumn*, that by accident had not provided *Cask* enough for the *Cider* he had made; and having six or seven *Hogheads* of *Cider* for which he had no *Cask*, he sent to *Worcester*, *Glocester*, and even to *Bristol*, to buy some, but all in vain; and when his *Servants* returned, the *Cider* that wanted *Cask* had been some five Days in the *Vat* uncovered; and the *Gentleman* being then dispatching a *Bark* for *London* with *Cider*, and having near hand a Convenience of getting *Glass-Bottles*, resolv'd to put some of it into *Bottles*; did so, and filled seven or eight Hampers with the clearest of this *Cider* in the *Vat*, which had then never wrought, nor been put into any other Vessel but the *Vat*; the *Bark* in which his *Cider* came had a tedious Passage; that is, it was at least seven Weeks before it came to *London*, and in that time most of his *Cider* in *Cask* had wrought so much, that it was much harder than it would have been, if it had, according to the ordinary way, lain still in the Country, in the Place where it was first made and put up, and consequently wrought but once.

But the other which was in *Bottles*, and escaped the breaking, that is, by Accident, had less of the *Lee* in it than other *Bottles* had, or was not so hard stopped, but either before there was Force enough

from

from the *Fermentation* to break the *Bottle*, or that the *Cork* gave way a little, and so the *Air* got out, or that the *Bottles* were not originally well cork'd, was excellent good, beyond any *Cider* that I had tasted out of *Herefordshire*. So that from this *Experience* I dare confidently say, that the using *Hard-Apple-Cider* after the former *Method* prescribed for *Pippin-Cider*, will make it retain a considerable Part of Sweetness more than it can do after the *Method* used hitherto in *Herefordshire*. Nor do I doubt but my *Method* will in a Degree have the same Effect in *Perry*, and the Drink (as yet without a Name that I do know of) which is made of the *Juice* of *Wardens*, *Pears*, and *Apples*, by several Persons, in several Proportions; for the *Reason* being the same, I have no Cause to doubt, but the *Effect* will follow, as well in those *Drinks* as in *Cider* and *Wines*.

I am now come to my last *Affertion*; That *Cider* thus used cannot be *unwholsome*, but may be done to what degree any Man's *Palate* desires.

First, It cannot be *unwholsome* upon the same Measure that *stummed Wine* is so; for that unwholsomeness is by leaving the Cause of *Fermentation* in the *Wine*, and not suffering it to produce its *Effect* before the *Wine* be drank, and it ferments in Man's Body; and not only so, but sets other *Humours* in the Body into *Fermentation*; and this prejudiceth their *Health* that drink such *Wines*.

Now though *Cider* used in my *Method* should not ferment at all, till it come into the *Bottle*, and then but a little; yet the Cause of *Fermentation* being in a great Degree taken away, the rest can do no considerable Harm to those which drink it, being in it self but little, and having wrought in the *Bottle* before Men drink it; nor indeed do I think, nor ever find, that it did any Inconvenience to my self, or any Person that drank it when it was thus used.

Secondly, Because the Difference of Men's *Palates* and *Constitutions* is very great; and that accordingly Men like or dislike Drink, that hath more or less of the *fret* in it; and that the Consequences in Point of Health, are very different, in the *Method* by me formerly prescribed: It is in your *Power* to give the *Cider* just as much *fret* as you please, and no more; and that by several ways: For either you may *bottle* it sooner or later, as you please: Or you may *bottle* it from two *Taps* in your *Vessel*, and that from the *higher* Tap will have less *Fret*, and the *lower* more: Or you may *bottle* your *Cider* all from one *Tap*, and open some of the *Bottles* about a Week after for a few *Minutes*, and then stop them up again; and that which was thus stopp'd will have the less *Fret*: Or if your *Cider* be *bottled* all from one *Tap*, if you will (even without opening the *Bottles*) you may make some Difference, though not so considerable as either of the former ways, by keeping part of the *Bottles* warmer, for the first two *Months*, than the rest; for that which is kept warmest will have the most *Fret*.



Sir Paul Neile's Second P A P E R.

My LORD,

TH E Paper which, by the Command of the *Royal Society*, I delivered in last Year, concerning the ordering of *Cider*, I have, by this Year's Experience, found defective in one Particular, of which I think fit by this to give you Notice; which is thus. Whereas in the former *Paper* I mention, that after the *Pippin-Cider* hath stood twenty-four Hours in the *Vat*, it might be drawn off into Pails, and so put into the Vessel; and that having stood a second Twenty-four Hours in that Vessel, it might be drawn into another Vessel, in which it might stand till it were fit to *Bottle*; for the Particulars of all which Proceeding I refer to the former Paper; and shall now only mention, that this last Year we are fain to draw it off into several Vessels, not only as is there directed, *twice*, but most of our *Cider* Five, and some *Six* times; and not only so, but we were, after all this, fain to *precipitate* the *Lee* by some of those ways mentioned by Dr. *Willis* in the 7th *Chap.* of his Treatise *De Fermentatione*. Now, though this be more of Trouble than the Method by me formerly mentioned; yet it doth not in the least destroy that *Hypothesis* which in the former Discourse I laid down, (*viz.*) that it was the leaving too much of the *Lee* with the *Cider*, which upon the change of Air, set it into a new *Fermentation*, and consequently made it lose the Sweetness; for this Change, by the Indisposition of the *Lee* to settle this Year more than others, hath not hindered the Goodness of the *Cider*; but that when it was at last master'd, and the *Cider* bottled in a fit Temper, it was never more pleasant and quick than this Year; but I find that this Year our *Cider* of Summer-Apples is already turned sowre, although it be now but the first of *January*; and the last Year it kept very well till the beginning of *March*; which makes me fear that our *Pippin-Cider* will not keep till this time Twelvemonth, as our *Pippin-Cider* of the last Year doth till this Day, and still retains its original Pleasantness, without the least turn towards Sowreness.

And I am very confident, the Difference of Time and Trouble, which this Year we found in getting the *Cider* to *fine*, and be in a Condition to Bottle, was only the Effect of a very bad and wet Summer, which made the Fruit not ripen kindly; and to make it yet worse, we had just at the Time when we made our *Cider* this Year, extream wet and windy Weather, which (added to the Unkindliness of the Fruit) was the whole Cause of this Alteration: And however, my *Hypothesis* as yet remains firm; for if by taking any Part of the *Lee* from the *Cider*, you can preserve it in its original Sweetness, it is not at all material whether it be always to be done by twice drawing off from the *Lee*, or that it must sometimes be done with more Trouble, and by often repeating the same Work, so that finally it be done, and by the same Means, that is, by taking away part of the *Lee*, which

otherwise would have caused too much *Fermentation*; and consequently have made the *Cider* lose part of its original Sweetness.

My Lord, I should not have presumed to have given you and the *Society* the Trouble of perusing this Paper, but that, if possible, I would have you see, that what I think an Error in any Opinion that I have held, I am willing to own; and yet I desire not that you should think my Mistake greater than in Reality it is.

Observations concerning the Making and Preserving of C I D E R.

By J O H N N E W B U R G H, Esq;

1. **I**F the *Apples* are made up immediately from the *Tree*, they are observ'd to yield *more*, but not so *good* Cider, as when *boarded* the space of a Month or six Weeks; and if they contract any unpleasing Taste (as sometimes 'tis confess'd they do) it may be imputed to the Room they lie in, which if it hath any thing in it, of either too sweet or unfavoury Smell, the *Apples* (as Things most susceptible of Impression) will be easily tainted thereby.

One of my Acquaintance, when a Child, hoarding *Apples* in a Box where *Rose-Cakes* and other Sweets were their Companions, found them of so unfavoury Taste, and of so rank a Relish, deriv'd from the too near Neighbourhood of the Perfumes, that even a childish Palate (which seldom mislikes any Thing that looks like an *Apple*) could not dispense with it.

2. It is therefore observ'd by prudent *Fruiterers*, to lay their *Apples* upon clean new made *Reed*, till they grind them for *Cider*, or otherwise make Use of them. And if, notwithstanding this Caution, they contract any Rottenness before they come to the *Cider-press*, the Damage will not be great, if Care be had before the *Apples* be ground, to pick out the finnewed and the black-rotten; the rest, though somewhat of Putrefaction hath pass'd upon them, will not render the *Cider* ill-condition'd, either in respect of Taste or Duration.

A Friend of mine having made Provision of *Apples* for *Cider*, whereof so great a Part were found rotten when the Time of grinding them came, that they did, as 'twere, wash the Room with their Juice, through which they were carried to the *Wring*, had *Cider* from them not only passable, but exceeding good; though not without previous Use of the pre-mention'd Caution. I am also assured by a Neighbour of mine, that a Brother of his who is a great *Cider-Merchant* in *Devonshire*, is, by frequent Experience, so well satisfied with the Harmlessness of *Rotten-Apples*, that he makes no Scruple of exchanging with any one that comes to his *Cider-Press*, a Bushel of *Sound-Apples* for the same Measure of the other. Herein, I suppose,

(if in other respects they are not prejudicial) he may be a Gainer by the near Compression of the tainted Fruit, which, as we speak in our Country Phrase, will go nearer together than the other. His Advantage may be the greater, if the Conceit which goes current with them be not a bottomless Fancy, That a convenient Quantity of *rotten Apples* mix'd with the *sound*, is greatly assistant to the Work of *Fermentation*, and notably helps to clarify the *Cider*.

3. It matters not much whether the *Cider* be forc'd to purge itself by working downwards in the Barrel, or upwards at the usual Vent, so there be Matter sufficient left on the top for a thick Skin or Film, which will sometimes be drawn over it when it works, after the usual manner, as when 'tis presently stopp'd up with space left for *Fermentation*, to be perform'd altogether within the Vessel.

The thick Skin, or *Leathern-Coat*, the *Cider* oftentimes contracts, as well after it hath purged itself after the usual manner, as otherwise, is held the surest Preservation of its *Spirits*, and the best Security against other Inconveniences incident to *this*, and other like *vinous Liquors*; of which the *Devonshire Cider-Merchants* are so sensible, that, beside the particular Care they take, that matter be not wanting for the Contexture of this upper Garment by stopping up the Vessel as soon as they have fill'd it, (with the allowance of a Gallon or two upon the score of *Fermentation*) they cast in Wheaten Bran, or Dust, to thicken the Coat, and render it more certainly Air-proof. And I think you will believe their Care in this kind not impertinent, if you can believe a Story which I have to tell of its marvellous Efficacy: A near Neighbour of mine assures me, that his Wife having this Year filled a Barrel with *Mead*, being strong, it wrought so boisterously in the Vessel, that the good Woman casting her Eye that way accidentally, found it leaking at every Chink, which ascribing to the Strength of the Liquor, she thought immediately by giving it vent, to save both the Liquor and the Vessel, but in vain; both the Stopples being pulled out, the Leakage still continued, and the Vessel not at all reliev'd, till casually at length putting in her Finger at the top, she brake the premention'd Film; which done, a good part of the *Mead* immediately flying out, left the residue in peace, and the Leakage ceased. It may seem incredible, that so thin a Skin should be more coercive to a mutinous Liquor, than a Barrel with Oaken-Ribs, and stubborn Hoops: But I am so well assur'd of the Veritableness of my Neighbour's Relation, that I dare not question it: The Reason of it let wiser Men determine.

4. If the *Apples* be abortive, having been (as it usually happens) shaken down before the time by a violent Wind, it is observ'd to be so indispensibly necessary, that they lye together in hoard, at least, till the usual time of their Maturity, that the *Cider* otherwise is seldom or never found worth the drinking.

A Neighbour told me, that making a Quantity of *Cider* with *Wind-falls*, which he let ripen in the Hoard, near a Month interceding between the time of their Decussion, and that which Nature intended for their Maturity; his *Cider* prov'd very good, when all his Neighbours, who made up their untimely Fruit as soon as it fell, had a crude, austere, indigested Liquor, not worth the Name of *Cider*.

5. No Liquor is observ'd to be more easily affected with the Savour of the Vessel it is put into, than *Cider*; therefore singular Care is taken

ken by discreet *Cider-Masters*, that the Vessel be not only *tasteless*, but also well prepared for the *Liquor* they intend to fill it with. If it be a new *Cask*, they prepare it by scalding it with Water, wherein a good Quantity of *Apple-pomice* hath been boil'd: If a tanited *Cask*, they have divers ways of cleansing it. Some boil an Ounce of Pepper in so much Water as will fill an *Hogshead*, which they let stand in a Vessel of that Capacity two or three Days, and then wash it with a convenient Quantity of fresh Water scalding hot, which, they say, is an undoubted Cure for the most dangerously infected Vessel. A Friend and Neighbour of mine herewith cured a Vessel of so extreme ill Savour, as it was thought it would little less than poison any Liquor that was put into it. Others have a more easy, and perhaps no less effectual Remedy. They take two or three Stones of Quick-Lime, which, in six or seven Gallons of Water, they set on work in the *Hogshead*, being close stopp'd, and tumbling it up and down till the Commotion cease, it doth the feat. Of Vessels that have been formerly used, next to that which hath been already acquainted with *Cider*, a *White-Wine*, or *Vinegar-Cask*, is esteem'd the best; *Claret* or *Sack* not so good. A Barrel newly tenanted by *Small-Beer* suits better with *Cider* than a *Strong-Beer* Vessel.

6. Half a Peck of unground Wheat put to *Cider* that is harsh and eager, will renew its *Fermentation*, and render it more mild and gentle. Sometimes it happens without the Use of any such means to change with the Season, and becomes of *sharp* and *sowre* unexpectedly *benign* and *pleasant*. Two or three Eggs whole put into an *Hogshead* of *Cider* that is become sharp and near of kin to *Vinegar*, sometimes rarely lenifies and gentlizes it. One Pound of *broad Figs* slit, is said to dulcify an *Hogshead* of such *ider*.

A Neighbour *Divine* of my Acquaintance assured me, that coming into a *Parsonage-house* in *Devonshire*, where he found eleven *Hogsheads* of *Cider*; being unwilling to sell what he never bought, he was three Years in spending that Store which the former *Incumbent* had left him; and it greatly amus'd him (as well it might, if he remember'd the old *Proverb*, *He mends as sowre Ale in Summer*) to find the same *Cider*, which in *Winter* was almost as sharp as *Vinegar*, in the *Summer* become a potable, and a good-natur'd Liquor.

7. A little Quantity of *Mustard* will clear an *Hogshead* of muddy *Cider*. The same Virtue is ascribed to two or three *rotten Apples* put into it. *Mustard* made with *Sack* preserves boil'd *Cider*, and spirits it egregiously.

8. *Cider* is found to *ferment* much better in mild and moist, than in cold and dry Weather. Every one's Experience hath taught him so much in the late frosty Season. If it had not wrought before, it was in vain to expect its working or clearing then, unless by some of the artificial Means premention'd, which also could not be made use of in a more inconvenient time.

9. The latter running of the *Cider* bottled immediately from the *Wring*, is by some esteem'd a pure, clear, small, well-relish'd Liquor; but so much undervalued by them who desire strong Drinks more than *wholsome*, that they will not suffer it to incorporate with the first running.

In *Devonshire*, where their *Wrings* are so hugely great, that an *Hogshead* or two runs out commonly before the *Apples* suffer any considerable

considerable Pressure, they value this before the other, much after the rate which we set upon *Live-Honey* (that which in like sort drops freely out of the Combs) above that which renders not itself without *Compression*. In *Jersey* they value it a Crown upon an *Hogshead* dearer than the other. (This I take from the Relation of one of my Neighbours, who sometimes lived in that *Island*, which, for *Apples* and *Cider*, is one of the most famous of all belonging to his Majesty's Dominions:) Yet even upon *this*, and their choicest *Ciders*, they commonly bestow a *Pail* of *Water* to every *Hogshead*; being so far (it seems) of *Pindar's* Mind, that they fear not any Prejudice to their most excellent *Liquors* by a dash of that most excellent *Element*: Inasmuch that it goes for a common Saying amongst them, That if any *Cider* can be found in their *Island*, which can be prov'd to have no Mixture of *Water*, 'tis clearly forfeited. It seems they are strongly conceited, that this Addition of the most useful *Element* doth greatly meliorate their *Cider*, both in respect of *Colour*, *Taste*, and *Clarity*.

10. The best *Cider-Fruit* with us in this Part of *Dorsetshire* (lying near *Bridport*) next to *Pippin* and *Pearmain*, is a *Bitter-sweet*, or (as we vulgarly call them) *Bitter-scale*; of which for the first, the *Cider* unboil'd keeps well for one Year; boiling it, you may keep it two Years, or longer.

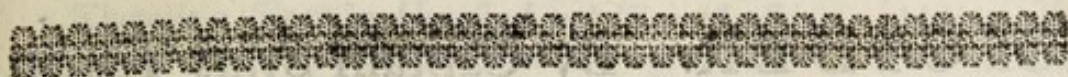
About seven Years since, I gave myself the Experience of *Bitter-scale-Cider* both crude and boil'd. I call'd them both to account at twelve Months end. I then found the *crude Cider* seemingly as good, if not better, than the *boil'd*. But, having stopp'd up the *boil'd*, I took it to task again about ten Months after. At which time I found it so excessively strong, that five Persons would hardly venture upon an ordinary Glass full of it. My Friends would hardly believe but that I had heightned it with some of my *Chymical Spirits*. The Truth is, I do not remember that I ever drunk any Liquor, on this side *Spirits*, so highly strong and spirituous; but wanting Pleasantness answerable to its Strength, I was not very fond of my *Experiment*: In which I boil'd away, as I remember, more than half.

11. A Neighbour having a good Provent of *pure Lings* (an *Apple* of choice account with us) making up a good part of them to *Cider*, expected rare Liquor; but it prov'd very mean and pitiful *Cider*, as generally we find that to be, which is made without Mixture. We have few *Apples* with us, beside the *Bitter-scale*, which yield good *Cider* alone; next to it is a *Deans-Apple*, and the *Peleasantine*, I think, may be mention'd in the third place; neither of which need the Addition of other *Apples* to set off the Relish, as do the rest of our choicest Fruits. *Pippins*, *Pearmains*, and *Judy-flowers* commixt, are said to make the best *Cider* in the World. In *Jersey* 'tis a general Observation, as I hear, That the more of Red any *Apple* hath in its Rind, the more proper it is for this Use. *Pale-fac'd Apples* they exclude as much as may be from their *Cider-Vat*. 'Tis with us an Observation, That no *sweet Apple* that hath a tough Rind is bad for *Cider*.

12. If you *boil* your *Cider*, special Care is to be had that you put it into the *Furnace* immediately from the *Wring*; otherwise if it be let stand in *Vats* or *Vessels* two or three Days after the Pressure, the best and most *spirituous* Part will ascend and vapour away when the Fire is put under it; and the longer the *boiling* continues, the less of Goodness or Virtue will be left remaining in the *Cider*.

My

My *Distillations* sufficiently instruct me, That the same *Liquor* which (after *fermentation* hath pass'd upon it) yields a plentiful quantity of *Spirit*, drawn off unfermented, yields nothing at all of *Spirit*. And upon the same account it is undoubtedly certain, That *Cider* boil'd immediately from the *Wring*, hath its *Spirits* comprest, and drawn into a narrower compass, which are for the most part wash'd and evaporated by late unseasonable boiling.



Concerning C I D E R. By Dr. Smith.

THE best time to *grind* the *Apples* is immediately from the *Tree*, so soon as they are thoroughly ripe; for so they will yield the greater quantity of *Liquor*, the *Cider* will drink the better, and last longer, than if the *Apples* were hoarded: For *Cider* made of hoarded *Apples* will always retain an unpleasing Taste of the *Apples*, especially if they contract any rottenness.

The *Cider* that is ground in a *Stone-case* is generally accused to taste unpleasantly of the *Rinds*, *Stems*, and *Kernels* of the *Apples*; which it will not if ground in a *Case* of *Wood*, which doth not bruise them so much.

So soon as the *Cider* is made, put it into the *Vessel* (leaving it about the space of one *Gallon* empty) and presently stop it up very close: This way is observed to keep it longer, and to preserve its *Spirits* better than the usual way of filling the *Vessel* quite full, and keeping it open till it hath done *fermenting*.

Cider put into a new *Vessel*, will often taste of the *Wood*, if it be pierced early; but the same stopped up again, and reserved till the latter end of the *Year*, will free itself of that Taste.

If the *Cider* be sharp and thick, it will recover itself again: But if sharp and clear, it will not.

About *March*, (or when the *Cider* begins to sparkle in the *Glass*) before it be too fine, is the best time to bottle it.

Cider will be much longer in clearing in a mild and moist, than in a cold and dry *Winter*.

To every *Hogshead* of *Cider*, designed for two *Years* keeping, it is requisite to add (about *March* the first *Year*) a *Quart* of *Wheat* unground.

The best *Fruit* (with us in *Gloucestershire*) for the first *Year's Cider*, are the *Red-strake*; the white and red *Must-Apple*, the sweet and sowre *Pippin*, and the *Harvy-Apple*.

Pearmains alone make but a small *Liquor*, and hardly clearing of itself; but mixed either with sweet or sowre *Pippins*, it becomes very brisk and clear.

Must-Apple-Cider (though the first made) is always the last ripe; by reason that most of the *Pulp* of the *Apple* passeth the *Strainer* in pressing, and makes it exceeding thick.

The *Cider* of the *Bromsbury-crab*, and *Fox-whelp*, is not fit for drinking, till the *second Year*, but then very good.

The *Cider* of the *Bromsbury-crab* yields a far greater proportion of *Spirits*, in the distillation, than any of the others.

Crabs and *Pears* mixed, make a very pleasing Liquor, and much sooner ripe than *Pears* alone.



Of C I D E R. By Captain Syllas Taylor.

Herefordshire affords several sorts of *Cider-Apples*, as the two sorts of *Red-strakes*, the *Gennet-moyle*, the *Summer-violet*, or *Fillet*, and the *Winter-fillet*; with many other sorts which are used only to make *Cider*. Of which some use each sort *simply*; and others *mix* many sorts together. This *Country* is very well stored with other sorts of *Apples*; as *Pippins*, *Pearmains*, &c. of which there is much *Cider* made; but not to be compared to the *Cider* drawn from the *Cider-Apples*; among which the *Red-strakes* bear the Bell; a *Fruit* in itself scarce *edible*; yet the *Juice* being pressed out, is immediately pleasant in Taste, without any thing of that *restringency* which it had when incorporated with the *Meat*, or *flesh* of the *Apple*. It is many times *three Months* before it comes to its *clearness*, and *six Months* before it comes to a ripeness fit for *drinking*; yet I have tasted of it *three Years old*, very pleasant, though dangerously strong. The *colour* of it, when *fine*, is of a sparkling *yellow*, like *Canary*, of a good full *Body*, and *oily*: The *Taste*, like the *Flavour* or *Perfume* of excellent *Peaches*, very grateful to the *Palate* and *Stomach*.

Gennet-moyles make a *Cider* of a smaller *Body* than the former, yet very pleasant, and will last a *year*. It is a good eating pleasant sharp *Fruit*, when ripe, and the best *Tart-Apple* (as the *Red-strake* also) before its ripeness. The *Tree* grows with certain knotty *extuberancies* upon the *branches* and *boughs*; below which *knot* we cut off boughs the thickness of a *Man's wrist*, and place the knot in the ground, which makes the *root*; and this is done to raise this *fruit*; but very rarely by *grafting*.

Of *Filletts* of both sorts (*viz.* *Summer* and *Winter*) I have made *Cider* of that proportionate taste and strength, that I have deceived several experienced *Palates*, with whom (simply) it hath passed for *White-Wine*; and *dashing* it with *Red-Wine*, it hath passed for *Claret*; and mingled with the *Syrup* of *Rasp'yes* it makes an excellent *Womans wine*: The fruit is not so good as the *Gennet-moyle* to eat: The *Winter-fillet* makes a *lasting Cider*, and the *Summer-fillet* an *early Cider*, but both very strong; and the *Apples* mixt together make a good *Cider*.

These *Apples* yield a *Liquor* more grateful to my *Palate* (and so esteem'd of in *Herefordshire* by the greater *Ciderists*) than any made of *Pippins* and *Pearmains*; of which Sorts we have very good in that *Country*; and those also both *Summer* and *Winter* of both Sorts, and of which I have drank the *Cider*; but prefer the other.

Grounds separated only with a *Hedge* and *Ditch*, by reason of the difference of *Soils*, have given a great Alteration to the *Cider*, notwithstanding

withstanding the Trees have been grafted with equal Care, the same *Grafts*, and lastly, the same Care taken in the making of the *Cider*. This as to the *Red-strake*; I have not observ'd the same *Niceness* in any other *Fruit*; for *Gennet-moyles* and *Fillets* thrive very well over all *Herefordshire*. The *Red-strake* delights most in a fat Soil: *Ham-lacy* is a rich intermix'd Soil of *Red-fat-clay* and *Sand*; and *Kings-capel* a low hot sandy Ground, both well defended from noxious *Winds*, and both very famous for the *Red-strake-Cider*.

There is a *Pear* in *Hereford* and *Worcestershires*, which is called *Bareland-Pear*, which makes a very good *Cider*. I call it *Cider* (and not *Perry*) because it hath all the *Properties* of *Cider*. I have drank of it from half a Year old to two Years old. It keeps it self without *Roping* (to which *Perry* is generally inclin'd;) and from its Taste, Dr. *Beal*, in his little *Treatise*, called the *Herefordshire-Orchard*, calls it deservedly a *Masculine Drink*; because in Taste not like the sweet *luscious Feminine Juice* of *Pears*. This *Tree* thrives very well in barren Ground, and is a *Fruit* (with the *Red-strake*) of which *Swine* will not eat; therefore fittest to be planted in *Hedge-rows*.

Red-strake and other *Cider-Apples*, when ripe (which you may know partly by the blackness of the *Kernels*, and partly by the *Colour* and *Smell* of the *Fruit*) ought to be gathered in *Baskets* or *Bags*, preserved from bruising, and laid up in *Heaps* in the *Orchard* to *Sweat*; covered every Night from the *Dew*: Or else in a *Barn-floor* (or the like) with some *Wheat* or *Rye-straw* under them, being kept so long, till you find, by their *Mellowing*, they are fit for the *Mill*.

They that grind, or bruise their *Apples* presently upon their *Gathering*, receive so much *Liquor* from them, that between *twenty* or *twenty two Bushels* will make a *Hogshead* of *Cider*: But this *Cider* will neither keep so well, nor *drink* with such a *Fragrancy* as is desired and endeavoured.

They that keep them a *Month* or *six Weeks* hoarded, allow about *thirty Bushels* to the making of a *Hogshead*; but this hath also an *Inconvenience*; in that the *Cider* becomes not *fine*, or fit for drinking, so conveniently as a *Mean* betwixt these two will afford.

Keep them then about a *Fortnight* in a *Hoard*, and order them to be of such a *Cast* by this *Mellowing*, that about *Twenty five Bushels* may make a *Hogshead*, after which *Mellowing* proceed thus.

1. *Pick* and *clear* your *Apples* from their *Stalks*, *Leaves*, *Moaziness*, or any Thing that tends towards *Rottenness* or *Decay*.

2. Lay them before the *Stone* in the *Cider-Mill*, or else beat them small with *Beaters* (such as *Paviours* use to fix their pitching) in deep *Troughs* of *Wood* or *Stone* till they are fit for the *Press*.

3. Having laid clean *Wheat-Straw* in the bottom of your *Press*, lay a *Heap* of bruised *Apples* upon it, and so with small *Handfuls*, or *wisps* of *Straw*, which by twisting takes along with it the ends of the *Straw* laid first in the bottom, proceed with the bruised *Apples*, and follow the *Heaps* with your twisted *Straw*, till it comes to the Height of two Foot, or two Foot and a half; and so with some *Straw* drawn in by *Twisting*, and turned over the top of it (so that the bruised *Apples* are set as it were into a deep *Cheese-vat* of *Straw*, from which the Country People call it their *Cider-cheese*) let the

Board fall upon it *even* and *flat*, and so engage the Force of your *Skrew* or *Press*, so long as any *Liquor* will run from it. Instead of this *Cheese* others use *Bags* of *Hair-cloth*.

4. Take this *Liquor* thus forced by the *Press*, and strain it thorough a *Strainer* of *Hair* into a *Vat*, from whence straight (or that Day) in *Pails*, carry it to the *Cellar*, tuning it up presently in such *Vessels* as you intend to preserve it in; for I cannot approve of a long *evaporation* of *Spirits*, and then a Disturbance after it settles.

5. Let your *Vessels* be very tight and clean wherein you put your



Cider to settle: The best Form is the *Stund* or *Stand*, which is set upon the lesser End, from the top tapering downwards; as suppose the head to be *thirty* Inches *Diameter*, let then the bottom be but *eighteen* or *twenty* Inches in *Diameter*; let the *Tun-hole* or *Bung-hole* be on the one Side *outwards*, towards the *Top*. The reason of the Goodness of this form of *Vessel* is, because *Cider* (as all strong *Liquors*) after *Fermentation* and Working, contracts a *Cream* or *Skin* on the top of them, which in this Form of *Vessel* is as it sinks *contracted*, and fortified by that Con-

traction, and will draw fresh to the last Drop; whereas in our ordinary *Vessels*, when drawn out about the half or middle, this *Skin* dilates and breaks, and without a quick Draught decays and dies.

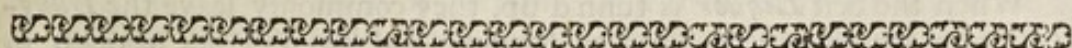
6. Reserve a *Pottle* or *Gallon* of the *Liquor* to fill up the *Vessel* to the Brim of the *Bung-hole*, as oft as the *Fermentation* and working lessens the *Liquor*, till it hath done its Work.

7. When it hath completed its Work, and that the *Vessel* is filled up to the *Bung-hole*, stop it up close with well-mix'd *Clay*, and well tempered, with a Handful of *Bay-salt* laid upon the top of the *Clay*, to keep it moist, and renewed as oft as Need shall require; for if the *Clay* grows dry, it gives Vent to the *Spirits* of the *Liquor*, by which it suffers Decay.

I am against either the *boyling* of *Cider*, or the hanging of a Bag of *Spices* in it, or the Use of *Ginger* in drinking it; by which Things People labour to correct that *Windiness* which they fancy to be in it: I think *Cider* not *Windy*; those that use to drink it are most free from *Windiness*; perhaps the *Virtue* of it is such, as that once ripened and mellowed, the drinking of it in such Strength, combates with that *Wind* which lies insensibly latent in the Body. The *Cider* made and sold here in *London* in *Bottles*, may have that *Windiness* with it as *Bottle-beer* hath, because they were never suffered to ferment. But those that have remarked the Strength and Vigor of the *Fermentation*, what weighty Things it will cast up from the bottom to the top, and with how many Bubbles and Bladders of *Wind* it doth work, will believe that it clears it self by that Operation of all such injurious Qualities.

To preserve *Cider* in *Bottles*, I recommend unto you my own Experience, which is, not to bottle it up before *Fermentation*; for that incorporates the windy Quality, which otherwise would be ejected by that Operation. This violent Suppression or Fermentation makes it windy in drinking, (though, I confess, brisk to the Taste, and sprightly cutting to the Palate:) But after *Fermentation*, the *Cider* resting

ing two, three, or four Months, draw it, and *bottle* it up, and so lay it in a *Repository* of cool *springing Water* two or three foot, or more, deep; this keeps the *Spirits*, and the best of the *Spirits* of it together: This makes it drink quick and lively; it comes into the *Glass* not *pale* or troubled, but bright *yellow*, with a speedy vanishing *Nit-tiness*, as the *Vintners* call it) which *evaporates* with a *sparkling* and *whizzing* Noise; and than this I never tasted either *Wine* or *Cider* that pleased better: Insomuch that a *Nobleman* tasting of a *Bottle* out of the *Water* (himself a great *Ciderist*) protested the Excellency of it, and made with much greater Charges, at his own Dwelling, a *Water Repository* for his *Cider* with good Success.



An Account of *Perry* and *Cider*, out of *Glocestershire*.

Imparted by *Daniel Collwall, Esq;*

ABOUT *Taynton*, five Miles beyond *Gloucester*, is a mix'd Sort of *Land*, partly *Clay*, a *Marle*, and *Crash*, as they call it there; on all which Sorts of *Land* there is much *Fruit* growing, both for the *Table* and for *Cider*: But it is *Pears* it most abounds in, of which the best Sort is that they name the *Squash-Pear*, which makes the best *Perry* in those Parts. These *Trees* grow to be very large and exceeding fruitful, bearing a fair round *Pear*, red on the one side, and yellow on the other, when fully ripe. It oftentimes falls from the *Tree*, which commonly breaks it; but it is of a Nature so harsh, that the *Hogs* will hardly eat them.

They usually plant the *Stocks* first, and when of competent Bigness (and tall enough to prevent Cattle) *graft* upon them. 'Tis observ'd, that where *Land* is *plow'd* and *dress'd* for Corn, the *Trees* thrive much better than in the *Pasture-grounds*, so as divers *Orchards* are yearly *plow'd* and sown with Corn, which, for the most part, they suffer their *Swine* to eat upon the Ground without cutting; and such *Plantations* seldom or never fail of plentiful Crops, especially in the *Rye-land* or light Grounds.

About *Michaelmas* is made the best *Cider*, and that of such *Fruit* as drops from the *Trees*, being perfectly mature; and if any are gathered sooner, they let them lie in the House eight or nine Days for the better mellowing.

The best *Mills* to grind in are those of *Stone*, which resembles a *Mill-stone* set *edge-ways*, moved round the *Trough* by an *Horse* till the *Fruit* be bruised small enough for the *Press*. This done, then put it up into a *Crib* made with strong *Studs*, and *Oaken* or *Hazel* *Twigs* about three foot high, and two and a half wide; which is placed on a *Stone* or *Wooden Cheese-fat*, a foot broader than the *Crib*, fitted to a round *Trough* for the *Liquor* to pass into the *Cistern*, which is a large Vessel. When the *Crib* is filled with the foresaid ground *Fruit*, they put a *Stone* upon it; but first they fit a Circle of fresh *Straw* about the *Crib* to preserve the *Must* (which is the bruised *Fruit*) from straining through the *Crib* when they apply the *Skrews*,

which being *two* in number, and of a good Size, turn in a great *Beam*, and so are wrung down upon the *Crib*, within which they place two wide and thick *Cheese-fats*, and several *Blocks* upon the *Fruit*, to crush it down with the more Force, by which means it is wrung so *dry*, as nothing can be had more out of it. A *Crib* will contain at once as much ground *Fruit*, as will make above an *Hogshead* of *Cider*; and there may be dispatched six or seven such *Vessels* in one Day.

When the *Pressing* is finished, they take out the *Fruit*, and put it into a great *Fat*, pouring several *Pails* of *Water* to it; which being well *impregn'd*, is ground again slightly in the *Mill*, to make an ordinary *Cider* for the *Servants*: This they usually drink all the *Year* about.

When the best *Liquor* is tun'd up, they commonly leave the *Bung-hole* open for nine or ten Days to *ferment* and *purify*; for though in most Places they add *straining* to all this, yet some of the *Husks* and *Ordure* will remain in it. The *Vessel*, after a Day or two standing, is fill'd up; and still as the *Cider* wastes in working, they supply it again, till no more *Filth* rises; and then *stop* it up very accurately close, leaving only a small *breathing* Hole to give it Air for a *Month* after, and to prevent the *bursting* of the *Vessel*.

Note, That they sometimes put two thirds *Pears*, and one third of *Apples*.

The usual Names of Gloucestershire Cider-Fruit.

Red-strakes, growing chiefly in the *Rye-lands*; sweet *White-Must*, *Red-Must*, the *Winter-Must*, the *Streak-Must*, the *Gennet-Moyl*, the *Woodcock-Apple*, the *Bromsgrove-Crab*, the *Great-White-Crab*, the *Heming*, and divers other Sorts, but these are the principal.

The Pears for Perry are,

The *Red Squash-Pear* esteem'd the best, the *John-Pear*, the *Har-pary Green-Pear*, the *Drake-Pear*, the *Green Squash-Pear*, the *Mary-Pear*, the *Lullam-Pear*: These are the chief.

For making of Cider, out of Mr. Cook.

LET your *Fruit* hang till thorough *ripe*, to be known by the Brownness of the *Kernel*, or that they rattle in the *Apple*, or if they fall much in still Weather, or that they handle like dry Wood, sounding if tossed up: If it be green, your *Cider* will be *sowre*. Gather dry, with these Directions: Reject the much *bruised*, they will rot, mar the *Taste*, and give an high Colour.

Of good yielding *Fruit* not too long kept, 18 or 20 *Busbels* will make an *Hogshead*: If you gather not by Hand, which is tedious, lay a Truss of Straw beneath the *Tree*, and over that a *Blanket*, discreetly shaking it down, not too many at a time, but often carrying them where they are to sweat, which should be on dry *boarded* Floors; by no means on Earth, unless Store of sweet *Straw* lie under: By about 10 or 14 Days they will have done sweating. Then *grind* or *beat* them, keeping the *Fruit* several, in case you have enough to fill a *Vessel*

fel of one kind; if not, put such together as are near ripe together, for its more uniformly *fermenting*. Winter Fruit may lie three Weeks or a Month e'er you grind: the greener they are when gathered, let them lie the longer.

Being *ground*, let them continue 24 Hours before *pressing*; 'twill give it the more Amber-bright Colour, hinder its over-*fermenting*; and if the Fruit were very mellow, add to each 20 Bushels of Stampings, 6 Gallons of pure Water poured on them so soon as beaten. The softer and *mellower*, the more Water to restrain its over-working, and tho' the *Cider* be weaker, it will prove the pleasanter: For over-ripe and *mellow* Fruit, let go so much of the loose and fleshy Substance thro' the Percolation, that with Difficulty will you separate the *Lee* from the *Liquor* before it *ferment*, and then away go the brisk and pleasant *Spirits*, and leave a vapid or sowre Drink, contracted from the remanent gross *Lees*. The *Cider* made of such Fruit had need be settling 24 Hours in a large *Vat* or *Vessel*, that the *Fæces* may settle before you run it up; and then draw it off, leaving as much of this thick *Lee* behind as you can, (which yet you may put among your Pressings for a *Water-Cider*. If you conceive your *Cider* still so turbid that it will work much, then draw it into another *Vessel* by a *Tap* two or three Inches from the bottom, and so let it settle so long, as you think it is near ready to work in it: for if it work in your *Tubs*, little of the gross *Lees* will you be able to get from it. *Note*, That you must keep it cover'd all the time it is in your *Tubs*, and the finer you put it up in your *Vessel*, the less it will *ferment*, and the better your Drink: But in case you chill the *Cider* (as oft it happens in cold Winter Weather) so as it do not work when put into Cask, cast into it a Pint of the Juice of *Alehoof*, with half the Quantity of *Icing-glass* to refine it, which tho' it do not suddenly, at the Spring it will.

These Directions observ'd, barrel it up; and when it ceases working, bung it close, and reserve it so till fit to *bottle*, that is, when fine, since till then it will endanger their bursting; and if you would have it very brisk and cutting (which most affect) put a little Lump of *Loaf-sugar* into every Bottle.

The *Golden Pippin*, *Kerton Pippin*, *Russet Harvy*, *Kentish Codlin*, make excellent *Cider*; but above all, *Red-strakes* and *Gennet-moyles*: Indeed any *Apple* which is not a *Crab*; there being divers sorts of *Wildings* and *hard-flesh'd Apples* proper for this *Liquor*: But that *Pear* or *Apple* which is of a soft and loose *Flesh* is not fit to make a *vinous* Drink, because of their breaking into so many *Particles*, which are so difficult to separate: That Fruit therefore which being press'd flats down and separates least, and that being kept beyond its time of *Maturity*, grows rather tough than mellow, is far the best.

For *Water-Cider*, take your Stampings when you press them from your first *Liquor*, and put them into *Tubs*; and they being full, put to them half as much Water as you had of *Cider*, the riper your Fruit, the more Water; cover your *Vessels*, and so let them stand four or five Nights and Days; if the Season be cold, a full Week; then press the Stampings; and having as much as will fill a *Vessel*, set it on the Fire, and *scum* it well; and that abated somewhat, pour it into *Coolers*, and being cold, tun it up, and bung it well after it has left working. In a Month after you may drink. Some add a little *Ginger*, *Cloves*, *Juniper-berries*, as they fancy.

Concerning C I D E R.

In this sort order *Perries*, only let not the *Fruit* be too ripe: Those of hard Flesh, stonyest Core, and harsh Taste, are best: He recommends a *Pear* near *Watford*; and Capt. *Wingats* near *Welling*, also *Ruffin Pear*.

Most sort of *Baking-Pears* make good *Perry*.

Be curious of sweet well season'd *Casks*, such as have had *Sack*, *White*, *Claret*, or good *Ale*, in them before.

Another.

TAKE your *Apples* when they relish best, not too *green*, nor too *mellow*; they who have large *Plantations* may shake their *Trees* a little, and gather those which fall off easily, and *press* them the same Day: Fill not your *Cask* above *three* quarters full, and let it stand till it grow clear, which is commonly within eight or ten Days, and then draw off only the clear, and fill up a clean *Cask* almost to the top; giving it *vent* thrice a Day, lest it burst the *Vessel*; and so continue to do for a *Week*.

Then, for every ten *Gallons* of *Cider*, take one *Pound* of *Raisins* of the *Sun*, and put them into some *Brandy* for a Day or two, and then take only the *Raisins* and sling them into the *Cider*, letting it stand three or four Days more. Lastly, stop the *Cask* very close, but *bottle* it not till *March*, except it be of *Codlins*, which will not keep so long.

Another.

Cider of Harvy-Apples, or Pippins boyl'd, sent me out of Wales by Sir Tho. Hanmer of Hanmer.

YOU must take only one sort of those *Apples* without mixture of kinds, and when they are *stamp'd*, let them be *strained*, *boiling* the *Juice*, and continually as the *Scum* rises, clear it. In this Work you must diligently watch and observe the *Colour* as it boils, and not suffer it to exceed the looks of good *Small-Beer*, for if you expect till it be too high charg'd, it will become nothing worth: The *Cider* well clear'd of the *Scum*, so soon as it is *cold* tun it into a sweet *Vessel*, leaving only a *vent*, the rest close *stopp'd*, and when it sings, and begins to bubble up at the *vent*, draw it out into *Bottles* carefully clos'd: This will become excellent Drink. *Note*, That you are to stamp and make your *Cider* of *Harvy Apples* as soon as they are gather'd; but the *Pippins* may lie at the least six *Weeks* without detriment.

Another Account of C I D E R, from a Person of great Experience.

Cider-Apples for Strength, and a long lasting *Drink*, is best made of the *Fox-Whelp* of the *Forest* of *Dean*, but which comes not to be drunk till *two* or *three Years* old.

2. *Bromsbury-Crab* the second Year; in the Coast and Tract 'twixt *Hereford* and *Ledbury*.

3. *Under-leaf*, best at two Years, a very plentiful Bearer, hath a *Rhenish-Wine* flavour; the very best of all *Ciders* of this kind, boarded a little within Doors: The longer you would keep, the longer you must board your Fruit.

4. The *Red-strake* of *King's-Capel*, and those Parts, is in great variety: Some make *Cider* that is not of continuance, yet pleasant and good; others, that lasts long, inclining towards the *Bromsbury-Crab* rather than a *Red-strake*.

5. A long pale *Apple*, called the *Coleing*, about *Ludlow*, an extraordinary Bearer.

6. The *Arier-Apple*, a constant Bearer, making a strong and lasting *Cider*; some call them *Richards*, some *Grange-Apples*; and indeed they make so excellent a *Drink*, that they are worthy to be recover'd into use.

7. The *Olive*, well known about *Ludlow*, may, I conceive, be accounted of the *Winter-Cider-Apples*, of which 'tis the constant report, that an *Hogshead* of the Fruit will yield an *Hogshead* of *Cider*.

The Summer-Ciders are,

1. The *Gennet-Moyl* of one year: The best *Baking-Apple* that grows, and keeps long baked; but not so unbaked without growing mealy; it dries well in the *Oven*, and with little trouble. The *Gennet-Moyl-Cider*, when the Fruit is well boarded and mellow, will body, and keep better.

2. The Summer *Red-strake*, of a wonderful fragrant and Aromatick quality.

3. Sir *Ed. Harley's little Apple*, esteemed to make one of the richest *Ciders* in the World. Also his,

4. *Great Summer-Apple*, resembling the *Red-strake*, juicy and Aromatick.

5. The *White-Must*, *streaked-Must*, &c. great Bearers, and their *Cider* early ripe.

6. *Pearmains*, have made excellent *Cider*, as good, if not superior to any other in some years; and though it be true, that every sort of Fruit makes better *Drink* some years than others; yet, for the most part, the goodness and perfection of *Cider* results from the lucky, or intelligent *Gathering*, or *Hoarding* of the Fruit, or from both; and this Knowledge must be from Experience.

7. Generally, the *Cider* longest in *fining*, is strongest and best lasting, especially if the Fruit have been well boarded for some time.

8. *Cider* made of *Green* and immature Fruit, will not *fine* kindly, and when it does, it abides not long good, but suddenly becomes *eager*.

9. *Cider* kept in very cool Cellars, if made of ripe Fruit renders it long in *fining*, and sometimes *Cider* by exposing abroad in the Sun, and kept warm, hath sooner matur'd, and continu'd long good: But the best *Drink* is that which *fines* of it self, preserved in an indifferent temper.

10. All *Cider* suffers *Fermentation* when Trees are *blossoming*, though it be never so old; and *Cider* of very ripe Fruit, if bottl'd in that season, will acquire a *fragrancy* of the *blossom*.

11. New *Cider*, and all *diluted* and water'd *Ciders*, are great *Enemies* to the *Teeth*, and cause violent *Pains* in them, and *Rheums* in the *Head*.

12. One *Rotten-Apple*, of the same kind with the *Sound*, corrupts a whole *Vessel*, and makes it *Musty*.

But since the Second, and former *Impressions* of these *Discourses*, there is publish'd (by an ingenious and obliging Hand) the *Vinatum Britannicum*, treating not only of *Cider*, but such other *Wines* and *Drinks*, as are extracted out of several *Fruits*: It is there he recommends,

The not gathering *Fruit* for *Cider*, till full *Maturity* and *Fragrancy*; and that it is better to make several *Pressings*, than all at once, proportioning the *Vessels* accordingly.

That the *Fruit* be carefully gather'd, not *windfallen* nor *bruised*: Let such be left to dry a competent *Time* before *Grinding*, suffering your *Cider* thoroughly to *ferment* before you *Cask* it up.

Let *Cider* *Fruit* remain some *Time* in the *Heap* upon dry *Straw*, and under *Shelter*, in a sweet *Place*, to sweat out the *Phlegm* and superfluous *Moisture*, from ten to twenty *Days*, if the *Fruit* be *harsh*, but not too long.

Then extract the *Liquor*, either by *hand-pounding* with great *Pestles* (which is the ruder and worst way) or by the *Horse-Mill*, with the *Mill-stone* on *Edge* in a *Trough* of *Stone*, expeditious, but chargeable: Or by *grating*, *beating* with a *Maule*, which are trifling: Or, best of all, by an *Engine* describ'd by the *Author*, p. 82. &c. to which we refer the *Curious*.

Remember, when you bring your *Fruit* to the *Mill*, you reject the *rotten*, *unripe* *Stalks* and *Leaves*.

That you grind not so small, as that too much of the *Pulp* pass with the *Liquor*.

That after *Grinding* it stand 24 or 48 *Hours*, both to acquire *Colour*, and that the unbruised *Parts* of the *Fruit* may the easier separate from the *Juice* in the *Press*.

That some of the *Cider* be suffer'd to distill either through a false bottom to the *Vat*, or by a *Tap* into a fit *Recipient*: This being the *Virgin*, and best *Liquor*. Lastly,

That you squeeze the bruised *Pulp* in the *Skrew-press*, within a *Circle* of clean, sweet *Wheat-straw*; winding in the *Heap* with the *Wisp* to a *Foot* in *Height*, before you place the *Board*, and apply the *Straw*. But instead of the *Straw-wisp*, a *Basket* may be fitted, which with a little *Straw* within, will keep the *Fruit* in better *Order*; some make Use of a *Hair-cloth-bag* placed in a *Frame*.

That you *press* it as dry as may be, unless you intend to make a *diluter* Sort, by mixing therewith the *Murc*.

That you pour the *Liquor* coming from the *Press*, through a *Strainer* into a large *Vat*, to detain the grosser pieces of the *Fruit* from intermixing with the clear.

That you do not tun it up immediately, as some pretend, to prevent evaporation of *Spirits*; but, to cast a *Cloth* or *Blanket* over the *Vat*, to the end that the wild and untameable *Spirits* (which would even burst the *Barrel*) may be a little check'd and subdu'd.

That you carefully separate the *Flying Lee*, namely, the dispers'd and grosser *Particles* of the *Fruit*, which comes with the *Liquor*;

This

This facilitated by Warmth, or *Ising-glass*, three or four ounces to an *Hogshead*, beaten thin, *macerated*, and cut in small pieces in *White-wine*; then set on a gentle Fire, till 'tis well dissolv'd, boil it in a *Gallon of Cider*, and cast it into the *Mafs*, suppose it of 20 *Gallons*, and so to every like Proportion, stirring it well, and covering it close for ten or twelve Hours, within which Time it will usually have precipitated the *Glass*. Thus when it ceases working, draw it from the Scum with a little Spigot below, or better by a *Syphon* above, and so barrel it up close.

Note, That as you augment the Proportion of *Ising-glass* or *Water-glass*, so it will become more *limpid* and clear; but there is a *Mediocrity* to be observ'd, lest you render it too lean and thin.

That this way, as 'tis useful to the *defecating* of the *Juices* of all other *Liquors* made of *Fruit*, so is it preferable to all *Fermentations* of *Yeast*, *Toasts*, *Percolations*, and *Rackings*, which not only tend to *Acidity*, but waists and dispirits the *Juices*, and besides is very troublesome.

That Residence of impure *Feces* may be cast on the *Mure*, if you repress for a *Water-Cider*.

The *Liquors* thus purified are not obnoxious (by some frequent *Re-fermentations*) to burst the *Bottles* upon change of Weather.

Lastly, Is prescribed the same Form of standing *Vessels*, to preserve and keep it in, as we have already mention'd. The *Bung-hole* to be of two Inches *Diameter*, with a *Plug*, and a *Vent-hole* near it.

That new *Vessels* be season'd, and scalded with *Water* in which *Apple-pummis* hath been boiled: If old *Vessels*, that they be such as have been us'd for *Canary*, *Spanish-Wines*, or *Metheglin*, by no means *Ale* or *Beer*, yet *Small-beer* *Vessels* if well scalded, may serve upon Occasion.

To correct the *Mustiness* of *Vessels* is prescribed a Decoction of *Pepper* in *Water*, one Ounce to a *Hogshead*; the *Vessel* being fill'd with it scalding hot, and so let stand two or three Days: The same is cur'd with two or three *Stones* of *Quick-lime*, to six or seven *Gallons* of *Water*, put into the *Hogshead* close stopp'd, and roll'd up and down.

Glass Bottles preferred; the *Stopples* exquisitely fitted by grinding them with *Oil* and *Smyris*, or *Emery* (as our Workmen call it) being careful to preserve each *Stopples* to its *Bottle*, by tying it by the *Knob* to the Neck thereof with a Packthread.

The *Cure* of *musty Bottles* is boiling them in a *Vessel* of *Water*, putting them in whilst the *Water* is *cold*, to prevent their *cracking*, and then set them on *Straw*, and not on the cold Floor, when you take them out.

In *Tunning* your *Cider*, the *Vessels* dry, fill them within an *Inch* or less of the top, that there be space for the *Head* or *Skin*; remembring to leave the *Bung-hole* open, or slightly cover'd two or three Days, to perfect its *fermenting*, if it happen to work: If not, and that it be design'd for long keeping, put into it some unground *Wheat*, a *Quart* to an *Hogshead*, which inducing an artificial *Head* or *Skin*, protects it from all possible Injury of the *Air*.

Having clos'd the *Bung*, peg the *Vent* but loosely; that in case the *Liquor* be unquiet, it may not heave up the *Head* of the *Barrel*: Wherefore you must stop and ease the *Vent* from Time to Time discreetly, till all be in *Repose*.

It is good to cover the *Plug* exactly adjusted to the *Bung* with a brown Paper wetted, the better to wring it close.

Cider, thoroughly purified, may be *bottled* at any Time or Season: If early, and vigorous, it will need no Assistance; if *later*, *flat*, or *acid*, spirit it with a little *Loaf-Sugar*: If you *bottle* it *early* (to prevent any remanent *Fermentation*) let them stand a while before you stop them close; or be sure to open them within two or three Days after.

If you stop with *Corks*, let them be sweet, boil'd and us'd whilst yet moist, laying the *Bottles* side-ways. *Note*, That they stand better on the *Ground*, than in *Frames*, unless in vaulted *Cellars*. But a *Refrigeratory* with a cold *Spring*, especially if it be running Water, is most excellent. *Note*, That the binding down of the *Cork* endangers the *Bottles* breaking, whereas that omitted, you hazard only the loss of the *Liquor*.

Cider boil'd with *Spices* not approv'd (though pleasant) as apt to contract an unfavoury Tincture from the Vessel 'tis boil'd in: But this may *haply* be reform'd by such as are *tinn'd*.

Cider boil'd to the Expence of half will keep well, and is very strong.

To restore decay'd *Liquor*, if *flat* and *vapid*, from a too free Admission of *Air*, or ill stopping; grind a Parcel of *Apples*, putting them in by the *Bung-hole*; then stop the Vessel close, and sometimes give it *Vent*. But this must be drawn off in few Days, lest the *Mure* vitiate the *Whole*: This yet may be prevented, by putting up only the new *Must* of the *Fruit* you press, on the decay'd *Cider*. The same may be done in *Bottles*, by adding a *Spoonful* or two of such *Must*, and stopping them carefully.

Acid Cider will sometimes recover of it self, in Case any *Lee* remain; if not, add a *Gallon* of unground *Wheat* to each *Hogshead*; or *bottle* it with *Sugar*.

Cider turn'd and eager, is irrecoverable.

Musty *Cider* is best corrected, seldom restor'd with *Mustard-seed* ground with some of the *Liquor*. Thick *Cider* is cur'd by exciting new *Fermentation*.

To *Tun* it in *Vessels* fum'd with *Sulphur*, is an excellent and wholesome Preservative of *Cider*.

Water Cider.

Boil'd Water, suffer'd to stand (till cool'd) is best, as being more *defecated*, and that it be mix'd in the *Grinding*. This small *Beve-ledge* or *Ciderkin* and *Purre* (as 'tis call'd) is made for the common drinking of *Servants*, &c. supplying the Place of *Small-beer*, and to many more agreeable: It is made by putting the *Mure* into a large *Vat*, adding what quantity of Water you please, namely, about half the quantity of the press'd *Cider*, or more, as you desire it *stronger* or *smaller*. *Note*, That the Water should stand 48 *Hours* on it before you press, *tunning* up, and immediately stopping what comes from the *Press*. Thus it will be *drinkable* in few Days, clarifying it self. 'Tis fortified, by adding to it the *Lee* or Settling of better *Cider*; putting it on the *Pulp* before *Pressure*, or by some superfluous *Cider*, which your *Vessels* could not contain, or by *grinding* some *fallen* and refuse *Apples*.

Ciderkin will be made to keep long, by being *boil'd* after *Pressure* with such a Proportion of *Hops*, as is usually added to *Beer*; in which Case you need not to boil the *Water* before.

Mixtures.

Mixtures.

Tho' *Cider* needs not any, 'tis yet a very proper *Vehicle* to transfer the Virtue of any *Aromatic* or *Medicinal* thing; such as *Ginger*, *Juniper*, &c. the *Berries* dried, fix or eight in each Bottle, or proportionably in the Cask: But this is not so *palatable* as *wholsome*.

Ginger renders it brisk; dried *Rosemary*, *Wormwood*, Juice of *Corianders*, &c. whereof a few Drops tinges, and adds a pleasant Quickness. Juice of *Mulberries*, *Blackberries*, and (preferable to all) *Elderberries* press'd among the *Apples*, or the Juice added. *Clove-July-flowers* dry'd and macerated, both for *Tincture* and *Flavour*, is an excellent Cordial. Thus may the Virtues of any other be extracted. Some stamp *Malaga Raisins*, putting *Milk* to them, and letting it percolate through an *Hippocras* Sieve. A small Quantity of this, with a Spoonful or two of *Syrup* of *Clove-July-flowers* to each *Bottle*, makes an incomparable Drink.

Perry.

Let not your *Pears* be over-mellow when you grind them, the *Pulpiness* obstructing the Juice.

Crabs mix'd in grinding improve the *Perry*, discreetly proportion'd according to the Sweetness of the *Pear*. That of *Bosbury* yields the most lasting Liquor.

Vinegar of Cider

Is made by putting it upon the *Rape*, as the *French* to their bad *Wines*. By *Rape*, is meant the *Husks* of the *Grape* close press'd, which our *Vinegarists* have out of *France*, and use it as a *Leaven* to give it that *Acidity*. The *Husks* of our *English Grape* will probably supply the want of the other, not so easily to be had.

Virtues.

Innumerable are the *Virtues* of *Cider*, as of *Apples* alone, which being raw eaten, relax the Belly, especially the sweet, aid *Concoction*, depress *Vapours*; being roasted or coddled, are excellent in hot Distempers, resist *Melancholy*, *Spleen*, *Pleurisy*, *Strangury*, and being sweeten'd with *Sugar*, abate inveterate Colds. These are the common Effects even of raw *Apples*; but *Cider* performs it all, and much more, as more active and pure. In a word, we pronounce it for the most *wholsome Drink* of *Europe*, as specifically sovereign against the *Scorbute*, the *Stone*, *Spleen*, and what not?

Pears are nourishing, especially the baked *Warden* edulcorated with *Sugar*, and is exceedingly restorative in *Consumptions*; the *Perry* a great Cordial, &c.

After this our *Author* passes to an Enumeration of the best *Apples* and *Pears*, which we pass by; because the Curious will find them at the End of the annex'd *Kalendar*; nor should I have subjoin'd what we have here accumulated concerning *Cider*, occurring (as most of it does) in the former Papers, especially those of Dr. *Beal* and Esquire *Newburgh*, Captain *Taylor*, &c. but that we find what lies there dispersed, to be so *methodically recapitulated*.

To conclude this *Treatise*: We will gratify the *Cider-Master* with the *Construction* of a new kind of *Press*, brought into the *Royal Society* by their *Curator*, the ingenious Mr. *Hooke*; and if perfectly understood by him that shall imitate it, recommended not only for its extraordinary *Dispatch*, but for many other *Virtues* of it, chiefly the accurately grinding of the *Pulp*, and keeping the *Husks* from descending with the Liquor.

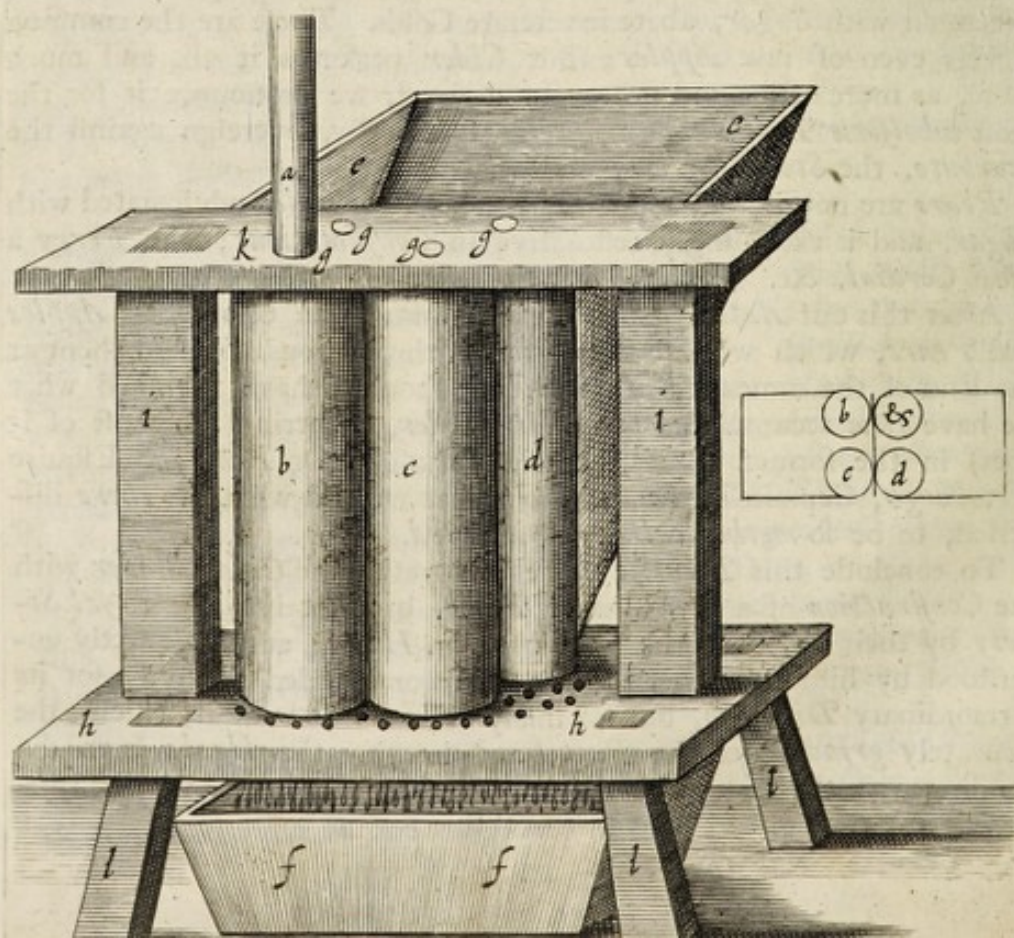
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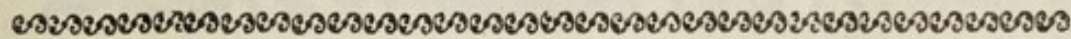
Explication of the Figures.

- a.* The *Axis*, by which four *Cylinders* are to be mov'd, either by the Force of *Men*, *Horses*, *Wind* or *Water*, &c.
- b. c. d.* Three of the four (visible) *Cylinders* so placed, that those which are first to bruise the *Apples* may stand at about half an Inch, or less distance from each other. Those that are to press out the *Juice* may join as close as they can well be made to move.
- f. f.* The *Trough* in which to receive the *Liquor* running through certain *Holes* made in the lower *Plate* there marked.
- e. e.* The *Hopper*, made tapering towards the *bottom*, in which you fling the *Apples*, and supply them as they sink towards the *Cylinders*. *Note*, That such another *Hopper* is suppos'd to be also made, and fitted to this *Fore-part* of the *Press*, but here omitted, that the *Prospect* and *Description* of the *Cylinders* may the better be laid open and demonstrated.
- g. g. g.* The *Spindles* of each *Cylinder*.
- b. b. i. i. k. k.* The *Frame*, consisting of two *Plates* and two *Pilasters*, which hold the *Cylinders* together. *Note*, That the *Cylinders* must be made of excellent *Oaken Timber*, or other hard *Wood*; the *Dimensions* about three foot long, one foot and half diameter: the rest of the *Frame* for thickness, &c. of *Size* and *Strength* proportionable.
- l. l.* The *Legs* which support the *Frame*.

FIG. II. Represents the *Ichnography* of the *First*.

But there are likewise other fresh *Inventions* and *Ingenio's* for the Dispatch of this Work, namely, that of Mr. *Wolridge's* of *Petersfield* in *Hampshire*, and more that you may find in an *Hortulan* Advertisement communicated by the Learned Dr. *Beale* to the late Publisher of the *Philosophical Transactions*, Vol. 12. Numb. 134. Pag. 846. Where, when all are reckon'd up, the vulgar Way of pounding the *Fruit* in *Troughs*, made deep and strong with broad-footed *Pounders*, is found inferior to none.





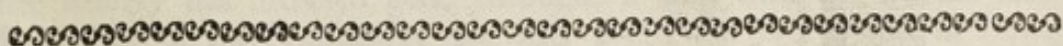
A C E T A R I A.

A
DISCOURSE
OF
S A L L E T S.

By J. E. S. R. S. Author of the *Kalendarium*.

Ὅτι παντὸς ἀνδρὸς ἔστιν ἀξιώσαι καλῶς.

Crat. in Glauco.



ACETARIA

DISCOURS

SALLES

By J. E. S. R. S. Author of the *Kalendar*

Of the *History* of the *Church* in *Spain*



To the Right Honourable

J O H N Lord Somers,

O f E V E S H A M,

*Lord High-Chancellor of E N G L A N D, and
President of the Royal Society.*

My L O R D,

TH E *Idea* and *Plan* of the *Royal Society* having been first conceiv'd and delineated by a *Great and Learned Chancellor*, which high Office your Lordship deservedly bears; not as an Acquisition of Fortune, but your Intellectual Endowments, conspicuous (among other Excellencies) by the Inclination your Lordship discovers to promote *Natural Knowledge*: As it justifies the Discernment of that *Assembly*, to pitch upon your Lordship for their *President*; so does it no less discover the Candor, yea, I presume to say, the Sublimity of your Mind, in so generously honouring them with your *Acceptance* of the *Choice* they have made.

A *Chancellor*, and a very Learned Lord, was the *First* who honoured the *Chair*; and a no less Honourable and Learned *Chancellor* resigns it to your Lordship: So as after all the Difficulties and Hardships the *Society* has hitherto gone through, it has, thro' the Favour and Protection of its *Presidents*, not only preserved its Reputation from the Malevolence of Enemies and Detractors, but gone on *culminating*, and now *triumphantly* in your Lordship: Under whose propitious Influence, I am persuaded, it may promise itself *that*, which indeed has hitherto been wanting, to justify the glorious Title it bears of a *ROYAL SOCIETY*; the *emancipating* it from some remaining and discouraging Circumstances, which it as yet labours under; among which, that of a *precarious* and unsteady Abode is not the least.

*Lord Viscount
Brouncker,
Chancellor to
the late Queen
Consort, now
Dowager.
The Right Ho-
nourable Cha-
Montague,
Esq; Chancel-
lor of the Ex-
chequer.*

This *Honour* was reserv'd for your Lordship; and an *Honour*, permit me to call it, not at all unworthy the owning of the greatest Person living; namely, the establishing and promoting *real Knowledge*; and (next to what is *divine*) truly so called; as far at least as human Nature extends towards the Knowledge of Nature, by enlarging her Empire beyond the Land of *Spectres, Forms, Intentional Species, Vacuum, Occult Qualities*, and other *inadequate Notions*; which, by their obstreperous and noisy Disputes, affrighting, and (till of late) deterring Men from adventuring on farther Discoveries, confin'd them in a lazy Acquiescence, and to be fed with Fantasms and fruitless Speculations, which signify nothing to the specifick Nature of Things; solid and useful Knowledge, by the *Investigation of Causes, Principles, Energies, Powers*, and *Effects of Bodies and Things visible*; and to improve them for the Good and Benefit of Mankind.

My Lord, That which the *Royal Society* needs to accomplish an entire Freedom, and (by rendring their Circumstances more easy) capable to subsist with Honour, and to reach indeed the glorious Ends of its Institution, is an Establishment in a more settled, appropriate, and commodious Place; having hitherto (like the *Tabernacle* in the *Wilderness*) been only *ambulatory* for almost Forty Years: But *Solomon* built the first Temple; and what forbids us to hope, that as great a Prince may build *Solomon's House*, as that great *Chancellor* (one of your Lordship's Learned Predecessors) had design'd the *Plan*; there being nothing in that *august* and *noble Model* impossible, or beyond the Power of Nature and learned Industry.

Thus, whilst King *Solomon's Temple* was *consecrated* to the God of *Nature*, and his true Worship, *This* may be *dedicated*, and set apart for the Works of *Nature*; deliver'd from those Illusions and Impostors, that are still endeavouring to cloud and depress the true and substantial *Philosophy*: A shallow and superficial *Insight* wherein (as that incomparable Person rightly observes) having made so many *Atheists*; whilst a profound and thorough *Penetration* into her *Recesses* (which is the Business of the *Royal Society*) would lead Men to the Knowledge and Admiration of the *glorious Author*.

And now, *my Lord*, I expect some will wonder what my Meaning is, to usher in a *Trifle* with so much Magnificence, and end at last in a fine *Receipt* for the *dress*ing of a *Sallet* with an handful of *Pot-herbs*! But yet, *my Lord*, this *Subject*, as low and despicable as it appears, challenges a Part of *Natural History*; and the greatest Princes have thought it no Disgrace, not only to make it their *Diversion*, but their *Care*, and to promote and encourage it in the midst of their weightiest Affairs: He who wrote of the *Cedar of Libanus*, wrote also of the *Hysop which grows upon the Wall*.

To verify this, how much might I say of *Gardens* and *Rural Employments*, preferable to the Pomp and Grandeur of other Secular Business, and that in the Estimate of as Great Men as any Age has produc'd! And it is of such *Great Souls* we have it recorded, That after they had perform'd the noblest Exploits for the Publick, they sometimes chang'd their *Sceptres* for the *Spade*, and their *Purple* for the Gardiner's *Apron*. And of these, some, *My Lord*, were *Emperors, Kings, Consuls, Dictators*, and Wise *Statesmen*; who amidst the most important Affairs, both in Peace and War, have quitted all their Pomp and Dignity

For exchange of this Learned Pleasure: Not that of the most *refin'd*

Part of *Agriculture* (the *Philosophy* of the *Garden* and *Parterre* only) but of *Herbs* and wholsome *Sallets*, and other plain and useful Parts of *Geoponicks*, and wrote *Books* of *Tillage* and *Husbandry*; and took the *Plough-Tackle* for their *Banner*, and their *Names* from the *Grain* and *Pulse* they sow'd, as the Marks and Characters of the highest Honour.

But I proceed no farther on a *Topic* so well known to Your Lordship: Nor urge I Examples of such Illustrious Persons laying aside their Grandeur, and even of deserting their Stations; (which would infinitely prejudice the Publick, when worthy Men are in Place, and at the Helm) but to shew how consistent the Diversions of the *Garden* and *Villa* were, with the highest and busiest Employment of the *Commonwealth*; and never thought a Reproach, or the least Diminution to the Gravity and Veneration due to their Persons, and the Noble Rank they held.

Will Your Lordship give me leave to repeat what is said of the younger *Pliny*, (Nephew to the *Naturalist*) and whom I think we may parallel with the Greatest of his Time (and perhaps of any since) under the Worthiest *Emperor* the *Roman* World ever had? A Person of vast Abilities, Rich, and High in his Master's Favour; that so husbanded his Time, as in the midst of the weightiest Affairs, to have answer'd and by his * *Example*, made good what I have said on this Occasion. The ancient and best Magistrates of *Rome*, allow'd but the *Ninth* Day for the *City* and *Publick Business*; the rest for the *Country* and the *Sallet Garden*: There were then fewer *Causes* indeed at the *Bar*; but never greater *Justice*, nor better *Judges* and *Advocates*. And 'tis hence observed, that we hardly find a Great and Wise Man among the Ancients, *qui nullos habuit hortos*, excepting only *Pomponius Atticus*; whilst his dear *Cicero* professes, that he never laid out his Money more readily, than in the purchasing of *Gardens*, and those sweet Retirements, for which he so often left the *Rostrum* (and Court of the greatest and most flourishing State of the World) to visit, prune, and water them with his own Hands.

But, *My Lord*, I forget with whom I am talking thus; and a *Gardiner* ought not to be so bold. The Present I humbly make your Lordship, is indeed but a *Sallet* of *crude Herbs*: But there is among them that which was the *Prize* at the *Isthmian Games*; and your Lordship knows who it was both accepted and rewarded as despicable an Oblation of this kind. The Favour I humbly beg, is your Lordship's Pardon for this Presumption. The Subject is *mean*, and requires it, and my *Reputation* in danger; should your Lordship hence suspect that one could never write so much of *dressing Sallets*, who minded any thing serious, besides the gratifying a sensual Appetite with a voluptuary *Apician Art*.

Truly, *My Lord*, I am so far from designing to promote those *Supplicia Luxuriæ*, (as *Seneca* calls them) by what I have here written; that were it in my Power, I would recall the World, if not altogether to their pristine *Diet*, yet to a much more *wholsome* and *temperate* than is now in Fashion: And what if they find me like to some who are ea-

* Si quid temporis à civilibus negotiis, quibus totum jam intenderat animum, suffragari potuit, colendis agris, præcos illos Romanos Numam Pompilius, Cincinnatum, Catonem, Fabios, Cicerones, aliosque virtute claros viros imitare; qui in magno honore constituti, vites putare, stercore agros, & irrigare nequaquam turpe & inonestum putarunt. In Vit. Plin. 2.

ger after *Hunting*, and other Field Sports, which are *laborious* Exercises; and *Fishing*, which is indeed a *lazy* one; who, after all their Pains and Fatigue, never eat what they take and catch in either? For some such I have known: And tho' I cannot affirm so of my self, (when a well dress'd and excellent *Sallet* is before me) I am yet a very moderate Eater of them. So as to this *Book-Luxury*, I can affirm, and that truly, what the *Poet* says of himself (on a less innocent Occasion) *Lasctiva pagina, vita proba*. God forbid, that after all I have advanced in Praise of *Sallets*, I should be thought to plead for the Vice I censure, and chuse that of *Epicurus* for my *Lemma*; *In hac arte consenui*; or to have spent my time in nothing else. The *Plan* annex'd to these Papers, and the *Apparatus* made to superstruct upon it, would acquit me of having bent all my Contemplations on *Sallets* only. What I humbly offer your Lordship, is (as I said) Part of *Natural History*, the Product of *Horticulture*, and the *Field*, dignified by the most Illustrious, and sometimes tilled *Laureato Vomere*; which, as it concerns a Part of *Philosophy*, I may (without Vanity) be allow'd to have taken some Pains in Cultivating, as an inferior Member of the *Royal Society*.

But, *My Lord*, whilst You read on (if at least you vouchsafe me that Honour to read at all) I am conscious I rob the Publick of its most precious Moments.

I therefore humbly again implore your Lordship's Pardon: Nor indeed needed I to have said half this, to kindle in your Breast that which is already shining there, (your Lordship's Esteem of the *Royal Society*) after what you were pleas'd to express in such an obliging manner, when it was lately to wait upon your Lordship; among whom I had the Honour to be a Witness of your generous and favourable Acceptance of their Addresses; who am,

My Lord,

Your Lordship's

Most Humble and

Most Obedient Servant,

JOHN EVELYN.



T H E P R E F A C E.



THE favourable Entertainment which the Kalendar has found, encouraging the Bookfeller to adventure upon a Ninth Impression, I could not refuse his Request of my revising, and giving the best Improvement I was capable, to an Inexhaustible Subject, as it regards a Part of Horticulture; and offer some little Aid to such as love a Diversion so Innocent and Laudable. There are those of late, who have arrogated, and given the Glorious Title of Compleat and Accomplish'd Gardiners, to what they have publish'd; as if there were nothing wanting, nothing more remaining, or farther to be expected from the Field; and that Nature had been quite emptied of all her fertile Store: Whilst those who thus magnify their Discoveries, have after all, penetrated but a very little way into this vast, ample, and as yet, unknown Territory: Who see not that it would still require the Revolution of many Ages, deep and long Experience, for any Man to emerge that perfect and accomplish'd Artist Gardiner they boast themselves to be. Nor do I think Men will ever reach the End and far extended Limits of the Vegetable Kingdom; so incomprehensible is the Variety it every Day produces, of the most useful and admirable of all the respectable Works of God; since almost all we see, and touch, and taste, and smell, eat and drink, are clad with, and defended, (from the greatest Prince to the meanest Peasant) is furnished from that great and universal Plantation, Epitomiz'd in our Gardens, highly worth the Contemplation of the most profound Divine, and deepest Philosopher.

I should be asham'd to acknowledge how little I have advanc'd, could I find that ever any mortal Man from Adam, Noah, Solomon, Aristotle, Theophrastus, Dioscorides, and the rest of Nature's Interpreters, had ever arriv'd to the perfect Knowledge of any one Plant, or vulgar Weed whatsoever. But this perhaps may yet possibly be reserv'd for another State of Things, and * longer Day; that is, When Time shall be no more, but Knowledge shall be increas'd. We have heard of one who studied and contemplated the Nature of Bees only, for Sixty Years: After which you will not wonder, that a Person of my Acquaintance should have spent almost Forty, in gathering and amassing Materials for an Hortulan Design, to so enor-

* Ut hujusmodi histori-
am vix dum
inchoatum,
non ante ab-
solvendam
putem,
Exitio terras
quam dabit
una dies.
D. Rainus Præ-
fat Hist. Plan.

mous an Heap, as to fill some Thousand Pages; and yet be comprehended within two or three Acres of Ground; nay, within the Square of less than One (skilfully planted and cultivated) sufficient to furnish and entertain his Time and Thoughts all his Life long, with a most innocent, agreeable, and useful Employment. But you may justly wonder, and condemn the Vanity of it too, with that Reproach,
 Luke xv. 30. *This Man began to build, but was not able to finish. This has been the Fate of that Undertaking, and I dare promise, will be of whosoever imagines (without the Circumstances of extraordinary Assistance, and no ordinary Expence) to pursue the Plan, erect and finish the Fabrick as it ought to be.*

But this is that which abortives the Perfection of the most glorious and useful Undertakings; the unsatiable coveting to exhaust all that should or can be said upon every Head: If such a one have any thing else to mind, or do in the World, let me tell him, he thinks of Building too late; and rarely find we any, who care to superstruct upon the Foundation of another, and whose Idea's are alike. There ought therefore to be as many Hands and Subsidiaries to such a Design (and those Masters too) as there are distinct Parts of the Whole, (according to the subsequent Table,) that those who have the Means and Courage may (though they do not undertake the Whole) finish a Part at least, and in Time unite their Labours into one entire, compleat, and consummate Work indeed.

Of one or two of these, I attempted only a Specimen in my SILVA and the KALENDAR; Imperfect, I say, because they are both capable of Great Improvements: It is not therefore to be expected, (Let me use the Words of an old and experienc'd Gardiner) Cuncta me dicturum, quæ vastitas ejus scientiæ contineret, sed plurima; nam illud in unius hominis prudentiam cadere non poterit, neque est ulla Disciplina aut Ars, quæ singulari consummata sit ingenio.
 Columella de R. R. Lib. v. Cap. 1.

May it then suffice, aliquam partem tradidisse, and that I have done my Endeavour.

*Inutilis olim
 Ne Videar vixisse.*

Much more might I add upon this charming and fruitful Subject (I mean, concerning Gardening:) But this is not a Place to expatiate, deterr'd, as I have long since been, from so bold an Enterprize as the Fabrick I mentioned. I content my self then with an Humble Cottage and a Simple Potagere, Appendant to the Kalendar; which, treating only (and that briefly) of the Culture of moderate Gardens, nothing seems to me should be more welcome and agreeable, than whilst the Product of them is come into more Request and Use among us, than heretofore (beside what we call and distinguish by the Name of Fruit) I did annex some particular Directions concerning SAL-LETS.

The Plan of a Royal Garden:

Describing and Shewing the *Amplitude* and *Extent* of that Part
of *Georgicks* which belongs to *Horticulture*.

In Three BOOKS.

BOOK I.

- Chap. I. **O**F Principles and Elements in general.
 Ch. II. Of the Four (*vulgarly reputed*) Elements,
 Fire, Air, Water, Earth.
 Ch. III. Of the *Cœlestial* Influences, and particularly of the Sun,
 Moon, and of the Climates.
 Chap. IV. Of the Four Annual Seasons.
 Chap. V. Of the Natural Mould and Soil of a Garden.
 Chap. VI. Of Composts and Stercoration, Repastination, Dressing and
 Stirring the Earth and Mould of a Garden.

BOOK II.

- Chap. I. A Garden Deriv'd and Defin'd, its Dignity, Distinction, and
 Sorts.
 Ch. II. Of a Gardiner, how to be qualify'd, regarded and rewarded;
 his Habitation, Cloathing, Diet, Under-Workmen and Assistants.
 Ch. III. Of the Instruments belonging to a Gardiner; their various
 Uses, and Mechanical Powers.
 Ch. IV. Of the Terms us'd and affected by Gardiners.
 Ch. V. Of Enclosing, Fencing, Platting, and disposing of the Ground;
 and of Terraces, Walks, Alleys, Malls, Bowling-Greens, &c.
 Ch. VI. Of a Seminary, Nurseries; and of Propagating Trees, Plants
 and Flowers, Planting and Transplanting, &c.
 Ch. VII. Of Knots, Trayle-work, Parterres, Compartiments, Borders,
 Banks and Embossments.
 Ch. VIII. Of Groves, Labyrinths, Dedals, Cabinets, Cradles, Close-
 Walks, Galleries, Pavilions, Portico's, Lanterns, and other Relievo's,
 of Topiary and Hortulan Architecture.
 Ch. IX. Of Fountains, Jetto's, Cascades, Rivulets, Piscina's, Canals,
 Baths, and other natural, and Artificial Water-works.
 Ch. X. Of Rocks, Grotts, Cryptæ, Mounts, Precipices, Ventiducts,
 Conservatories, of Ice, and Snow, and other Hortulan Refreshments.
 Ch. XI. Of Statues, Bufts, Obelisks, Columns, Inscriptions, Dials,
 Vasa's, Perspectives, Paintings, and other Ornaments.
 Ch. XII. Of Gazon-Theatres, Amphitheatres, Artificial Echo's, Au-
 tomata, and Hydraulick Musick.
 Ch. XIII. Of Aviaries, Apiaries, Vivaries, Insects, &c.
 Ch. XIV. Of Verdures, Perennial Greens, and Perpetual Springs.

Ch. XV.

- Ch. XV. *Of Orangeries, Oporotheca's, Hybernacula, Stoves, and Conservatories of Tender Plants, and Fruits, and how to order them.*
- Ch. XVI. *Of the Coronary Garden: Flowers and Rare Plants, how they are to be Raised, Governed, and Improved, and how the Gardiner is to keep his Register.*
- Ch. XVII. *Of the Philosophical Medical Garden.*
- Ch. XVIII. *Of Stupendous and Wonderful Plants.*
- Ch. XIX. *Of the Hort-Yard and Potagere; and what Fruit-Trees, Olitory, and Esculent Plants, may be admitted into a Garden of Pleasure.*
- Ch. XX. *Of Sallets.*
- Ch. XXI. *Of a Vineyard, and Directions concerning the making of Wine, and other Vinous Liquors, and of Teas.*
- Ch. XXII. *Of Watering, Pruning, Plashing, Pallifading, Nailing, Clipping, Mowing, Rowling, Weeding, Cleansing, &c.*
- Ch. XXIII. *Of the Enemies and Infirmities to which Gardens are obnoxious, together with the Remedies.*
- Ch. XXIV. *Of the Gardiner's Almanack or Kalendarium Hortense, directing what he is to do Monthly, and what Fruits and Flowers are in prime.*

B O O K III.

- Chap. I. *Of Conserving, Properating, Retarding, Multiplying, Transmuting, and Altering the Species, Forms, and (reputed) Substantial Qualities of Plants, Fruits and Flowers.*
- Ch. II. *Of the Hortulan Elaboratory, and of distilling and extracting of Waters, Spirits, Effences, Salts, Colours, Resuscitation of Plants, with other rare Experiments, and an account of their Virtues.*
- Ch. III. *Of Composing the Hortus Hyemalis, and making Books of Natural, Arid Plants and Flowers, with several Ways of Preserving them in their Beauty.*
- Ch. IV. *Of Painting of Flowers, Flowers enamell'd, Silk, Callico's, Paper, Wax, Gums, Pastes, Horns, Glafs, Shells, Feathers, Moss, Pietra Commessa, Inlayings, Embroyderies, Carvings, and other Artificial Representations of them.*
- Ch. V. *Of Crowns, Chaplets, Garlands, Festoons, Encarpa, Flower-Pots, Nofegays, Poefies, Deckings, and other Flowery Poms.*
- Ch. VI. *Of Hortulan Laws and Privileges.*
- Ch. VII. *Of the Hortulan Study, and of a Library, Authors, and Books assistant to it.*
- Ch. VIII. *Of Hortulan Entertainments, Natural, Divine, Moral and Political; with divers Historical Passages, and Solemnities, to shew the Riches, Beauty, Wonder, Plenty, Delight, and Universal Use of Gardens.*
- Ch. IX. *Of Garden Burial.*
- Ch. X. *Of Paradise, and of the most Famous Gardens in the World, Antient and Modern.*
- Ch. XI. *The Description of a Villa.*
- Ch. XII. *The Corollary and Conclusion.*

— Laudato ingentia rura,
Exiguum colito. —

ACETA-

ACETARIA.



SALLETs in general consist of certain *Esculent* Plants and Herbs, improv'd by Culture, Industry and Art of the *Gardiner*; or, as others say, they are a Composition of *Edule* Plants and Roots of several kinds, to be eaten *raw* or *green*, *blanch'd* or *candied*, simple and *per se*, or intermingl'd with others according to the Season. The boyl'd, bak'd, pickl'd, or otherwise disguis'd, variously accommodated by the skilful Cooks, to render them grateful to the more feminine Palate, or Herbs rather for the Pot, &c. challenge not the Name of *Sallet* so properly here, tho' sometimes mention'd: And therefore,

Those who *criticize* not so nicely upon the Word, seem to distinguish the ^a *Olera* (which were never eaten *raw*) from *Acetaria*, which were never boyl'd; and so they derive the Etymology of *Olus* from *Olla*, the *Pot*. But others deduce it from ^b *ΟΛΑ*, comprehending the *universal Genus* of the Vegetable Kingdom, as from *Πᾶν Panis*; esteeming, that he who had ^b *Bread* and *Herbs* was sufficiently bless'd with all a frugal Man could need or desire. Others again will have it *ab olendo*, i. e. *crescendo*, from its continual *Growth* and *springing up*: So the younger *Scaliger* on *Varro*. But his Father *Julius* extends it not so generally to all Plants, as to all the *Esculents*, according to the Text: *We call those Olera* (says ^c *Theophrastus*) *which are commonly eaten*; in which Sense it may be taken, to include both *boyl'd* and *raw*. Last of all, *ab alendo*, as having been the original and genuine Food of all Mankind from the ^d *Creation*.

A great deal more of this learned Stuff were to be pick'd up from the *Cumini Sectores*, and impertinently curious; whilst as it concerns the Business in hand, we are, by *Sallet*, to understand a particular Composition of certain *crude* and fresh Herbs, such as usually are, or may safely be, eaten with some *acetous Juice*, *Oyl*, *Salt*, &c. to give them a grateful Gust and *Vehicle*; exclusive of the ^e *ψυχρὰ τεταπεία*, eaten without their due Correctives, which the Learned ^f *Salmasius*, and indeed generally the ^g old *Physicians* affirm (and that truly) all crude and raw *λάχανα* require to render them wholesome; so as probably they were from hence, as ^h *Pliny* thinks, call'd *Acetaria*, and not (as *Hermolaus* and some others) *Acceptaria ab Accipiendo*; nor from *Accedere*, tho' so ⁱ ready at hand, and easily dress'd, requiring neither

^a *Olera à frigidis distinct. See Spartianus in Pescennio. Salmas. in Jul. Capitolin.*

^b *Panis erat primis virides mortalibus Herba;*

Quas tellus nullo sollicitante dabat.

Et modo carpebant vivaci cespite gramen;

Nunc epulae tenera fronde cacumen erant. Ovid. Fastor. iv.

^c *Καλῶν τὸ λάχανα τὰ περὶ τὴν ἡμετέραν χεῖραν. Theophrast. Plant. lib. vii. cap. 7.*

^d *Gen. i. 29.*

^e *Plutarch. Sympos.*

^f *Salmas. in Solin. against Hieron. Mercurialis.*

^g *Galen. 2. R. Aliment. cap. 1. Et Simp. Medic. Averroes, lib. v. Colloc.*

^h *Plin. lib. xix. cap. 4.*

ⁱ *Convictus facilis sine arte mensa. Mart. Ep. 74.*

Fire, Coft, or Attendance, to boyl, roast, and prepare them, as did Flesh and other Provisions; from which, and other Prerogatives, they were always in use, &c. And hence indeed the more frugal *Italians* and *French*, to this Day, gather *Ogni Verdura*, any thing almost that is green and tender, to the very Tops of *Brambles* and *Nettles*; so as every Hedge affords a *Sallet* (not unagreeable) season'd with its proper *Oxybaphon* of *Vinegar, Salt, Oyl, &c.* which, doubtless, gives it both the Relish and Name of *Salad, Ensalada* †, as with us of *Sallet*, from the *Sapidity*, which renders not *Plants* and *Herbs* alone, but Men themselves, and their Conversations, pleasant and agreeable: But of this enough, and perhaps too much; lest whilst I write of *Salt* and *Sallet*, I appear myself *insipid*. I pass therefore to the Ingredients, which we will call

† Ἀπὸ τῆς
πρῶτης,
ἣν Suidas
calls ἰσχυρὰ
Olera quæ
cruda sumun-
tur ex Ace-
to. Harduin
in loc.

Furniture and Materials.

THE *Materials* of *Sallets*, which together with the grosser *Olera*, consist of *Roots, Stalks, Leaves, Buds, Flowers, &c.* (*Fruits* belonging to another Class) would require a much ampler Volume than would suit our *Kalendar*, (of which this pretends to be an *Appendix* only) should we extend the following Catalogue farther than to a brief Enumeration only of such *Herbaceous Plants, Oluscula* and smaller *Esculents*, as are chiefly us'd in cold *Sallets*, of whose Culture we have treated there; and as we gather them from the *Mother* and *genial Bed*, with a Touch only of their Qualities, for Reasons hereafter given.

1. Alexander's *Hippofelinum*; *S. Smyrniun vulgare*, French *Perfil Macedoine* (much of the Nature of *Parsly*) is moderately hot, and of a cleansing Faculty, deobstructing, nourishing and comforting the Stomach. The gentle fresh Sprouts, Buds and Tops are to be chosen, and the Stalks eaten in the Spring; and when *blanch'd*, in Winter likewise, with *Oyl, Pepper, Salt, &c.* by themselves, or in Composition: They make also an excellent *Vernal Pottage*.

2. Artichaux, *Cinara, (Carduus Sativus)* hot and dry. The Heads being slit in Quarters, first eaten raw with *Oyl, a little Vinegar, Salt* and *Pepper*, gratefully recommend a Glas of Wine: Dr. *Muffet* says, at the End of Meals.

They are likewise, whilst tender and small, fried in fresh *Butter* crisp with *Parsly*. But then become a most delicate and excellent Restorative, when full grown, they are boyl'd the common way. The *Bottoms* are also bak'd in *Pies*, with *Marrow, Dates*, and other rich Ingredients. In *Italy* they sometimes broil them, and as the scaly Leaves open, baste them with fresh and sweet *Oyl*; but with Care extraordinary, for if a Drop fall upon the Coals, all is marr'd; that Hazard escap'd, they eat them with the Juice of *Orange* and *Sugar*.

The Stalk is *blanch'd* in *Autumn*, and the *Pith* eaten raw or boyl'd. The way of preserving them fresh all Winter, is by separating the *Bottoms* from the *Leaves*, and, after parboiling, allowing to every *Bottom* a small Earthen glaz'd Pot; burying it all over in fresh melted *Butter*, as they do Wild-Fowl, &c. Or if more than one, in a larger Pot, in the same Bed and Covering, *Layer* upon *Layer*.

They

They are also preserv'd by stringing them on Pack-thread, a clean Paper being put between every *Bottom*, to hinder them from touching one another, and so hung up in a dry Place. They are likewise pickled.

'Tis not very long since this noble *Thistle* came first into *Italy*, improv'd to this Magnitude by Culture; and so rare in *England*, that they were commonly sold for *Crowns* a-piece: But what *Carthage* yearly spent in them (as *Pliny* computes the Sum) amounted to *Sestertia Sena Millia*, 3000 *l. Sterling*.

Note, That the *Spanish Cardon*, *Thistle*, or *Cinera Spinosa*, a wild and smaller *Artichock*, with sharp pointed Leaves, and lesser Head; the *Rib* or *Costa* of the Leaves being blanch'd and tender, (the Skin stripp'd off) are serv'd up *a la Poiverade* (that is with *Oil*, *Pepper*, &c.) as the *French* Term is; and by them are called *Costones des Cardons d'Espagno*, or *Cardis*. In *France* they blanch likewise the Leaves of the true *Artichocks*: But the *Cardes des Cardons d'Espagno*, are more esteem'd by far.

Asparagus, See *Sparagus*.

3. Basil, *Basilicum*, *Ocimum*, imparts a grateful Flavour, if not too strong, somewhat offensive to the Eyes; and therefore the tender Tops to be very sparingly us'd in our *Sallet*.

4. Baulm, *Melissa Hortensis*, hot and dry, cordial and exhilarating, sovereign for the Brain, strengthening the Memory, and powerfully chasing away *Melancholy*. The tender Leaves are us'd in Composition with other Herbs; and the Sprigs fresh gather'd, put into *Wine* or other Drinks, during the Heat of Summer, give it a marvellous Quickness. This noble Plant yields an incomparable *Wine*, made as is that of *Cowslip-Flowers*.

5. Beet, *Beta*; of which there is both *White*, or *Sicla Officinarum*, B. P. (the *French Poirée*) and the *Rubra* or *Red Radice Rapæ*, or *Bete-Raves*. The *Costa*, or Rib of the broad Leaves of the *White Beet* (by the *French* call'd the *Cardes de Porrée*) being boil'd, melts, and eats like Marrow. And the *Roots* (especially of the *Red*) being boil'd, cut into thin Slices, when cold, is of it self a grateful Winter *Sallet*; or being mingled with other *Oluscula*, *Oil*, *Vinegar*, *Salt*, &c. 'Tis of Quality cold and moist, and naturally somewhat *Laxative*: But, however, by the *Epigrammatist* stil'd foolish and inspid, as *Innocentior quam Olus* (for so the learned * *Harduin* reads the Place) 'tis by *Diphilus* of old, and others since, prefer'd before *Cabbage*, as of better Nourishment: *Martial* (not unlearn'd in the Art of *Sallet*) commends it with *Wine* and *Pepper*: He names it indeed ——— *Fabrorum prandia*, for its being so vulgar. But eaten with *Oil* and *Vinegar*, as usually, it is no despicable *Sallet*. There is a *Beet* growing near the Sea, *Beta Sylvestris maritima*, which is the most delicate of all. The *Roots* of the *Red Beet*, pared into thin Slices and Circles, are, by the *French* and *Italians*, contriv'd into curious Figures to adorn their *Sallets*.

* Plin. H. Nat. lib. xix. cap. 8.

6. Blite, *Blitum Hortense*; English *Mercury*, or (as our Country House-wives call it) *All-good*, *Blitum bonus Henricus Lapathum Unctuosum sive tota bona Spinachiae facie*: The gentle *Turiones*, and Tops may be eaten as *Sparagus*, or sodden in Pottage, and are a very salubrious *Esculent*: There is both a white and red, much us'd in *Spain* and

and *Italy*; but besides its Humidity and deterfive Nature, 'tis *insipid* enough.

7. Borrage, *Buglossum Latifolium Borrage* (*Gaudia semper ago*) hot and kindly moist, purifying the Blood, is an exhilarating Cordial, of a pleasant Flavour: The tender Leaves, and Flowers especially, may be eaten in Composition, but above all, the Sprigs in *Wine*, like those of *Baum*, are of known Virtue to revive the *Hypochondriac*, and cheer the hard Student. See *Bugloss*.

8. Brooklime, *Anagallis aquatica*, or *Becca bunga* (French *Mou-ron d'Eau*; moderately hot and moist, prevalent in the *Scorbute* and *Stone*.

9. Bucks-horn, or Harts-horn Plantain, (*Cornu Cervinum, Coronopus Hortensis*) the best is the broad-leav'd curl'd Bucks-horn, which may be eaten in *Sallets*, whilst young and tender.

10. Bugloss, *Buglossum Angustifolium*; in Nature much like *Borrage*, yet something more astringent. The Flowers of both, with the entire Plant, greatly restorative, being Conserv'd: And for the rest, so much commended by *Averroes*, that for its Effects, cherishing the Spirits, justly call'd *Euphrosynum*: Nay, some will have it the *Nepenthes* of *Homer*: But indeed, what we now call *Bugloss*, was not that of the Ancients, but rather *Borrage*, for the like Virtue named *Corrago*.

11. Burnet, is the *Pimpinella Sanguisorba*, or *Pimprinelle*; eaten by the *French* and *Italians*; esteem'd of so cheering and exhilarating a Quality, and so generally commended, (as giving it admittance to all *Sallets*,) 'tis pass'd into a Proverb.

L'Insalata non è buon, ne bella,

Ove non è la Pimpinella,

But a fresh Sprig in *Wine* recommends it to us as its most genuine Element.

12. Buds, *Gemmae*; not only those *Edule* Garden Plants are preferable to other less tender Parts, but even the *Turiones*, and first Rudiments and Tops, gather'd from wild Plants, in *Woods* and *Fields*, make delicious *Sallets*: Witness the *Buds* taken out of the *Craws* of *Stock-doves* in the Spring; nay, the *Buds* and tender *Seed-Vessels*, or early *Fruits* of some *Plants*, when *muried* or *pickled*, are justly esteem'd, though no other part of the Plant from which they are gather'd are eatable; such as *Aspen-Keys*, *Broom-Buds*, hot and dry, retaining the virtue of *Capers*, esteem'd to be very opening, and prevalent against the *Spleen* and *Scurvy*; and being *Pickled*, are sprinkled among the *Sallets*, or eaten by themselves. But the *Aspargi*, or tender Sprouts of any *Sallet-Herbs*, when they little more than peep out of the Ground, retaining their *Seed-leaves*, are so highly esteem'd by many who are nicely critical in *Sallets*, that they will not eat them when they are grown larger; and therefore cause *Sallet-Seeds* to be sown on *hot Beds*, not in Winter only, when other choice *Sallets* cannot be had, but every Month of the Year, far preferring them to any *Sallet-Herbs* whatsoever, run up to more Maturity. But concerning this hasty Production of the *Hot-Bed*, the Effect of artificial *Composts*, see what we have said hereafter.

The *Gemmae* and *Summities* of several Plants, are exceedingly agreeable to the *Palate*, in the Composition of *Sallets*; though their less tender Parts are nauseous; as of *Basil*, *Chervile*, and many others.

13. Cabbage, *Brassica Chaux*, (and its several kinds) *Pompey's* beloved Dish, so highly celebrated by old * *Cato*, *Pythagoras*, and *Chrysippus* the Physician (as the only *Panacea*) is not so generally magnify'd by the rest of Doctors, as affording but a crass and melancholy Juice; yet *loosening* if but moderately boil'd; if overmuch, *astringent*, according to *C. Celsus*; and therefore seldom eaten raw, excepting by the *Dutch*. The *Cymæ*, or Sprouts rather of the *Cole*, are very delicate, so boil'd as to retain their Verdure and green Colour. In raising this *Plant*, great Care is to be had of the Seed. The best comes from *Denmark* and *Russia*, or from *Aleppo*. Of the *French*, the *Pançalière à la large Côte*, the white, large, and ponderous, are to be chosen, and so the *Cauly-flower*, *Brassica Cauliflora* (anciently unknown:) Some steep them in Milk, and seethe them again in Beef-Broth: Of old, they added a little *Nitre*. The *Broccoli* from *Naples*, perhaps the *Halmyridia* of *Pliny* (or *Athenæus* rather) *Capitata marina* & *florida*, our *Sea-keele* (the ancient *Crambe*) and growing on our Coast, are very delicate, as are the *Savoys*, commended for being not so rank, but agreeable to most *Palates*, and of better Nourishment: In general, *Cabbages* are thought to allay Fumes, and prevent Intoxication: But some will have them noxious to the Sight; others impute it to the *Cauly-flower* rather: But whilst the learned are not agreed about it, *Theophrastus* affirms the contrary, and *Pliny* commends the Juice raw, with a little *Honey*, for the moist and weeping Eye, not the dry or dull. But after all, *Cabbage* ('tis confess'd) is greatly accus'd for lying undigested in the Stomach, and provoking Eructations; which makes me wonder at the Veneration we read the Ancients had for them, calling them *Divine*, and swearing, *per Brassicam*; and for 600 Years held by the *Romans* a *Panacea*. 'Tis scarce an Hundred Years since we first had *Cabbages* out of *Holland*. One of the Sir *Anthony Ashley* of *Wiburg St. Giles* in *Dorsetshire*, being (as I am told) the first who planted them in *England*. The *Dutch* shred *Red Cabbage*, and dress'd with *Oil* and *Vinegar*, eat it raw.

Cardon, See *Artichaux*.

14. Carrots, *Dauci*, or *Pastinaca Sativa tenuifolia*; temperately warm and dry, Spicy: The best are yellow, very nourishing. Let them be rais'd in Ground naturally rich, but not too heavy. *Ale* brew'd with the wild *Dauor-Seed*, is exceedingly commended by those who are afflicted with the *Stone* and *Gravel*.

15. Chervile, *Cherophyllum, Sativum Myrrhis*; the sweet, aromatick (and as the *French* call it, *Musque*) *Spanish Chervile*, moderately hot and dry, is best: The tender *Cimæ*, and Tops, with other Herbs, are never to be wanting in our *Sallets*, (as long as they may be had) being exceedingly wholesome, and chearing the Spirits: The *Roots* are also boil'd, and eaten cold; much commended for aged Persons: This (as likewise *Spinach*) is us'd in *Tarts*, and serves alone for divers Sauces.

Chalots, }

Cibbols, } *Vide Onions, Schænopræsson.*

Cives, }

16. Clary, *Horminum Sativum Sclarea dictum*; when tender, not to be rejected; and, in *Omlets*, made up with *Cream*, fried in Sweet *Butter*, are eaten with *Sugar*, Juice of *Orange* or *Lemon*.

17. Clavers, Goose-grafs, *Aparine*, or *Philanthropos* *Dioscor.* &c. the tender Winders, with young *Nettle-tops*, are us'd in *Lenten Pot-tages*.

18. Corn-Sallet, or Lambs-Lettuce, *Valerianella Campestris in odora major*, B. P. *Album olus* *Dod.* *Lactuca agnina* (by the *French*, *Maches*;) loosening and refreshing: The Tops and Leaves being a Sallet of themselves, seasonably eaten with other Salleting, the whole Winter long, and early Spring. They call them *Salad de Preter*, for their being generally eaten in *Lent*.

19. Cowslips, *Verbascum pratense odoratum*, or *Paralysis*: See *Flowers*.

20. Cresses, *Nasturtium Hortense*, Garden Cresses; the broad-leaf'd best to be monthly sown: But above all, the *Indian* (by the *French* called *Capuchin*) moderately hot, and aromattick, quicken the torpent Spirits, and purge the Brain, and are of singular Effect against the *Scorbute*. Both the *Flowers*, tender *Leaves*, *Calices*, *Capuchin Capers* and *Flowers*, are laudably mixed with the colder Plants. The *Buds*, as also the young green *Seeds*, being pickl'd or candy'd, are likewise us'd in Strewings all Winter. There is the *Naster-Hybernium* commended also for an *Antiscorbutick* Sallet, and likewise the vulgar *Water-Cress* boil'd in *Lenten Pottage*, and whilst the *Leaves* are tender (being all of the same Nature, tho' of different Degrees and Tribes, and best for raw and cold Stomachs) may properly be eaten in the Spring, but nourish little.

Note, In the mean time, that *Cresses* (being of several Tribes) the *Indian Nasturtium* is *Planta sui generis*, quite of a different *Genus*: But for that Cress-like Mordacity are called all *Cresses*, and therefore here ranged together.

21. Cucumber, *Cucumis Sativus*; tho' very cold and moist, the most approved Sallet alone, or in Composition of all the *Vinaigrets*, to sharpen the Appetite and cool the Liver*, &c. if rightly prepar'd; that is, by rectifying the vulgar Mistake of altogether extracting the Juice, in which it should rather be soak'd: Nor ought it to be over-oyl'd, too much abating of its grateful Acidity, and palling the Taste, from a Contrariety of Particles. Let them therefore be pared, and cut in thin Slices, with a Slice or two of *Onion* to correct the Crudity, macerated in the Juice, often turn'd, and moderately drain'd. Others prepare them by shaking the Slices between two Dishes, and dress them with very little Oyl, well beaten, and mingled with the Juice of *Limon*, *Orange* or *Vinegar*, *Salt* and *Pepper*. Some again (and indeed the most approv'd) eat them as soon as they are cut, retaining their Liquor, which being exhausted (by the former Method) have nothing remaining in them to help the Concoction. Of old, they † boil'd the *Cucumber*, and paring off the Rind, eat them with Oyl, *Vinegar* and *Honey*; *Sugar* not being so well known. Lastly, the *Pulp* in *Broth* is greatly refreshing, and may be mingled in most Sallets without the least Damage, contrary to the common Opinion; it not being long since *Cucumber*, however dress'd, was thought fit to be thrown away, being accounted little better than Poison: And very probably it was so, when the *innate Liquor* (which helps to concoct the cold, almost indigestible Substance) was exhausted. *Tavernier* tells us, that in the *Levant*, if a Child cry for something to eat, they give it a raw *Cucumber* instead of Bread. The young ones may be boil'd in *White-Wine*. The

smaller

* Εὐδός, δὲ σικυδός, ἀπαλός, ἄλυστος, ἔρμηκος. Athen.

† Cucumis elixus delicatior, innocentior. Athenæus.

smaller Sort (known by the Name of *Gerckems*) *muriated* with the Seeds of *Dill*, and the *Mango Pickle*, are for the Winter.

22. Daisy, *Bupthalmum*, Ox-Eye, or *Bellis-major*: The young Roots are frequently eaten by the *Spaniards* and *Italians* all the Spring till *June*.

23. Dandelion, *Dens Leonis*, *Condrilla*; macerated in several Waters, to extract the Bitterness; tho' somewhat opening, is very wholesome, and little inferior to *Succory*, *Endive*, &c. The Tops of the Roots dug out of the Ground, with the *Tufts* of the *Leaves* remaining thereon, so far as they are blanch'd, (by being cover'd in the Earth when they grow) are of late Years gather'd in the Spring, (till such time as the *Flower-Stalks* are shot up) and sold in most *Herb-Shops* about *London*, for being a wonderful Purifier of the Blood, and *Antiscorbutic*; upon which Account they are justly esteem'd an excellent *Vernal Sallet*. It was with this homely *Fare* the Good-Wife *Hecate* entertain'd *Theseus*. See *Sowthistle*.

24. Dock, *Oxylapathum*, or sharp-pointed Dock: Emollient, and tho' otherwise not for our *Sallet*, the Roots brew'd in Ale or Beer are excellent for the *Scorbute*. See *Patience*.

25. Earth-Nuts, *Bulbo-Castanum*, called in the *North*, where they most abound, *Kopper-nuts*, *Pig-nuts*, and *Ger-nuts*; (found also in divers Places of *Surrey* near *Kingston*, and other Parts, in Meadows and Grass-Fields) are of the *Umbelliferous* Tribe; they flower in *June* and *July*, but the Nuts are in their Prime in *May*, or Beginning of *June*, when the Stalk begins to appear, by which they are the more easily discovered. The Rind par'd off, are eaten crude by Rusticks, with a little Pepper; but are best boil'd like other Roots, or in Pottage rather, and are sweet and nourishing.

26. Elder, *Sambucus*: The Flowers infus'd in *Vinegar*, grateful both to the Stomach and Taste; attenuates thick and viscid Humours; and tho' the Leaves are somewhat rank of Smell, and so not commendable in *Sallet*, they are otherwise (as indeed is the entire Shrub) of the most sovereign Virtue; and the Spring Buds and tender Leaves, excellently wholesome in Pottage at that Season of the Year. Small Ale in which *Elder-Flowers* have been infus'd, is by many esteem'd so salubrious and palatable, as it is of late grown into so great Vogue, that it is to be had in many of the publick Eating-Houses about Town. See *Flowers*.

27. Endive, *Endivia*, *Intubus Sativa*, Garden broad-leav'd, different from the *Erratic*, or wild, (tho' probably by Culture only) the largest, whitest, and tenderest Leaves, best boil'd and less crude. It is naturally cold, profitable for hot Stomachs; *incisive* and opening Obstructions of the Liver. The curled is more delicate, being eaten alone, or in Composition, with the usual *Intinctus*. It is also excellent, being boil'd; the middle Part of the *blanch'd Leaves* separated, eats firm, and the ampler *Leaves*, by many, preferr'd before *Lettuce*. See *Succory*.

Eschalot, see *Onions*.

28. Fennel, *Feniculum*. We have it from *Bologna*, but the sweetest and most aromack comes from the *Azores* (*Feniculum dulce Azoricum*;) hot and dry, expels Wind, sharpens the Sight, and recreates the Brain; especially the tender *Umbella*, and young Seeds annex'd to them. The Stalks, white, plump and soft, are to be peel'd, and then

dress'd like *Sellery*. The early tender Tufts of the emerging Leaves being minc'd, are eaten alone with *Vinegar*, or *Oyl* and *Pepper*, and to correct the colder Materials, enter properly into Composition. The *Italians* eat the *blanch'd* Stalk (which they call *Cartucci*) all Winter long. There is a very small *Green Worm*, which sometimes lodges in the Stem of this Plant, which is to be taken out, as the *Red* one in that of *Sellery*.

29. Flowers, *Flores*; chiefly of the *Aromatic Esculents* and Plants are preferable, as generally endow'd with the Virtues of their *Simples* in a more intense degree; and may therefore be eaten alone in their proper Vehicles, or Composition with other *Salleting* sprinkl'd among them: But give a more palatable Relish, being infus'd in *Vinegar*; especially those of the *Clove-July-flower*, *Elder*, *Orange*, *Cowslip*, *Rosemary*, *Arch-Angel*, *Sage*, *Nasturtium Indicum*, &c. Some of them are pickl'd, and divers of them make also very pleasant and wholesome *Theas*, as do likewise the wild *Time*, *Bugloss*, *Mint*, &c.

30. Garlick, *Allium*; dry towards Excess; and tho' both by *Spaniards* and *Italians*, and the more Southern People, familiarly eaten with almost every thing, and esteem'd of such singular Virtue to help Concoction, and thought a Charm against all Infection and Poison (by which it has obtain'd the Name of the *Countryman's Theriacle*) we yet think it more proper for our Northern Rustics, especially living in *uliginous* and moist Places, or such as use the Sea: Whilst we absolutely forbid it Entrance into our *Salleting*, by reason of its intolerable Rankness; and which made it so detested of old, that the eating of it was (as we read) Part of the Punishment for such as had committed the horridest Crimes. To be sure, 'tis not fit for Ladies Palates, nor those who court them, farther than to permit a light touch on the Dish with a *Clove* thereof, much better supply'd by the gentler *Rocombole*.

Note, That in *Spain* they sometimes eat Garlick boil'd, which taming its Fierceness turns it into Nourishment, or rather Medicine.

31. *Rocombole* or *Rocembole*, Names of late Years not known with us; are distinguish'd by those small *Bulbs* which compose the Head of the *Spanish Vipers*, *Garlick Ophioscoridon*, or *Scorodoprassum alterum bulboso & convoluto capite*.

32. Leeks, *Porrum Capitatum*; hot, and of Virtue said to be prolific, since *Latona*, the Mother of *Apollo*, long'd after them. The *Welch*, who eat them much, are observ'd to be very fruitful; they are also friendly to the Lungs and Stomach, being sod in *Milk*; a few therefore of the tender and green *Summities* a little shred, do not amiss in Compositions.

Garlick, *Rocombole*, and *Leeks*, are all of the same Affinity. *Bulbs* with solid flat Leaves; *Graveolentes*, strong scented *Bulbs*, and would be very nauseous to us, especially our Ladies, unless they were as generally eaten by that nice Sex, as they are among those of *Spain*. Near related to these, are *Onions*; which we refer to in their Place in the Alphabet.

Guiney-Pepper, *Capsicum*, is a Species of *Solanum*, without any relation to our *Pepper*, but for its Piccancy and Mordacity; which we shall say more of hereafter.

33. Goats-beard, *Trago-pogon*; but of late they have *Italianiz'd* the Name, and now generally call it *Salsifix*; and our Seed-Sellers, to disguise it, being a very common Field Herb, growing in most Parts of *England*,

England, would have it thought (with many others) an Exotick, and call it *Salsify* and *Sassify*; whilst, by whatever Name dignify'd or distinguish'd, it must be own'd to be an excellent *Sallet-Root*, and very nutritive, and may be stew'd and dress'd as *Sorzonera*, exceedingly amicable to the Breast.

34. Hops, *Lupulus*; hot and moist, rather *Medicinal* than fit for *Sallets*: The *Buds* and young *Turiones* of the *Tendrels* excepted, which may be eaten raw; but more conveniently being boil'd, and cold, like *Asparagus*: They are *Diuretic*; depurate the Blood, open Obstructions, very wholesome and grateful to the *Palate*.

35. Hyssop, *Hyssopus*; *Thymus Capitatus Creticus*; *Majoran*, *Winter-Savory*, *Satureia domestica*, *Thymus vulgaris*, *Caltha vulgaris*, *Mary-gold*, &c. as all hot, spicy *Aromatics*, (commonly growing in *Kitchen-Gardens*) are of Faculty to comfort and strengthen; prevalent against Melancholy and Phlegm: Plants, like these, going under the Names of *Pot-Herbs*, are much more proper for *Broths* and *Decoctions*, than the tender *Sallet*: Yet the *Tops* and *Flowers* reduc'd to Powder, are by some reserv'd for Strewings upon the colder Ingredients; communicating no ungrateful Fragrancy: See the true *Thyme* of the *Ancients*.

36. Jack-by-the-Hedge, *Aliaria*, (so call'd from its *Allium*-like *Sapor* and *Odour*) or *Sauce-alone*; has many Medicinal Properties, and is eaten, as other *Sallets*, by all Lovers of *Garlick*, (the Antients us'd it as a *Succedaneum* to *Scordium*) especially by Country-People, growing wild under their Banks and Hedges.

37. Judas's-Tree, *Arbor Jude*: Its pretty light-colour'd *Papilionaceous* Flowers have a very grateful Acidity, and thereby gain'd Admittance amongst our *Acetaria*.

Leeks, See *Garlick*.

38. Lettuce, *Lactuca Sativa*: Tho' by *Metaphor* call'd * *Mortuorum Cibi*, (to say nothing of † *Adonis* and his sad *Mistress*) by reason of its *Soporiferous* Quality, ever was, and still continues, the principal Foundation of the universal *Tribe* of *Sallets*; which is too cool and refresh, besides its other Properties: And therefore in such high Esteem with the *Ancients*, that divers of the *Valerian* Family, dignify'd and enobled their Name with that of *Lactucinii*.

It is, indeed, of Nature more cold and moist than any of the rest, yet less astringent, and so harmless, that it may safely be eaten raw in Fevers; for it allays Heat, bridles Choler, extinguishes Thirst, excites Appetite, kindly nourishes; and above all, represses Vapours, conciliates Sleep, mitigates Pain; besides the Effect it has upon the Morals, *Temperance* and *Chastity*. *Galen* (whose beloved *Sallet* it was) from its *pinguid*, *subdulcid*, and agreeable Nature, says it breeds the most laudable Blood. No marvel then that they were by the *Ancients* called *Sana*, by way of Eminency, and so highly valu'd by the great || *Augustus*, that attributing his Recovery of a dangerous Sickness to them, 'tis reported, he erected a *Statue*, and built an *Altar* to this noble Plant.

And that the most abstemious and excellent Emperor * *Tacitus* (spending almost nothing at his frugal Table in other Dainties) was yet so great a Friend to *Lettuce*, that he was us'd to say of his Prodigality, *Somnum se mercari illa sumptu effusione*. How it was celebrated by *Galen* we have heard; how he us'd it he tells himself; namely, beginning with *Lettuce* in his younger Days, and concluding with it when he grew old,

* Eubulus.
† In *Lactuca*
occultatum
à Venere *Adonis*
cecinit
Callimachus,
quod Allego-
rice interpre-
tatur *Athena-*
us illuc refe-
rendum pu-
tat, quod in
Venerem he-
betiores fiant
Lactucis ve-
scentes assidue.

|| Apud *Sueton.*

* *Vopiscus*
Tacit. For
the rest both of
the Kinds and
Vertues of *Lettuce*,
See *Plin.*
H. Nat. l. xix.
c. 8. and xx.
c. 7. *Fernel.*
and &c.

and that to his great Advantage. In a word, we meet with nothing among all our crude Materials and *Sallet* Store, so proper to mingle with any of the rest, nor so wholesome to be eaten alone, or in Composition, moderately, and with the usual *Oxolyum* of *Vinegar*, *Pepper*, and *Oyl*, &c. which last does not so perfectly agree with the *Alphange*, to which the Juice of *Orange*, or *Lemon*, and *Sugar*, is more desirable: *Aristoxenus* is reported to have irrigated his *Lettuce*-Beds with an *Oinomelite*, or Mixture of *Wine* and *Honey*: And certainly 'tis not for nothing that our Garden-Lovers, and *Brothers of the Sallet*, have been so exceedingly industrious to cultivate this noble Plant, and multiply its *Species*; for to name a few in present use: We have the *Alphange* of *Montpelier*, crisp and delicate; the *Arabic*, *Ambervelleres*, *Belgrade Cabbage*, *Capuchin*, *Coss-Lettuce* from *Turkey*, *Curl'd*; the *Genoa*, (lasting all the Winter) the *Imperial*, and *Lobbs* or *Lop-Lettuces*. The *French Minion*, a dwarf kind: The *Oak-Leaf*, *Passion*, *Roman*, *Shell*, and *Silesian*, hard and crimp (esteemed of the best and rarest) with divers more. And here let it be noted, that besides three or four sorts of this Plant, and some few of the rest, there was within our remembrance, rarely any other *Salleting* serv'd up to the best Tables; with unblanch'd *Endive*, *Succory*, *Purselan*, (and indeed, little other variety) *Sugar* and *Vinegar* being the constant *Vehicles* (without *Oyl*;) but now *Sugar* is almost wholly banish'd from all, except the more effeminate Palates, as too much palling, and taking from the grateful *Acid* now in use, tho' otherwise not totally to be reprov'd: *Lettuce* boil'd and *condited* is sometimes spoken of.

39. *Limon* or *Lemmons*, *Limonia*, *Citrea mala*, exceedingly refreshing, *Cordial*, &c. The Pulp being blended with the Juice, excluding the over-sweet or bitter. See *Orange*.

40. *Mallow*, *Malva*; *Malva Crispa*, *French* curl'd *Mauves*, the most preferable, is emollient, and friendly to the *Ventricle*, and so rather Medicinal; yet may the Tops, well boil'd, be admitted, and the rest (tho' out of use at present) was taken by the Poets for all *Sallets* in general. *Pythagoras* held *Malvæ folium Sanctissimum*; and we find *Epimenides* in * *Plato* at his *Mallows* and *Asphodel*; and indeed, it was of Old the first Dish at Table: The *Romans* had it also in *deliciis*, * *Malvæ salubres corpori*, approved by † *Galen* and ‖ *Dioscorides*; namely, the *Garden-Mallow*, by others the *Wild*; but, I think, both proper rather for the *Pot* than *Sallet*. *Nonius* supposes the tall *Rosea*, *Arborescent Holi-hocks*, that bears the broad Flower, for the best, and very ¶ *laxative*; but by reason of their Clamminess and *Lentor*, banished from our *Sallet*, tho' by some commended and eaten with *Oyl* and *Vinegar*, and some with *Butter*.

The *French* in their early Spring *Sallets*, add the young Tops and tender Leaves of the *Marsh-mallow*, which they call *Guimave*, for a most admirable *Nephritick*, as is also the *Syrupus Althæus*.

Mercury, See *Blite*.

* De Legib.

* Hor. Epod.
11.

† De Simp.
Medic. L.vii.
‖ Lib.ii. cap.3.

¶ Exoneratur Ventrem mihi Villica Malvas
Attulit, & varias, quas habet hortus. Ope. MART. Lib. x.
And our sweet Poet.

Nulla est humanior herba,
Nulla magis suavi commoditate bona est,
Omnia tam placide regerat, blandeque relaxat,
Emollitque vias, nec finit esse rudes. COWL. Plan. L. 4.

41. Melon,

41. Melon, *Melo*; to have been reckon'd rather among *Fruits*; and tho' an usual Ingredient in our *Sallet*, yet for its transcendent Delicacy and Flavour, cooling and exhilarating Nature, (if sweet, dry, weighty, and well-fed) not only superior to all the *Gourd-kind*, but Paragon with the noblest Productions of the Garden. *Jos. Scaliger*, and *Casau- bon*, think our *Melon* unknown to the Ancients, (which others contra- dict) as yet under the Name of *Cucumbers*: But he who reads how artificially they were cultivated, rais'd under Glasses, and expos'd to the hot Sun (for *Tiberius*), cannot well doubt of their being the same with ours.

There is also a *Winter*, or *Water-Melon*, large, and with black, and some yellowish Seeds, exceedingly cooling, brought us from abroad, and the hotter Climates, where they drink *Water* after eating *Melons*; but in the colder (after all Dispute) *Wine* is judg'd the better: That it has, indeed, by some, been accus'd, as apt to corrupt in the Sto- mach; and upon this Account, think both this *Cucumber* and *Let- tice* apt, by their *Mucilage*, to hinder and intangle the *Animal Spi- rits*, (as may all Things else eaten in Excess) is not deny'd: But a perfect good *Melon* is certainly as harmless a Fruit as any whatsoever; and may safely be mingled with *Sallet*, in Pulp or Slices, or more pro- perly eaten by it self, with a little *Salt* and *Pepper*; for a *Melon* which requires *Sugar* to commend it, wants of Perfection.

Note, That this Fruit was very rarely cultivated in *England*, so as to bring it to Maturity, till Sir *George Gardner* came out of *Spain*. I my self remembring, when an ordinary *Melon* would have been sold for five or six Shillings. The small unripe Fruit, when the others are past, may be pickled like *Mango*, and are very delicate.

42. Mint, *Mentha*; the *Angustifolia Spicata*, Spear-Mint; dry and warm, very fragrant a little press'd, is friendly to the weak Sto- mach, and powerful against all *nervous* Crudities: The gentler Tops of the *Orange-Mint*, enter well into our Composition, or are grateful alone (as are also the other Sorts) with the Juice of *Orange*, and a little *Sugar*. The *French* chiefly esteem the *Mentha Sativa Crispa* or Curled Mint, (which they call *Baume*) and mix it with their *Sallets*.

43. Mushrooms, *Fungi Esculenti*: By the * Orator call'd *Terræ*; * *Cic. ad At-* by *Porphyry*, *Deorum filii*, without Seed (as produc'd by the Mid-*tic.* wifry of *Autumnal* Thunder-Storms, portending the Mischief they cause) by the *French*, *Champignons*, with all the Species of the *Bo- letus*, &c. for being, as some hold, neither *Root*, *Herb*, *Flower*, nor *Fruit*, nor to be eaten crude; should be therefore banish'd entry in- to our *Sallet*, were I to order the Composition; however so highly contended for by many, as the very principal and top of all the rest; whilst I think them tolerable only (at least in this Climate) if being fresh and skilfully chosen, they are accommodated with the nicest Care and Circumspection; generally reported to have something malignant and noxious in them: Nor without Cause; from the many sad Examples, frequent Mischiefs, and funest Accidents they have produc'd, not only to particular Persons, but whole Families: Exalted, indeed, they were to the second Course of the *Cæsarian Tables*, with the noble Title *Βρῆμα Θεῶν*, a Dainty fit for the *Gods* alone; to whom they sent the Emperor † *Claudius*, as they have many since, to the other World. But he that reads how *Seneca* || deploras his lost Friend, that

† Sueton. in
Claus.
|| Sen. Ep.
lxiii.

* Plin. N. H.
l. xxii. c. 23.

that brave Commander *Annaeus Serenus*, and several other gallant Persons with him, who all of them perished at the same Repast, would be apt to ask with the * *Naturalist* (speaking of this suspicious Dainty) *Que voluptas tanta ancipitis cibi?* And who, indeed, would hazard it? So true is that of the Poet, he that eats *Mushrooms*, many times *Nil amplius edit*, eats no more perhaps all his Life after. What other deterring *Epithets* are given for our Caution, Βάρον περιβόητον μωχόντα, heavy and choaking, (*Athenæus* reporting of the Poet *Euripides's* finding a Woman and her three Children strangled by eating of them) one would think sufficient Warning.

Among these comes in the *Fungus Reticularis*, (*Porosus*, or *Honey-Comb*, the *French*) to be found about *London*, as at *Fulham* and other Places; whilst at no small Charge we send for them into *France*; as we do also for *Truffles*, *Pignuts*, and other subterraneous *Tubera Terræ*, which in *Italy* they fry in Oil, and eat with *Pepper*: They are commonly discovered, scented and rooted out (how deep in the Ground soever) by a *nasute greedy Swine*, purposely brought up; being of a Chest-nut Colour, and heady, rank, and Hercline Smell, and not seldom found in *England*, particularly in a Park of my Lord *Cotton's*, at *Rushton* or *Rusbery* in *Northamptonshire*, in the Wilderness adjoining to the Viscount *Cullen's* Garden there; and doubtless in other Places too, were they sought after: By many believ'd to have originally been brought thither out of *France*, when by a very surprising Accident, they were first discover'd by the almost incredible Voracity of *Swine*, allur'd by the Scent of the *Truffles* of the adjacent Fields, and could scarce be kept off with the *Spades* and *Dogs* of the Labourers, who, in order to plant the *Wilderness*, were digging up a piece of Ground, in which some Trees sent out of *France* had been planted, with the *Cake-Earth* adhering to the Roots, flung into the Holes. If this be the Origin of the *Rushton Truffles*, 'twill confirm the Opinion of *Truffles* being no Natives of *England*, unless sprung here from those brought from Foreign Parts. In the mean while, one brought from Abroad, is, with its small *fibrous Roots*, delineated in the *Philos. Transact.* (N^o. 202.); which doth fully demonstrate the Error of the Ancients and Moderns, who assert, that they have no Root; when probably they were rubb'd off when they were Dug out of the Ground, and being so very small, not heedfully minded or perceived. How these rank and provocative Excrescences are to be † treated (of themselves insipid enough, and only famous for their kindly taking any Pickle or *Conditure*) that they may do the less Mischiefs, we might here set down. But since there be so many ways of dressing them, that I can encourage none to use them, for Reasons given (besides that they do not at all concern our safer and innocent *Sallet Furniture*) I forbear it; and refer those who long after this beloved *Ragout*, and other *Voluptuaria Venena* (as *Seneca* calls them) to what our learned Dr. *Lyster* || says of the many venomous *Insects* harbouring and corrupting in a new found-out Species of *Mushrooms* had lately in *deliciis*. Those, in the mean time, which are esteemed best, and less pernicious, (of which see the *Appendix*) are such as rise in rich, airy, and dry * *Pasture-Grounds*, growing on the Staff or *Pedicule* of about an Inch thick and high; moderately swelling (*Target-like*) round and firm, being underneath of a pale flesh-colour'd Hue, curiously radiated in parallel Lines and Edges, which becoming either yellow,

† Apitius, lib.
vii. cap. 13.

|| *Philos.*
Transact.
Num. 89. 202.
Journey to
Paris.
* *Pratenfibus*
optima fun-
gis Natura
est aliis male
creditur,
Her. Sat. l. 7.
Sat. 4.

low, orange, or black, are to be rejected: But besides what the Harvest-Months produce, they are likewise rais'd * artificially; as at Naples in their Wine-Cellars, upon an heap of rank Earth, heaped upon a certain supposed Stone, but in truth, (as the curious and noble † Peiresky tells us, he found to be) nothing but an heap of old Fungus's, reduc'd and compacted to a stony Hardness, upon which they lay Earth, and sprinkle it with warm Water, in which Mushrooms have been steeped. And in France, by making an hot Bed of Asses or Horses Dung, and when the Heat is in Temper, watering it (as above) well impregnated with the Parings and Offals of refuse Fungus's; and such a Bed will last two or three Years; and sometimes our common Melon-Beds afford them; besides other Experiments: Among which is the Cuttings of the White-Poplar or Abele, almost to the very Root, plentifully soaked with hot Water fermented with Yest; which produces those Fungi in a few Days very eatable and agreeable. Others affirm the same of the loose Chips of the same Tree, being bury'd in a rich dung'd Bed.

* Bacon Nat. Hist. 12. Cent. vii. 547, 548. &c.
† Gassend. Vita Peires. l. iv. Raderus Mart. l. Epig. xlv. In ponticum, says, within few Days.

44. Mustard, *Sinapi*; exceeding hot and mordicant, not only in the Seed but Leaf also; especially in Seedling young Plants, like those of Radishes (newly peeping out of the Bed) is of incomparable effect to quicken and revive the Spirits; strengthening the Memory, expelling Heaviness, preventing the Vertiginous Palsy, and is a laudable Cephalick: Besides, it is an approv'd Antiscorbutick; aids Concoction, cuts and dissipates Phlegmatick Humours. In short, 'tis the most noble Embamma, and so necessary an Ingredient to all cold and raw Salleting, that it is very rarely, if at all, to be left out. In Italy, in making Mustard, they mingle Limon and Orange-Peel with the Seeds. How the best is made, see hereafter.

Nasturtium Indicum, See Cresses.

45. Nettles, *Urtica*; hot, dry, Diuretic, Solvent; purifies the Blood: The Buds, and very tender Cymæ, a little bruis'd, are by some eaten raw, by others boil'd, especially in Spring-Pottage, with other Herbs.

46. Onion, *Cepa Vulgaris*, *Porrum*: The best are such as are brought us out of Egypt or Spain, whence they of St. Omers had them, and some that have weigh'd eight Pounds. Chuse therefore the large, round, white, and thin skin'd. Being eaten crude and alone with Oyl, Vinegar, and Pepper, we own them in Sallet not so hot as Garlick, nor at all so rank: Boil'd, they give a kindly Relish; raise Appetite, corroborate the Stomach, cut Phlegm, and profit the Asthmatical: But eaten in Excess, are said to offend the Head and Eyes, unless edulcorated with a gentle Maceration. In the mean Time, as to their being noxious to the Sight, is imputable only to the Vapour rising from the raw Onion, when peel'd, which some commend for its purging and quickning that Sense. How they are us'd in Pottage, boil'd in Milk, strew'd, &c. concerns the Kitchen. In our cold Sallet we supply them with the *Porrum Sectivum*, Tops of Leeks, and Eschalots (*Ascalonica*) of Gust more exalted, yet not to the degree of Garlick. Or (by what of later Use is much preferr'd) with a Bulb or two of *Racombole*, of a yet milder and delicate Nature, which by rubbing the Dish only, imparts its Virtue agreeably enough. In Italy they frequently make a Sallet of Schalions, Cives, and Cibbols, only season'd with Oil and Pepper; and an honest

* O Sanctas
gentes, qui-
bus hæc nasci-
cuntur in
hortis.
Numina—
Juv. Sat. 15.
† Herodotus.

laborious Countryman, with good *Bread*, *Salt*, and a little *Parsley*, will make a contented Meal with a roasted *Onion*. How this noble *Bulb* was deify'd in * *Egypt* we are told, and that whilst they were building the Pyramids, there was spent in this Root † nine Tun of *Gold* among the Workmen. So luscious and tempting it seems they were, that as whole Nations have subsisted on them alone, so the *Israelites* were ready to return to *Slavery* and *Brick-making* for the Love of them. Indeed *Hecamedes* we find presents them to *Patroclus* in *Homer*, as a *Regalo*: But certainly we are either mistaken in the Species, (which some will have to be *Melons*) or use *Poetick* License, when we so highly magnify them. This Mention of the *Israelites* Fondness of them, calls to mind what that noble (but unfortunate) Earl of *Sandwich* told me, That being with the Fleet in the *Mediterranean*, near the Coast of *Egypt*, he had brought him *Onions* little inferior in Taste to *Melons*.

47. *Scalions* or *Cibbols*, *Cipolini*, (as the *French* and *Italians* call them) are degenerate *Onions*, participating with them in their Qualities.

48. *Cives*, *Porrum sectivum junci folium*; or as the *French*, *Cives d'Angleterre* & *Appelites*; which they (as also do the *Scalions*) notably stir up and quicken.

49. *Eschalots* or *Schalots*, *Cepa Ascalonica*; correct Crudities, and promote Concoction. The *Italians* steep them in Wine, and eat them cold with *Oyl*, *Vinegar* and *Salt*. The Learned *Stephanus Morinus*, in his Notes on *Steph. Byzantinus*, (annex'd to those of the famous * *Bochart*) tells us, That none, save the Dregs of the People, among the *Grecians*, us'd to eat *Garlick* or *Onions*, but the *Idumæans*, and their Neighbours, esteem'd them as their most delicious Fare, especially a sort they had from *Ascalon*; whence it derives its Name.

In short *Onions*, *Scalions*, *Cives*, *Eschalots*, &c. are all of the same Family, *Graveolentes*, strong-scented *Bulbs*, with solid flat Leaves. See *Garlick*, to which they are cognate.

50. Orach, *Artiplex*: Is cooling, allays the *Pituit* Humour: Being set over the Fire, neither *this* nor *Lettuce* needs any other Water than their own Moisture to boil them in without Expression. The tender Leaves are mingl'd with other cold Salleting; but 'tis better in Pottage. There are some of white, red, or purple; the best Seed comes from *Turkey*. See *Blitum*.

51. There is another *Atriplex Maritima Fruticosa*, call'd *Sbrub Halimus*, or *Sea Orach*, whose new peeping Leaves (tho' rarely us'd) afford a no unpleasant *Acidula*, even during Winter, if it prove not too severe.

52. Orange, *Malus Aurantia*, (*Malum aureum*) moderately dry, cooling, and incisive; sharpens Appetite, exceedingly refreshes, and resists Putrefaction: We speak of the Sub-acid; the sweet and bitter Orange being of no use in our Sallet. The *Limon* is somewhat more acute, cooling and extinguishing Thirst: Of all the *Oξέλαρα*, the best *Succedaneum* to *Vinegar*. The very Spoils and Rinds of Orange and *Limon* being shred and sprinkl'd among the other Herbs, correct the Acrimony. But they are the tender Seedlings from the Hot-Bed, which impart an *Aromatic* exceedingly grateful to the Stomach. Vide *Limon*.

53. Parsnep, *Pastinaca, Latifolia Sativa*; first boil'd, being cold, is of itself a Winter-Sallet, eaten with Oyl, Vinegar, &c. and having something of Spicy, is by some thought more nourishing than the Turnip.

54. There is also the *Water-Parsnip, Sium Majus Latifolium*: The crude tender Leaves, early in the Spring, are eaten in Spain; are very grateful for the Stomach, and a sovereign Remedy against the Gravel in the Kidney, or Stone in the Bladder: But operates much more efficaciously, if a good Handful of the whole Plant (whilst most flourishing) be boil'd in a Pint of White-Wine Posset-drink, and the percolated Liquor drank warm. In the Winter-time, and when the Plant is in Decay, if a large Spoonful of the Powder of the Leaves (gather'd and dry'd in the Summer) be taken in Posset-drink.

55. Patience, *Lapathum Hortense Sativum*, (to which may be join'd the *Sanguineum* or *Blood-wort*) being boil'd, is a palatable and wholesome *Esculent, laxative* and *emollient*: All the *Lapatha's* and *Docks* have, in some degree, the Faculties of *Rhubarb*, being of the same Family. *Vide* the *Sharp-pointed Dock*.

56. Pease, *Pisum*: The *Pod* of the *Sugar-Pease*, when first beginning to appear, with the *Husk* and *Tendrils*, affording a pretty *Acid*, enters into the Composition, as do those of *Hops* and the *Vine*.

57. Pepper, *Piper*; hot and dry in a high degree; of approv'd Virtue against all Flatulency proceeding from cold and phlegmatic Constitutions, and generally all Crudities whatsoever; and therefore for being of universal Use to correct and temper the cooler Herbs, and such as abound in Moisture, it is a never-to-be-omitted Ingredient of our *Sallets*, provided it be not too minutely beaten (as oft we find it) to an almost impalpable Dust; which is very pernicious, and frequently adheres and sticks in the Folds of the Stomach, where, instead of promoting Concoction, it often causes a *Cardialgium*, and fires the Blood: It should therefore be grossly contus'd only.

Indian, or *Solanum Capsicum*, superlatively hot and burning, is yet by the *Africans*, as also the Southern *Americans*, eaten with Salt and Vinegar by itself, as an usual Condiment; but would be of dangerous Consequence with us, being so much more of an acrimonious and terribly biting Quality; which by Art and Mixture is notwithstanding render'd not only safe, but very agreeable in our *Sallet*.

Take the *Pods*, and dry them well in a Pan; and when they are become sufficiently hard, cut them into small Pieces, and stamp 'em in a Mortar to Dust: To each Ounce of which add a Pound of Wheat-flour, fermented with a little Leven: Knead and make them into Cakes or Loaves cut long-wise in shape of *Naples Biscuit*. These rebake a second time, till they are Stone-hard: Pound them again as before, and force it thro' a fine Sieve, for a very proper Seasoning, instead of vulgar *Pepper*. The Mordicancy thus allay'd, be sure to make the Mortar very clean, after having beaten *Indian Capsicum*, before you stamp any thing in it else. The green Husks, or first peeping Buds of the Walnut-tree, dry'd to Powder, serve for *Pepper* in some Places, and so do *Myrtle-berries*; which *Pliny* tells us, the Antients made use of instead of *Pepper*, before they knew the Virtue and Use of that Grain.

That great *Botanist*, the Learned and Excellent Dr. *Sloane*, (not to be mention'd by me without singular Respect) in his most admirable

and useful *Catalogue of Jamaica Plants*, has discovered to us, that the *Tree* which bears the famous *Spice* call'd *sweet-scented Jamaica Pepper* (or *All-Spice*) is a Species of *Myrtle*, by him call'd *Myrtus Arborea aromatica foliis Laurinis*: The accurate Description of which, expect from this Learned Doctor, when (his busy Profession allowing Leisure) he shall have oblig'd the curious World with a finish'd Impression of that incomparable Piece, The *Natural History of Jamaica*, and the other *Caribbee Islands*, with an Account of his Voyage.

58. Parsley, *Apium Hortense*, *Petroselinum vulgare*: The curl'd leav'd, *Apium Crispum*, most preferable, being hot and dry, opens Obstructions, is very *Diuretic*, yet nourishing, *edulcorated* in shifted warm Water, (the Roots especially) but of less Vertue than *Alexanders*; nor so convenient in our crude *Sallet*, as when decocted on a Medicinal Account. Some few Tops of the tender Leaves may yet be admitted; tho' it was of old, we read, never brought to the Table at all, as sacred to *Oblivium* and the *Defunct*. In the mean time, there being nothing more proper for Stuffing, (*Farces*) and other *Sauces*, we consign it to the *Oltories*. Note, That *Parsley* is not so hurtful to the Eyes as is reported.

59. Purslain, *Portulaca Hortensis*; especially the *Golden*, whilst tender, the Seed-leaves, with the young Stalks, being eminently moist and cooling, quickens Appetite, asswages Thirst, and is very profitable for hot and *Bilious* Tempers, as well as *Sanguine*, and generally entertain'd in all our *Sallets*, mingled with the hotter Herbs: 'Tis likewise familiarly eaten alone with *Oyl* and *Vinegar*; but with Moderation, as having been sometimes found to corrupt in the Stomach, which being *Pickl'd* 'tis not so apt to do. Some eat it cold, after it has been boil'd, which Dr. *Muffet* would have in *Wine*, for Nourishment.

Purslain is accus'd for being hurtful to the *Teeth*, if too much eaten. See *Purslain V. Orach*.

60. Radish, *Raphanus*, *Raves*: Albeit rather Medicinal, than so commendably accompanying our *Sallets* (wherein they often slice the larger Roots) are much inferior to the young Seedling Leaves and Roots; raised on the * Monthly *Hot-Bed*, almost the whole Year round, affording a very grateful Mordacity, and sufficiently attempers the cooler Ingredients: The bigger Roots (so much desir'd) should be such as being transparent, eat short and quick, without stringiness, and not too biting. These are eaten alone, with *Salt* only, as carrying their *Pepper* in them; and were, indeed, by *Dioscorides* and *Pliny* celebrated above all Roots whatsoever; insomuch as in the *Delphic Temple*, there was *Raphanus ex auro dicatus*, a Radish of solid Gold; and 'tis said of *Moschius*, that he wrote a whole Volume in their Praise. Notwithstanding all which, I am sure, the great † *Hippocrates* utterly condemns them, as *Vitiosæ, innatantes ac ægre concoctiles*. And the *Naturalist* calls it *Cibus Illiberalis*, fitter for *Rustics* than *Gentlemen's* Tables. And indeed, (besides that they decay the Teeth) Experience tells us, that as the Prince of *Physicians* writes, It is hard of Digestion, inimicus to the Stomach, causing nauseous Eructations, and sometimes Vomiting, tho' otherwise *diuretic*, and thought to repel the Vapours of *Wine*, when the *Wits* were at their genial Club. *Dioscorides* and † *Galen* differ about their Eating; One prescribes it before Meals, the latter for after. Some macerate the young Roots in warm Milk, to render them more nourishing.

* *De n. p. d.*
Siue caliditas
quia tertio a
saturne die appa-
reat.

† De dieta
lib. ii. cap. 25.

† De Aliment
Facult. lib. ii.

There is a *Raphanus rusticus niger Pyriformis*, the *Spanish* black *Horse-Radish*, of a hotter Quality, and not so friendly to the Head; but a notable *Antiscorbutic*, which (being preserv'd in Seed) may be eaten all the Winter, and on that account an excellent Ingredient in the Composition of *Mustard*; as are also the thin Shavings, mingled with our cold Herbs. And now before I have done with this Root, for an excellent and universal *Condiment*, take *Horse-Radish*, (which is the *Sylvestris Rusticanus*) whilst newly drawn out of the Earth, otherwise laid to steep in Water a competent time; then grate it on a *Grater* which has no bottom, that so it may pass thro' like a Mucilage, into a Dish of Earthen Ware: This temper'd with *Vinegar* in which a little *Sugar* has been dissolv'd, you have a *Sauce* supplying *Mustard* to the *Sallet*, and serving likewise for any Dish besides.

61. Rampion, *Rapunculus*, or the *Esculent Campanula*, by the *French*, *Reponces*: The tender Roots are eaten in the Spring, like those of *Radishes*, but much more nourishing.

62. Rocket, *Eruca Sativa*; hot and dry, is to be qualify'd with *Lettuce*, *Purcelain*, and the rest, &c. See *Tarragon*.

Roccombe, See *Garlick*.

63. Rosemary, *Rosmarinus*; Sovereignly *Cephalick*, and for the *Memory*, *Sight*, and *Nerves*, incomparable: And tho' not us'd in the Leaf with our *Sallet* Furniture, yet the *Flowers* a little bitter, are always welcome in *Vinegar*; but above all, a fresh Sprig or to in a Glass of *Sherry-Sack*. See *Flowers*.

64. Sage, *Salvia*; hot and dry. The Tops of the *Red*, well pick'd and wash'd (being often defil'd with a venomous Slime, and almost imperceptible *Insects*) with the *Flowers*, retain all the noble Properties of the other hot Plants; more especially for the *Head*, *Memory*, *Eyes*, and all *Paralytical* Affections. In short, 'tis a Plant endu'd with so many and wonderful Properties, as that the assiduous use of it is said to render Men *Immortal*: We cannot therefore but allow the tender *Summities* of the young Leaves; but principally the *Flowers* in our cold *Sallet*; yet so as not to domineer: 'Tis credibly affirm'd, That the *Dutch* for some time drove a very lucrative Trade with the dry'd Leaves of what is call'd *Sage of Vertue*, and *Guernsey Sage*; where it is in great Esteem, and was there first propagated from *Plants* brought out of *England*: Both the *Chineses* and *Japaneses* are great Admirers of that sort of *Sage*, and so far prefer it to their own *Tea*, (esteeming it much more wholesome, and perhaps they are in the right) that for what *Sage* they purchase of the *Dutch*, they give triple the quantity of the choicest *Tea* in exchange: Some Persons here have a greater value for the *Wormwood Sage* than any of the rest.

Salfifax, See *Goats-beard*.

65. Sampier, *Crithmum Marinum*; *French*, *Perce Pierre*, for its growing on the Sea-Cliffs, and in the Corners of the hardest Rocks (as about *Dover*, &c. from whence we have it) not only pick'd, but crude and cold, when young and tender (and such as we may cultivate, and have in our *Kitchen Gardens*, almost the Year round) and is in my Opinion, for its *Aromatic*, and other excellent Vertues and Effects against the *Spleen*, cleansing the Passages, sharpening Appetite, &c. so far preferable to most of our hotter Herbs, and *Sallet*-Ingredients, that I have long wonder'd, it has not been long since propagated in the *Potagere*, as it is in *France*; from whence I have often receiv'd the *Seeds*,

which have prosper'd better, and more kindly with me, than what comes from our own Coasts: It does not indeed *pickle* so well, as being of a more tender Stalk and Leaf: But in all other respects for composing *Sallets*, it has nothing like it. If the Seeds be sow'd in a gravelly Bank, expos'd to the South, or under that warm *Aspect*, it will insinuate it self into the very Materials, and may be cut like other Sallet-Herbs, without detriment, and continue springing with little Culture; yet in excessive Dearth, wet, or cold, afford it a little Shelter, and so it will last an Ever-green, and may be apply'd for Bordering.

Scallions, See *Onions*.

66. Scurvy-grass, *Cochlearia major Rotundifolia*, of the Garden; but especially that of the Sea, *Cochlearia folio sinuato*, or *Britannica*, is sharp, biting, and hot; of Nature like *Nasturtium*, prevalent in the *Scorbute*. A few of the tender Leaves may be admitted in our Composition. See *Nasturtium Indicum*.

67. Sellery, *Apium Mitius Italicum*, (and of the *Petroseline* Family) was formerly a Stranger with us (nor very long since in *Italy* itself) as to the *Italian* Name: Nor is it a distinct *Species* of *Smallage*, or *Macedonian Parsly*, tho' somewhat more hot and generous by its frequent Transplanting, and thereby render'd sweeter scented. We have the best Seeds from *Italy*, whose tender Leaves and *blanch'd* Stalk do well in our *Sallet*, as likewise the Slices of the whiten'd Stems, which being crimp and short, first peel'd and slit long-wise, are eaten with *Oyl*, *Vinegar*, *Salt*, and *Pepper*; and for its high and grateful Taste, is ever plac'd in the middle of the *Grand Sallet*, at our Great Men's Tables, and *Prætors* Feasts, as the Grace of the whole Board. *Caution* is to be given of a small red *Worm*, often lurking in these Stalks, as does the green in *Fennil*.

Shallots. See *Onion*.

68. Skirrets, *Sisarum Sativum*, or *Germanorum*, B. P. French *Chervi*; is hot and moist, corroborating, and good for the Stomach, exceedingly nourishing, wholesome and delicate; of all the *Root-kind*, not subject to be windy, and so valued by the Emperor *Tiberius*, that he accepted them for Tribute.

This excellent Root is seldom eaten raw; but being boil'd, stew'd, roasted under the Embers, bak'd in Pies, whole, slic'd, or in Pulp, is very acceptable to all Palates. 'Tis reported, they were heretofore something bitter: See what Culture and Education effects.

Smallage, See *Sellery*.

69. Sorrel, *Acetosa*, or *Oxalis*, of which there are divers kinds: The broad German, *Acetosa maxima Germanica*; the Roman or French *Acetocella*, with the Round Leaf; *Oxalis Franca*, or *Romana*, with the repent Rounder Leaf, found by that accomplish'd Botanist, the late * Mr. Ray, growing in *Cumberland*, (as likewise in *Wales*;) The barren Sorrel of *Russia*, deservedly esteem'd by many: But after all, the best is that of *Greenland*. Sorrel is by Nature cold, absterfve, acid, sharpening the Appetite, asswages Heat, cools the Liver, strengthens the Heart; is an *Antiscorbutic*, resisting Putrefaction, and imparting so grateful a quickness to the rest, as supplies the want of *Orange*, *Limon*, and other *Omphacia*; and therefore never to be excluded. Vide Wood-Sorrel.

* Catalogue of
English Plants
2 Edit.

70. Sowthistle, *Sonchus*; of the *Intybus*-kind. *Galen* was us'd to eat it as *Lettuce*; exceedingly welcome to the late *Morocco* Ambassador, and his Retinue.

71. Sparagus, *Asparagus* (*ab Asperitate*;) temperately hot and moist; *Cordial*, *Diuretic*, easy of Digestion; and next to Flesh, nothing more nourishing, as *Sim. Sethius*, an excellent Physician, holds. They are sometimes, but very seldom, eaten raw with *Oyl* and *Vinegar*; but with more Delicacy (the Bitterness first exhausted) being so speedily boil'd, as not to lose the Verdure and agreeable Tenderness; which is done, by letting the Water boil before you put them in. We generally in *England* prejudice both *Sparagus*, *Coleworts*, (and most other *Herbaceous Esculents*) by over-boiling them, whereby their *Volatile Salts* (in which much of their Virtue consists) are evaporated. The *Romans* did with that Celerity boil their *Asparagus*, that *Augustus*, when he order'd any Business to be expedited, his proverbial Saying was, Let it be dispatch'd *Citius quam Asparagi coquuntur*. I do not esteem the *Dutch* great and larger Sort (especially rais'd by the Rankness of the Beds) so sweet and agreeable as those of a moderate Size. And yet to shew what *Solum*, *Cælum*, and Industry will effect, the honourable and learned *Charles Hatton*, Esq; (to whom all our *Phytologists*, and Lovers of *Horticulture*, are oblig'd, and myself in particular for many Favours) made my Wife a present of sixteen *Sparagus*, the whole Bunch containing only sixty, which weighed fifteen Pounds and a quarter; so as allowing four Ounces to each *Sparagus*, one was as many as one would desire to eat: And that which is yet as observable, is, their not being rais'd and forc'd by extraordinary Compost, (as they generally are) but in a more natural, sweet, rich, and well cultivated Soil about *Battersea*.

72. Spinach, *Spinachia*, *Lapathum Hortense*; of old not us'd in *Sallets*, and the oftner kept out the better: I speak of the *crude*; but being boil'd to a *Pulp*, and without other Water than its own Moisture, is a most excellent Condiment with Butter, Vinegar, or Limon, for almost all sorts of boil'd Flesh; and may accompany a sick Man's Diet. 'Tis *Laxative* and *Emollient*, and therefore profitable for the Aged, and tho' by Original a *Spaniard*, may be had at almost any Season, and in all Places.

73. Stone-Crop, *Vermicularis Inspida*, (by the *French*, *Tripe Madame*;) is cooling and moist, grateful to the Stomach. The *Turion*es or Tops being young and tender, dress'd like *Purslain*, is a frequent Ingredient in our cold *Sallets*.

But there is another *Stone-Crop* of as pernicious Qualities as those of the former are laudable; *Wall-Pepper* or *Stone-Crop*, *Sedum minus Causticum*; by the *French*, *Tricque Madame*: If therefore the *Sallet-Composer* be not *Botanist* sufficiently skilful, upon his own View, to distinguish the *Wall-Pepper Stone-Crop*, which is hot and fiery, from that which is insipid, it were adviseable for him, before he puts either of them into the *Sallet*, to consult his Palate, and taste them first.

74. Succory, *Cichorium Sylvestre*, an *Endive*; erratic or wild, with a narrow dark Leaf, different from the *Sative*, tho' probably by Culture only; and for being very bitter, a little *edulcorated* with Sugar and Vinegar, is by some eaten in the Summer, but more grateful to the Stomach than the Palate. See *Endive*.

75. Tanfy, *Tanacetum*; hot and cleansing; but in regard of its domineering Relish, sparingly mix'd with our cold *Sallet*, and much fitter (tho' in very small Quantity) for the Pan, being qualify'd with the Juices of other fresh Herbs, *Spinach*, *green Corn*, *Violet*, *Primrose-Leaves*, &c. at Entrance of the Spring, and then fry'd brownish, is eaten hot, with the Juice of *Orange* and *Sugar*, as one of the most agreeable of all the boil'd *Herbaceous* Dishes. Of this Herb some prefer the Curl'd.

76. Tarragon, *Draco Herba*, *Dracunculus Hortensis*; of *Spanish* Extraction; hot and spicy: The Tops and young Shoots, like those of *Rocket*, never to be secluded our Composition, especially where there is much *Lettuce*. 'Tis highly cordial, and friendly to the Head, Heart, Liver, correcting the Weakness of the Ventricle, &c.

77. Thistle, *Carduus Mariæ*; our Lady's milky or dapp'd *Thistle*, disarm'd of its Prickles, and boil'd, is worth Esteem, and thought to be great Breeders of *Milk*, and proper Diet for Women who are Nurses. The young Stalk, about *May*, (and sold in our Herb-Markets) being peel'd and soak'd in Water to extract the Bitterness, boil'd or raw, is a very wholesome *Sallet*, eaten with *Oyl*, *Salt*, and *Pepper*. Some eat them sodden in proper Broth, or bak'd in Pies, like the *Artichok*; but the tender Stalk boil'd or fry'd some prefer; both nourishing and restorative.

78. Thyme, *Thymus*; of which before (speaking of *Pot-Herbs*, Num. 35.) The true *Thyme* of the Antients is the *Thymus Capitatus Crepitus*, or *Candy Tuft*; a Plant of a most agreeable *Odor*, and grateful *Sapor*; a considerable Quantity being frequently, by the *Hollanders*, brought from *Maltha*, and other Places in the *Streights*, who sell it at home, and in *Flanders*, for Strewings amongst their *Sallets* and *Ragout*; and call it *All-Sauce*.

Tricque-Madame, see *Stone-Crop*.

79. Turnip, *Rapum Vulgare*, *F. Raves*; moderately hot and moist. *Napus*: The long little *Navet* is certainly the most delicate of them, and best nourishing, so as the *French* put it into most of their *Pottages*. *Pliny* speaks of no fewer than six Sorts, and of several Colours; some of which were suspected to be artificially tinged. But with us, the Yellow, which comes from *Denmark*, is preferr'd; by others, the red *Bohemian*. But of whatever Kind, being sown upon the *Hot-Bed*, and no bigger than seedling *Radish*, they do excellently in Composition; as do also the Stalks of the common *Turnip*, when first beginning to bud; and being boil'd, eat like *Sparagus*.

Here note, That this *Navet* is never to be sown in a rich Soil, wherein they rather degenerate than improve, or at all meliorate; but losing their Shape, dry and agreeable Relish, become indeed moist and large: And therefore their proper Mould is rather a lean, dry, sandy Earth.

And here should not be forgotten, that wholesome, as well as agreeable sort of Bread we are * taught to make; and of which we have eaten at the greatest Persons Tables, hardly to be distinguish'd from the best of *Wheat*.

Let the *Turnips* first be peel'd, and boil'd in Water till soft and tender; then strongly pressing out the Juice, mix them together, and when dry, (beaten or pounded very fine) with their Weight of *Wheat-Meal*, season it as you do other Bread, and knead it up; then letting

* *Phil. Trans.*
Vol. xvii.
Num. 205.
Page 970.

letting the Dough remain a little to *ferment*, fashion the Paste into Loaves, and bake it like common Bread.

Some roast *Turnips* in a Paper under the Embers, and eat them with *Sugar* and *Butter*.

80. Vine, *Vitis*, the *Capreols*, *Tendrels*, and *Claspers*, whilst very young, have an agreeable *Acid*, which may be eaten alone, or with other *Sallet*.

81. Viper-grass, *Viperaria*, *Scorzonera*, *Salsifix*, &c. though Medicinal and excellent against the *Palpitation of the Heart*, *Faintings*, *Obstruction of the Bowels*, &c. are besides a very sweet and pleasant *Sallet*; being laid to soak out the Bitterness, then peel'd, may be eaten raw, or *condited*; but best of all stew'd with *Marrow*, *Spice*, *Wine*, &c. as *Artichok*, *Skirrets*, &c. sliced or whole. They likewise may bake, fry, or boil them; a more excellent Root there is hardly growing.

82. Wood-Sorrel, *Trifolium Acetosum*, or *Alleluja*; of the Nature of other *Sorrels*.

To all which might be added sundry more, formerly had in *deliciis*, since grown *obsolete*, or quite neglected with us: As among the noblest *Bulbs*, that of the *Tulip*; a Root of which has been valued not to eat, but for the *Flower* (and yet eaten by Mistake) at more than an hundred Pounds. The young fresh *Bulbs* are sweet, and high of Taste.

The *Asphodil* or *Daffodil*; a *Sallet* so rare in *Hesiod's* Days, that *Lobel* thinks it the *Parsnip*, though not at all like it; however it was (with the *Mallow*) taken anciently for any *Edule-Root*.

The *Ornithogalons* roasted, as they do *Chestnuts*, are eaten by the *Italians*, the wild yellow especially, with *Oil*, *Vinegar*, and *Pepper*. And so the small *tuberous* Roots of *Gramen-Amygdalosum*, which they also roast, and make an *Emulsion* of, to use in Broaths as a great Restorative. The *Oxylapathum* us'd of Old, in the Time of *Galen* was eaten frequently: As also *Dracontium*, with the mordicant *Arum Theophrasti*, which *Dodonæus* teaches how to Dress: Nay, divers of the *Satyrions*, which some condit with *Sugar*, others boil'd in Milk, for a great Nourisher, now discarded. But what think we of the *Cicuta*, which there are who reckon among *Sallet-Herbs*? But whatever it is in any other Country, 'tis certainly mortiferous in ours. To these add the *Viola Matronalis*, *Radix Lunaria*, &c. nay, the *Green Poppy*, by most accounted among the deadly Poisons. How cautious then ought our *Sallet-Gatherers* to be, in reading ancient Authors; lest they happen to be impos'd on, where they treat of Plants that are familiarly eaten in other Countries, and among other Nations and People of more robust and strong Constitutions? Besides the hazard of being mistaken in the Names of divers *Simples*, not as yet fully agreed upon among the learned in *Botany*.

There are besides several remaining, which, though *abdicated* here with us, find Entertainment still in Foreign Countries. As the large *Heliotrope* and Sun-flower, (e'er it comes to expand, and shew its golden Face) which being dress'd as the *Artichok*, is eaten for a Dainty. This I add as a new Discovery: I once made *Macaroons* with the ripe blanch'd Seeds, but the *Turpentine* did so domineer over all, that it did not answer Expectation. The *Radix Personata* mounting with their young Heads; *Lisimachia siliquosa glabra minor*,

when fresh and tender, begins to come into the *Sallet-Tribe*. The pale whiter *Poppy* is eaten by the *Genouese*. By the *Spaniards*, the Tops of *Wormwood* with *Oil* alone, and without so much as *Bread*; profitable indeed to the Stomach, but offensive to the Head: As is also *Coriander* and *Rue*, which *Galen* was accusom'd to eat raw, and by it self with *Oil* and *Salt*, as exceedingly grateful, as well as wholesome, and of great Virtue against Infection. *Pliny*, I remember, reports it to be of such Effect for the Preservation of *Sight*, that the *Painters* of his Time us'd to devour a great Quantity of it. And it is still by the *Italians* frequently mingled among their *Sallets*. The *Lapatha Personata* (common *Burdock*) comes now and then to the best Tables, about *April*, and when young, before the *Burrs* and *Clots* appear, being stripp'd, and the Bitterness soak'd out, treated as the *Char-doon*, is eaten in *Poiverade*; some also boil them. More might here be reckon'd up, but these may suffice; since, as we find, some are left off, and gone out, so others be introduc'd and come in their Room, and that in much greater Plenty and Variety, than was ever known by our Ancestors. The *Cucumber* it self, now so universally eaten, being accounted little better than *Poison*, even within our Memory, as already noted.

To conclude: And after all that has been said of Plants and *Salleting*, formerly in great Esteem, (but since obsolete and quite rejected:) What if the exalted Juice of the ancient *Silphium* should come in, and challenge the Precedency? It is a ^a Plant formerly so highly priz'd, and rare for the Richness of its Taste, and other Virtues, that as it was dedicated to *Apollo*, and hung up in his Temple at *Delfhi*; so we read of one single Root brought to the Emperor *Nero* for an extraordinary Present; and the Drug so esteem'd, that the *Romans* had long before amass'd a Quantity of it, and kept it in the Treasury till *Julius Caesar* robb'd it, and took this away, as a Thing of mighty Value. In a word, it was of that Account, that as a Sacred Plant, those of the *Cyrenaic Africa*, honour'd the very Figure of it, by stamping it on the Reverse of their ^b Coin; and when they would commend a Thing for its Worth to the Skies, Βάττε σίλφιον grew into a Proverb. *Battus* having been the Founder of the City *Cyrene*, near which it only grew. 'Tis indeed contested among the learned *Botanosophists*, whether this Plant was not the same with *Laserpitium*, and the *Laser* it yields, the odoriferous ^c *Benzoin*? But, doubtless, had we the true and genuine *Silphium* (for it appears to have been often sophisticated, and a spurious Sort brought into *Italy*) it would soon recover its pristine Reputation, and that it was not celebrated so for nothing extraordinary; since, besides its Medicinal Virtue, it was a wonderful Corroborator of the Stomach, a Restorer of lost Appetite, and Masculine Vigor, &c. and that they made Use of it almost in every Thing they eat.

But should we now really tell the World, that this precious Juice is, by many, thought to be no other than the ^d *Fetid Assa*; our ni-

^a *Plin. H. Nat. lib. xix. cap. 3. & xx. c. 22. See Jo. Tzetzes Chil. vi. 48. & xvii. 119.*

^b *Spanheim, De usu & Præstat. Numif. Dissert. 4to. It was sometimes also the Reverse of Jupiter Hammon.*

^c ——— οὐδ' ἂν εἰ δῖος γέ μιν Τὸν πλῆτον αὐτὸν καὶ τὸ βάττε σίλφιον. *Aristoph. in Pluto, Act. iv. Sc. 3.*

^d Of which some would have it a coarser Sort, inamœni odoris, as the same Comedian names it in his *Equites*, p. 239, and 240. Edit. Basil. See likewise this discuss'd, together with its Properties, most copiously, in Jo. Budæus a Stapul. Comment. in Theophrast. lib. vi. cap. 1. and Bauhin. Hist. Plant. lib. xxvii. cap. 53.

cer *Sallet-Eaters* (who yet bestow as odious an Epithet on the vulgar *Garlick*) would cry out upon it as intolerable, and perhaps hardly believe it. But as *Aristophanes* has brought it in, and sufficiently describ'd it; so the *Scholiast* upon the Place, puts it out of Controversy: And that they made Use both of the *Leaves, Stalk,* (and *Extraet* especially) as we now do *Garlick*, and other *Hautgouts* as nauseous altogether. In the mean Time, *Garcinus, Bontius*, and others, assure us, that the *Indians* at this Day, universally sauce their Viands with it; and the *Bramins* (who eat no Flesh at all) enrich their *Sallets*, by constantly rubbing the Dishes with it. Nor are some of our own skilful *Cooks* ignorant how to *condite* and use it, with the Applause of those, who, ignorant of the Secret, have admir'd the Richness of the Gust it has imparted, when it has been substituted instead of all our *Cipolati*, and other Seasonings of that Nature.

And thus have we done with the various *Species* of all such *Esculents* as may properly enter the Composition of our *Acetaria*, and cold *Sallet*. And if I have briefly touch'd upon their Natures, Degrees, and primary *Qualities*, which *intend* or *remit*, as to the Scale of *Heat, Coldness, Driness, Moisture, &c.* (which is to be understood according to the different Texture of their *component Particles*) it has not been without what I thought necessary for the Instruction of the *Gatherer*, and *Sallet-Dresser*; how he ought to chuse, sort, and mingle his Materials and Ingredients together.

What Care and Circumspection should attend the Choice and Collection of *Sallet-Herbs*, has been partly shew'd. I can therefore, by no means, approve of that extravagant Fancy of some, who tell us, that a *Fool* is as fit to be the *Gatherer* of a *Sallet* as a *wiser* Man: Because, say they, one can hardly chuse amiss, provided the Plants be green, young, and tender, wherever they meet with them: But sad Experience shews, how many fatal Mistakes have been committed by those who took the deadly *Cicutæ, Hemlocks, Aconits, &c.* for Garden *Parsley* and *Parsnips*; the *Myrrhis Sylvestris*, or *Cow-weed*, for *Cherophilum*, (*Chervil*;) *Thapsia* for *Fennel*; the wild *Chondrilla* for *Succory*; *Dogs-Mercury* instead of *Spinach*: *Papaver Corniculatum Luteum*, and horn'd *Poppy*, for *Eringo*; *Oenanthe aquatica* for the *Palustral Apium*, and a world more, whose dire Effects have been many times sudden Death, and the Cause of mortal Accidents to those who have eaten of them unwittingly. But supposing some of those wild and unknown Plants should not prove so *deleterious* and * un-
wholesome, yet may others of them annoy the *Head, Brain*, and *Genus Nervosum*, weaken the *Eyes*, offend the *Stomach*, affect the *Liver*, torment the *Bowels*, and discover their Malignity in dangerous and dreadful *Symptoms*. And therefore such *Plants* as are rather *Medicinal* than *Nourishing* and *Refreshing*, are studiously to be rejected. So highly necessary it is, that what we sometimes find in *old Books* concerning *Edules* of other Countries and Climates (frequently call'd by the Names of such as are wholesome in ours, and among us) mislead not the unskilful *Gatherer*; to prevent which, we read of divers *Popes* and *Emperors* that had sometimes learned *Physicians* for their *Master-Cooks*; and that of Old an excellent *Cook* was reckon'd amongst the *Eruditi*: I cannot here therefore but mention what we find in the Works of St. *Paulinus*, a Letter sent to *Sulpitius Severus* against *Luxury*, and in Praise of *Frugality*; with another of *Severus's*

* Vide Cardanum de usu Cibi.

* Vol. xx.

rus's, who sent him a *Cook*, with great Recommendations, for the particular Talent he had in dressing *Beans*, *Lettuce*, and other *Sallets*: His Name was *Victor*, and so welcome to the Holy Man, for his being likewise an excellent *Barber*. Upon this account I exceedingly approve of that charitable Advice of Mr. *Ray*, * (*Transact. Numb. 238.*) who thinks it the Interest of Mankind, that all Persons should be caution'd of advent'ring upon unknown Herbs and Plants to their Prejudice: Of such I say, with our excellent † *Poet* (a little chang'd)

*Happy from such conceal'd, if still do lie,
Of Roots and Herbs th' unwholsome Luxury.*

† Concerning
this of Insects,
See Mr Ray's
Hist. Plant.
lib. i. cap. 24.

The Illustrious and Learned *Columna* has, by observing what † *In-*
sects did usually feed on, made Conjectures of the Nature of the Plants. But I should not so readily adventure upon it on that account, as to its wholsomeness: For tho' indeed one may safely eat of a *Peach* or *Abri-*
cot, after a *Snail* has been Taster, I question whether it might be so of all other Fruits and Herbs attack'd by other *Insects*: Nor would one conclude, the *Hyoscyamus* harmless, because the *Cimex* feeds upon it, as the Learned Dr *Lyster* has discover'd. Notice should therefore be taken what *Eggs* of *Insects* are found adhering to the Leaves of *Sallet-*
Herbs, and frequently cleave so firmly to them, as not easily to be wash'd off, and so not being taken notice of, passing for accidental and harmless Spots only, may yet produce very ill Effects.

* The poison'd
Weed: I have
seen a Man who
was so poison'd
with it, that
the Skin peel'd
off his Face,
and yet he ne-
vertouch'd it,
only looked on
it as he pass'd
by. Mr. Staf-
ford, Philos.
Transact. Vol.
III. Num. xi.
p. 794.

Grillus, who, according to the Doctrine of *Transmigration* (as *Plutarch* tells us) had, in his turn, been a *Beast*, discouries how much better he fed and liv'd, than when he was turn'd to *Man* again, as knowing then what Plants were best and most proper for him; whilst Men, *Sarcophagists*, (Flesh-Eaters) in all this time were yet to seek. And 'tis indeed very evident, that Cattel, and other *πῦμα*, and herbaceous Animals which feed on Plants, are directed by their Smell, and accordingly make Election of their Food: But Men (besides the *Smell* and *Taste*) have, or should have, *Reason*, *Experience*, and the Aids of *Natural Philosophy*, to be their Guides in this Matter. We have heard of *Plants*, that (like the *Basilisk*) kill and infect by * looking on them only; and some by the Touch. The Truth is, there's need of all the Senses to determine *Analogically* concerning the Virtues and Properties even of the *Leaves* alone of many *Edule-Plants*: The most eminent Principles of near the whole Tribe of *Sallet* Vegetables, inclining rather to *acid* and *sowre* than to any other quality, especially salt, sweet, or luscious. There is therefore Skill and Judgment requir'd how to suit and mingle our *Sallet*-Ingredients, so as may best agree with the Constitution of the (vulgarly reputed) *Humours* of those who either stand in need of, or affect these Refreshments, and by so adjusting them, that as nothing should be suffer'd to domineer, so should none of them lose their genuine Gust, Savour, or Vertue. To this end,

The cooler, and moderately refreshing, should be chosen to extinguish Thirst, attemper the Blood, repress Vapours, &c.

The hot, dry, aromatic, cordial and friendly to the Brain, may be qualify'd by the cold and moist: The bitter and Stomachical, with the

† Οὐδ' ὅσον ἐν μαλάχῃ τὴν ἀσφοδελὴν μέγ' ὄνομα. COWLEY.
Κρύψαντες γὰρ ἔχουσιν οἱ βίην ἀνδραπύισι. HESIOD.

Sub-acid and gentler Herbs: The *Mordicant* and pungent, and such as repress or discuss Flatulency (revive the Spirits, and aid Concoction;) with such as abate and take off the keenness, mollify and reconcile the more harsh and churlish: The mild and insipid, animated with the *piquant* and brisk: The Astringent and Binders, with such as are Laxative and Deobstruct: The over-sluggish, raw, and unactive, with those that are *Eupeptic*, and promote Concoction: There are *Pectorals* for the Breast and Bowels: Those of middle Nature, according as they appear to be more or less *Specifick*; and as their Characters (tho' briefly) are describ'd in our foregoing *Catalogue*: For notwithstanding it seem in general, that raw *Sallets* and *Herbs* have experimentally been found to be the most sovereign Diet in that *Endemial* (and indeed with us *Epidemical*, and almost universal) Contagion, the *Scorbute*, to which we of this Nation, and most other *Islanders*, are obnoxious; yet, since the *Nasturtia* are singly, and alone as it were, the most effectual and powerful Agents in conquering and expugning that cruel Enemy, it were enough to give the *Sallet-Dresser* direction how to chuse, mingle, and proportion his Ingredients; as well as to shew what Remedies there are contained in our Magazine of *Sallet-Plants* upon all Occasions, rightly marshal'd, and skilfully apply'd. So as (with our * sweet

* Cowley,
Garden Miscel.
Stanz. 8.

*If thro' the strong and beauteous Fence
Of Temperance and Innocence,
And wholesome Labours, and a quiet Mind,
Diseases Passage find;
They must not think here to assail
A Land unarm'd, or without Guard;
They must fight for it, and dispute it hard,
Before they can prevail;
Scarce any Plant is used here,
Which 'gainst some Ail a Weapon does not bear.*

This brings to my Memory, what I have heard of one Signior *Jaquinto*, Physician to Queen *Anne* (Mother to the Blessed *Martyr*, *Charles* the First) and was so to one of the *Popes*: That observing the *Scurvy* and *Dropsy* to be the Epidemical and Dominant Diseases of this Nation, he went himself into the *Hundreds* of *Essex*, (reputed the most unhealthy County of this *Island*) and us'd to follow the *Sheep* and *Cattel* on purpose to observe what Plants they chiefly fed upon; and of those *Simples* compos'd an excellent *Electuary*, of extraordinary Effects against those Infirmities.

Thus we are told, that the Vertue of the *Cophee* was discover'd by marking what the *Goats* so greedily bruted upon. So *Æsculapius* is said to have restor'd dismember'd *Hippolitus*, by applying some *Simples* he observ'd a * *Serpent* to have us'd to another dead *Serpent*.

We have said how necessary it is, that in the Composure of a *Sallet* every Plant should come in to bear its part, without being over-power'd by some Herb of a stronger Taste, so as to endanger the native *Sapor* and Vertue of the rest; but fall into their Places, like the *Notes* in

* Tunc observatas Augur descendit in Herbas,
Ufus & Auxilio est Anguis ab Angue dato. OVID FAST. lib. vii.

Musick, in which there should be nothing harsh or grating: Altho' admitting some *Discords* (to distinguish and illustrate the rest) striking in the more sprightly, and sometimes gentler Notes, reconcile all Dissonancies, and melt them into an agreeable Composition. Thus the comical Master-Cook, introduc'd by *Damoxenus*, when ask'd πῶς ἐστὶν αὐτοῖς συμφωνία; *What Harmony there was in Meats?* The very same (says he) that a *Diateffaron*, *Diapente*, and *Diapason*, have one to another in a Consort of Music: And that there was as great Care requir'd, not to mingle † *Sapores minime consentientes*, jarring and repugnant Tastes; looking upon him as a lamentable Ignorant, who should be no better vers'd in *Democritus*. The whole Scene is very diverting, as *Athenæus* presents it; and to the same Sense *Macrobius*, Saturn. lib. i. cap. i. In short, the main Skill of the Artist lies in this:

*What Choice to chuse for Delicacy best;
What Order so contriv'd, as not to mix
Tastes not well join'd, inelegant, but bring
Taste after Taste, upheld by kindliest Change.*

As our * *Paradisiacal Bard* introduces *Eve* dressing of a *Sallet* for her *Angelical Guest*.

Thus, by the discreet Choice and Mixture of the *Oxoleon*, *Oyl*, *Vinegar*, *Salt*, &c. the Composition is perfect; so as neither the *Prodigal*, *Niggard*, nor *Insipid*, should (according to the *Italian Rule*) prescribe in my Opinion; since *one* may be too profuse, the *other* † over-saving, and the *third* (like himself) give it no Relish at all. It may be too *sharp*, if it exceed a grateful *Acid*; too *insulse* and flat, if the Profusion be extreme. From all which it appears, that a wise Man is the proper Composer of an excellent *Sallet*, and how many *Transcendences* belong to an accomplish'd *Sallet-Dresser*, so as to emerge an exact *Critic* indeed. He should be skill'd in the Degrees, Terms, and various Species of *Tastes*, according to the *Scheme* set us down in the *Tables* of the Learned || *Dr. Grew*, to which I refer the Curious.

|| *Dr. Grew*,
Left. vi. c. 2,
3.

'Tis moreover to be consider'd, that *Edule* Plants are not in all their Tastes and Virtues alike: For as Providence has made us to consist of different Parts and Members, both internal and external; so require they different Juices to nourish and supply them: Wherefore the Force and Activity of some Plants lie in the *Root*; and even the *Leaves* of some *bitter Roots* are sweet, and *è contra*. Of others, in the *Stem*, *Leaves*, *Buds*, *Flowers*, &c. Some exert their Vigor without *Decoction*; others being a little press'd or contus'd; others again *raw*, and best in Confort; some alone, and *per se*, without any σκευασία, Pre-

† *Sapores minime Consentientes* ἢ συμπλεκόμεναι ἢ ἀντιστοιχοῦντες ἀπ' ἀλλήλων: Hæc despiciere ingeniosi est artificis. Neither did the Artist mingle his Provisions without extraordinary Study and Consideration: Ἀλλὰ μίξας πάντα καὶ συμφωνίαν. Horum singulis seorsum assumptis, tu expedito: Sic ego tanquam Oraculo jubeo. — Itaque literarum ignarum Coquum, tu eum videris, & qui Democriti scripta omnia non perlegerit, vel potius, impromptu non habeat, eum deride ut futilem: Ac illum Mercede condecito, qui Epicuri Canonem usu plane didicerit, &c. as it follows in the *Gastronomia* of *Archestratus*, Athen. lib. xiii. Such another *Braggadocio Cook* *Horace* describes,

Nec sibi Cœnarum quivis temerè arroget artem

Non prius exactâ tenui ratione saporum. SAT. lib. ii. Sat. 4.

* *Milton's Paradise lost.*

|| — Qui tingat olus siccum muria vaser in calice emptâ,
Ipse sacrum irrorans piper. — P E T. s. Sat. vi.

paration,

paration, or Mixture at all. Care therefore must be taken by the *Collector*, that what he gathers answer to these Qualities; and that as near as he can, they consist (I speak of the *cruder Salleting*) of the *Oluscula*, and *ex foliis pubescentibus*, or (as *Martial* calls them) *Prototomi rudes*, and very tenderest Parts, *Gems*, young *Buds*, and even first Rudiments of their several Plants; such as we sometimes find in the *Crows* of the *Wood-Culver*, *Stock-Dove*, *Partridge*, *Pheasants*, and other Upland Fowl, where we have a natural *Sallet*, pick'd, and almost dress'd to our Hands.

I. Preparatory to the Dressing therefore, let your herby Ingredients be exquisitely cull'd, and cleans'd of all worm-eaten, slimy, canker'd, dry, spotted, or any ways vitiated Leaves. And then that they be rather discreetly sprinkl'd, than over-much sobb'd with Spring Water, especially *Lettuce*, which Dr. * *Muffet* thinks impairs their Virtue; but this, I suppose, he means of the *Cabbage-kind*, whose Heads are sufficiently protected by the outer Leaves which cover it. After washing, let them remain a while in the *Cullender*, to drain the superfluous Moisture: And lastly, twing them all together gently in a clean coarse Napkin; and so they will be in perfect Condition to receive the *Intinctus* following.

* *Muffet* de
Dietæ, c. 23.

II. That the *Oyl*, an Ingredient so indispensibly and highly necessary, as to have obtain'd the Name of *Cibarium*, (and with us of *Sallet-Oyl*) be very clean, not high-colour'd, nor yellow; but with an Eye rather of a pallid *Olive-green*, without Smell, or the least touch of rancid, or indeed of any other sensible Taste or Scent at all; but smooth, light, and pleasant upon the Tongue; such as the genuine *Omphacine*, and native *Luca Olives* afford, fit to allay the Tartness of *Vinegar*, and other *Acids*, yet gently to warm and humectate where it passes. Some who have an Aversion to *Oyl*, substitute *fresh Butter* in its stead; but 'tis so exceedingly clogging to the Stomach, as by no means to be allow'd.

III. *Thirdly*, That the *Vinegar*, and other liquid *Acids*, perfectly clear, neither sowre, *vapid*, or spent; be of the best Wine Vinegar, whether distill'd, or otherwise *aromatiz'd*, and impregnated with the Infusion of *Clove-July-flowers*, *Elder*, *Roses*, *Rosemary*, *Nasturtium*, &c. enrich'd with the Virtues of the Plant.

A *Verjuice* not unfit for *Sallet*, is made by a Grape of that Name, or the green immature Clusters of most other Grapes press'd, and put into a small Vessel to ferment.

IV. *Fourthly*, That the *Salt*, (*aliorum Condimentorum Condimentum*, as *Plutarch* calls it) deterfive, penetrating, quickning, (and so great a Resister of Putrefaction, and universal Use, as to have sometimes merited divine Epithets) be of the brightest *Bay-grey-Salt*; moderately dry'd and *contus'd*, as being the least corrosive: But of this, as of Sugar also, which some mingle with the Salt (as warming without heating) if perfectly refin'd, there would be no great Difficulty, provided none, save Ladies, were of the Mef; whilst the Perfection of *Sallets*, and that which gives them the Name, consists in the grateful *Saline Acid Point*, temper'd as is directed, and which we find to be most esteem'd by judicious Palates. Some, in the mean time, have been so nice, and luxuriously curious, as for the heightning, and (as they affect to speak) giving the utmost *poinant* and *Relevée* in lieu of our vulgar *Salt*, do recommend and cry up the *Essential Salts* and *Spi-*
rits

rits of the most *Sanative Vegetables*; or such of the *Alcalizate* and *Fix'd*, extracted from the *Calcination* of *Baulm*, *Rosemary*, *Worm-wood*, *Scurvy-grass*, &c. affirming, That without the gross Plant, we might have healing, cooling, generous, and refreshing *Cordials*, and all the *Materia Medica* out of the *Saltfeller* only: But to say no more of this Impertinence as to *Salts of Vegetables*; many indeed there be who reckon them not much unlike in Operation, however different in *Taste*, *Crystals*, and *Figure*: It being a question, whether they at all retain the Virtues and Faculties of their *Simples*, unless they cou'd be made without *Calcination*. *Franciscus Redi* gives us his Opinion of this, in a *Process* how they are to be prepar'd; and so does our Learn-
ed † Doctor (whom we lately nam'd) whether *Lixivial*, *Essential*,
† Dr. Grew, *Marine*, or other factitious *Salts* of Plants, with their Qualities, and
Annot. Plant. how they differ: But since 'tis thought all *fix'd Salts* made the common
Lib. 1. Sect. way, are little better than our common *Salt*, let it suffice, that our
iv. Cap. 1. &c. *Sallet-Salt* be of the best ordinary *Bay-Salt*, clean, bright, dry, and
See also Trans. without Clamminess.
Num. 107.
Vol. ix.

Of *Sugar* (by some call'd *Indian-Salt*) as it is rarely us'd in *Sallet*, it should be of the best refin'd, white, hard, close, yet light and sweet as the *Madera's*: Nourishing, preserving, cleansing, delighting the *Taste*, and preferable to *Honey* for most Uses. *Note*, That both *this Salt*, and *Vinegar*, are to be proportion'd to the Constitution, as well as what is said of the Plants themselves. The one for cold, the other for hot Stomachs.

V. That the *Mustard* (another noble Ingredient) be of the best *Tewksbury*; or else compos'd of the soundest and weightiest *Yorkshire Seed*, exquisitely sifted, winnow'd, and freed from the Husks, a little (not over-much) by the Fire temper'd to the consistence of a Pap with *Vinegar*, in which Shavings of the *Horse-Radish* have been steep'd: Then cutting an *Onion*, and putting it into a small Earthen *Gally-Pot*, or some thick *Glass* of that Shape, pour the *Mustard* over it, and close it very well with a *Cork*. There be, who preserve the Flower and Dust of the bruised Seed in a well-stopp'd *Glass*, to temper, and have it fresh when they please. But what is yet, by some, esteem'd beyond all these, is compos'd of the dry'd Seeds of the *Indian Nasturtium*, reduc'd to Powder, finely bolted, and mix'd with a little *Levain*, and so from Time to Time made fresh, as indeed all other *Mustard* should be.

Note, That the Seeds are pounded in a Mortar; or bruised with a polish'd *Cannon-bullet*, in a large wooden Bowl-dish; or, which is most preferr'd, ground in a *Quern* contriv'd for this Purpose only.

VI. *Sixthly*, That the *Pepper* (white or black) be not bruised to too small a Dust; which, as we caution'd, is very Prejudicial. And here let me mention the *Root* of the *Minor Pimpinella*, or small *Burnet Saxifrage*; which being dried, is, by some, extoll'd beyond all other *Peppers*, and more wholsome.

Of other *Strewings* and *Aromatizers*, which may likewise be admitted to enrich our *Sallet*, we have already spoken, where we mention *Orange* and *Limon-Peel*; to which may also be added *Jamaica-Pepper*, *Juniper-berries*, &c. as of singular Virtue.

Nor here should I omit (the mentioning at least of) *Saffron*, which the *German* House-wives have a way of forming into Balls, by mingling it with a little *Honey*; which thoroughly dry'd, they reduce to Powder, and sprinkle it over their *Sallets* for a noble *Cordial*. Those of *Spain* and *Italy*, we know, generally make Use of this Flower, mingling its golden Tincture with almost every Thing they eat; but its being so apt to prevail above every Thing with which 'tis blended, we little encourage its Admittance into our *Sallet*.

VII. *Seventhly*, That there be the Yolks of fresh and new-laid *Eggs*, boil'd moderately hard, to be mingled and mash'd with the *Mustard*, *Oil*, and *Vinegar*; and part to cut into Quarters, and eat with the Herbs.

VIII. *Eighthly*, (according to the *super-curious*) that the *Knife*, with which the *Sallet-Herbs* are cut (especially *Oranges*, *Lemons*, &c. be of *Silver*, and by no means of *Steel*, which all *Acids* are apt to corrode, and retain a Metallick Relish of.

IX. *Ninthly* and *Lastly*, That the *Saladiere*, (*Sallet-Dishes*) be of *Porcelane*, or of the *Holland-Delf-Ware*; neither too deep nor shallow, according to the quantity of the *Sallet-Ingredients*; *Pewter*, or even *Silver*, not at all so well agreeing with *Oil* and *Vinegar*, which leave their several Tinctures. And *Note*, That there ought to be one of the Dishes, in which to beat and mingle the liquid *Vehicles*; and a second to receive the crude Herbs in, upon which they are to be pour'd; and then with a Fork and a Spoon kept continually stir'd, till all the Furniture be equally moisten'd: Some, who are Husbands of their *Oil*, pour at first the *Oil* alone, as more apt to communicate and diffuse its Slipperiness, than when it is mingled and beaten with the *Acids*, which they pour on last of all; and 'tis incredible how small a quantity of *Oil* (in this Quality, like the gilding of *Wyre*) is sufficient to imbue a very plentiful Assembly of *Sallet-Herbs*.

The *Sallet-Gatherer* likewise should be provided with a light, and neatly made *Withy-Dutch-Basket*, divided into several Partitions.

Thus instructed and knowing in the *Apparatus*; the *Species*, *Proportions*, and manner of *Dressing*, according to the several Seasons, you have in the following Table.

It being one of the Enquiries of the Noble * Mr. Boyle, what *Herbs* were proper and fit to make *Sallets* with, and how best to order them? We have here (by the assistance of Mr. London, His Majesty's Principal Gardener) reduc'd them to a competent Number, not exceeding *Thirty Five*, but which may be vary'd and enlarg'd, by taking in, or leaving out any other *Sallet-Plant*, mention'd in the foregoing List, under these three or four Heads.

* *Philos. Transf.*
Vol. III.
Numb. xl.
p. 799.

	Species.	Ordering and Culture.
IX. Blanch'd.	1. Endive,	Ty'd-up to Blanch.
	2. Cichory,	
	3. Sellery,	Earth'd-up.
	4. Sweet-Fennel,	
	5. Rampions,	
	6. Roman	Ty'd-up to Blanch.
	7. Cossé	
	8. Silesian } Lettuce.	Ty'd close up.
	9. Cabbage	Pome and Blanch of themselves.
	10. Lep-Lettuce,	
XXVI. Green Unblanch'd.	11. Corn-Sallet,	Leaves, all of a middling Size.
	12. Purslane,	
	13. Cresses, Broad,	Seed-Leaves, and the next to them.
	14. Spinach, Curl'd,	
	15. Sorrel, French,	The fine young Leaves only with the first Shoots.
	16. Sorrel, Greenland,	
	17. Radish,	Only the tender young Leaves.
	18. Cresses,	The Seed-Leaves, and those only next them.
	19. Turnip,	
	20. Mustard,	The Seed-Leaves only.
	21. Survy-grass,	
	22. Chervil,	
	23. Burnet,	The young Leaves immediately after the Seedlings.
	24. Rocket, Spanish,	
	25. Parsley,	
	26. Tarragon,	The tender Shoots and Tops.
	27. Mints,	
	28. Sampier,	
	29. Balm,	The young tender Leaves and Shoots.
	30. Sage, Red,	
	31. Shalots,	The tender young Leaves.
	32. Cives and Onion,	
	33. Nasturtium, Indian,	The Flowers and Bud-Flowers.
	34. Rampion, Belgrade,	
	35. Tripe-Madame,	The Seed-Leaves and young Tops.

Month

Month.	Ord. & Cult.	Species.	Proportion.
January,	Blanch'd as before	Rampions, Endive, Succory, Fennel, Sweet, Sellery, Lamb-Lettuce, Lop-Lettuce, Radish, Cresset, Turnips, Mustard Seedlings, Scurvy-grass, Spinach, Sorrel, Greenland, Sorrel, French, Chervil, Sweet, Burnet, Rocket, Tarragon, Balm, Mint, Sampier, Shalots, Cives, Cabbage-Winter,	<div> <div> 10 2 5 10 4 </div> <div> Roots in Number. A Pugil of each. Three Parts of each. Of each One Part. Two Parts. One Part of each. Twenty large Leaves. One small Part of each. Very few. Two Pugils or small Handfuls. </div> </div>
February,			
and	Green and Unblanch'd		
March,			
April,	Blanch'd	Lop Silesian Winter } Lettuce Roman Winter }	Of each a Pugil.
	Green Herbs Unblanch'd.	Radishes, Cresset, Purselan, Sorrel, French, Sampier, Onions, young, Sage-tops, the Red, Parsly, Cresset, the Indian, Lettuce, Belgrade, Tripe-Madame, Chervil, Sweet, Burnet,	<div> <div> Three Parts. Two Parts. One Fasciat, or pretty full Gripe. Two Parts. One Part. Six Parts. Two Parts. </div> <div> Of each One Part. </div> </div>
May,	Note, That the young Seedling Leaves of Orange and Limon may all these Months be mingled with the Sallet.		
and			
June,			
July,	Blanch'd, and may be eaten by themselves with some Nasturtium-Flowers.	Silesian Lettuce, Roman Lettuce, Cress, Cabbage, Cresset, Nasturtium, Purslane, Lop-Lettuce, Belgrade, or Crumpen-Lettuce, Tarragon, Sorrel, French, Burnet, Tripe-Madame,	<div> <div> One whole Lettuce. Two Parts. Four Parts. Two Parts. One Part. Two Parts. One Part. Two Parts of each. One Part. </div> </div>
August,	Green Herbs by themselves, or ming'd with the Blanch'd.		
and			
September,			
October,	Blanch'd	Endive, Sellery, Lop-Lettuce, Lamb-Lettuce, Radish, Cresset, Turnips, Mustard Seedlings, Cresset, Broad, Spinach,	<div> <div> Two if large, four if small, Stalk and Part of the Root and tenderest Leaves. An Handful of each. Three Parts. Two Parts. One Part of each. Two Parts of each. </div> </div>
November,			
and	Green		
December,			

But all these sorts are not to be had at the very same time, and therefore we have divided them into the *Quarterly Seasons*, each containing and lasting Three Months.

Note, That by *Parts* is to be understood a *Pugil*: which is no more than one does usually take up between the Thumb and the two next Fingers. By *Fascicule*, a reasonable full Gripe, or Handful.

Farther Directions concerning the proper Seasons for the Gathering, Composing, and Dressing of a SALLET.

AND First, as to the *Season*, both *Plants* and *Roots* are then properly to be gathered, and in prime, when most they abound with Juice and in Vigour: Some in the *Spring*, or a little anticipating it before they Blossom, or are in full Flower: Some in the *Autumnal* Months; which later Season many prefer the Sap of the Herb, tho' not in such Exuberance, yet as being then better concocted, and so render'd fit for *Salleting*, 'till the Spring begins afresh to put forth new and tender Shoots and Leaves.

This indeed, as to the *Root* newly taken out of the Ground, is true; and therefore should such have their *Germination* stopp'd the sooner: The approaching and prevailing Cold, both maturing and impregnating them; as does Heat the contrary, which now would but exhaust them: But for those other *Esculents* and Herbs employ'd in our *Compositions* of *Sallets*, the early Spring, and ensuing Months (till they begin to mount, and prepare to *Seed*) is certainly the most natural and kindly Season to collect and accommodate them for the Table. Some Critical Impertinents refer not to the very Day only, but to the very Hour and Minute; for instance, the *Bellis-major* to the 4th, 5th, 6th, and 7th of *April* before Sun-rising, and certain Minutes before or after, to render the Roots *emollient*, and prevalent against the *Palsy*: But for the *Hemeroids* in *June*, Three Days before the Full, in the Evening. There is indeed, in the gathering a *Melon*, some Accuracy to be observ'd as to the time of the Day, in respect of *Sun*, and just point of Perfection: But for this let none consult *Culpeper*, or the *Figure-flingers*, to inform them when the governing *Planet* is in its *Exaltation*; but look upon the *Fruits* and *Plants* themselves, and judge of their Virtues by their own Complexions.

Moreover, in *Gathering*, respect is to be had to their Proportions, as provided for in the *Table* under that Head, be the Quality whatsoever: For tho' there is indeed nothing more wholesome than *Lettuce* and *Mustard* for the *Head* and *Eyes*; yet either of them eaten in excess, were highly prejudicial to them both: Too much of the first extremely debilitating and weakening the *Ventricle*, and hastning the further decay of sickly *Teeth*; and of the second, the *Optic Nerves*, and *Sight* it self: The like may be said of all the rest. I conceive therefore, a prudent Person, well acquainted with the Nature and Properties of *Sallet-Herbs*, &c. to be both the fittest *Gatherer* and *Composer* too; which yet will require no great Cunning, after once he is acquainted with our *Table* and *Catalogue*.

We purposely, and *in transitu* only, take notice here of the Pickl'd, *Muriated*, or otherwise prepared Herbs; excepting some such Plants, and Proportions of them, as are hard of Digestion, and not fit to be eaten altogether *crude*, (of which in the *Appendix*) and among which I reckon *Aspen-keys*, *Broom-buds* and *Pods*, *Haricos*, *Gurkems*, *Olives*, *Capers*, the Buds and Seeds of *Nasturtia*, *Young Walnuts*, *Pine-apples*, *Eringo*, *Cherries*, *Cornelians*, *Berberries*, &c. together with several Stalks, Roots, and Fruits; ordinary Pot-herbs, *Anis*, *Cistus Hortorum*, *Horminum*, *Pulegium*, *Satureia*, *Thyme*; the entire Family of Pulse and *Legumena*; or other *Sauces*, *Pies*, *Tarts*, *Omlets*, *Tansy*, *Farces*, &c. *Condites* and Preserves with *Sugar* by the Hand of Ladies; tho' they are all of them the genuine Production of the *Garden*, and mention'd in our *Kalendar*, together with their Culture; whilst we confine our selves to such Plants and *Esculenta* as we find at hand, delight our selves to gather, and are easily prepar'd for an *Ex-temporary Collation*, or to usher in, and accompany other (more solid, tho' haply not more agreeable) Dishes, as the Custom is.

But there now starts up a Question, Whether it were better, or more proper, to *begin* with *Sallets*, or *end* and conclude with them? Some think the harder Meats should first be eaten for better Concoction; others those of easiest Digestion, to make way, and prevent Obstruction; and this makes for our *Sallets*, *Herarii*, and *Fugaces Fructus* (as they call 'em) to be eaten first of all, as agreeable to the general Opinion of the great *Hippocrates*, and *Galen*, and of *Celsus* before him. And therefore the *French* do well to begin with their *Herbaceous Pottage*; and for the *cruder* a Reason is given:

* *Prima tibi dabitur Ventri Lactuca movendo
Utilis, & Poris fila resecta suis.*

* Mart. *Epig.*
lib xi. 39.

And tho' this Custom came in about *Domitian's* Time †, ὁ μὲν ἀρχαίως, they anciently did quite the contrary,

|| *Grataque nobilium Lactuca ciborum.*

But of later Times, they were constant at the *Ante-cænia*, eating plentifully of *Sallet*, especially of *Lettuce*, and more refrigerating Herbs. Nor without Cause: For drinking liberally, they were found to expel and allay the Fumes and Vapours of the *genial Compotation*, the spiritous Liquor gently conciliating Sleep: Besides, that being of a crude Nature, more dispos'd, and apt to fluctuate, corrupt, and disturb a surcharg'd Stomach, they thought convenient to begin with *Sallets*, and innovate the ancient Usage.

† Athen. l. 2.
Of which
Change of Diet
see Plut. iv.
Sympos. 9.
Plinii *Epist.* i.
ad Eretrium.
|| Virg. *Met.*
reto.

* ——— *Nam Lactuca innatat acri
Post Vinum Stomacho ———*

* Hor. *Sat.*
l. 2. *Sat.* 4.

For if on drinking Wine you Lettuce eat,
It floats upon the Stomach ———

The *Spaniards*, notwithstanding, eat but sparingly of Herbs at Dinner, especially *Lettuce*, beginning with *Fruit*, even before the *Olio* and Hot-Meats come to the Table; drinking their Wine pure, and eating the best Bread in the World; so as it seems the Question still remains undecided with them,

† Mart. Ep.
l. v. Ep. 17.

† *Claudere quæ cænas Lactuca solebat avorum,
Dic mihi cur nostras inchoat illa dapes?*

The *Sallet*, which of old came in at last,
Why now with it begin we our Repast?

* Concerning
the Use of Fruit
(besides many
others) whether
best to be
eaten before or
after Meals?
Published by a
Physician of
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And now since we mention'd *Fruit*, there rises another Scruple: Whether *Apples, Pears, Abricots, Cherries, Plums*, and other Tree, and *Ort-yard-Fruit*, are to be reckon'd among *Salleting*; and when likewise most seasonably to be eaten? But as none of these do properly belong to our *Catalogue of Herbs and Plants*, to which this Discourse is confin'd (besides what we may occasionally speak of hereafter) there is a very useful * Treatise on that Subject already Publish'd. We hasten then in the next Place to the *Dressing and Composing* of our *Sallet*: For by this time, our Scholar may long to see the *Rules* reduc'd to *Practice*, and refresh himself with what he finds growing among his own *Lactuceta*, and other Beds of the *Kitchen-Garden*.

DRESSING.

I AM not ambitious of being thought an excellent *Cook*, or of those who set up and value themselves for their Skill in *Sauces*; such as was *Mithacus a Culinary Philosopher*, and other *Eruditæ Gulæ*; who read Lectures of *Hautgouts*, like the *Archestratus* in *Athenæus*: Tho' after what we find the *Heroes* did of Old, and see them chining out the slaughter'd *Ox*, dressing the Meat, and do the Offices of both *Cook* and *Butcher*, (for so * *Homer* represents *Achilles* himself, and the rest of those Illustrious *Greeks*) I say, after this, let none reproach our *Sallet-Dresser*, or disdain so clean, innocent, sweet, and natural a Quality, compar'd with the *Shambles Filth* and *Nidor*, Blood and Cruelty; whilst all the World were *Eaters* and *Composers* of *Sallets* in its best and brightest Age.

* Achilles,
Patroclus,
Automedon.
Iliad. ix. &
alibi.

The Ingredients therefore gather'd and proportion'd, as above, let the *Endive* have all its outside Leaves stripp'd off, slicing in the White: In like manner the *Sellery* is also to have the hollow green Stem or Stalk trimm'd and divided; slicing in the blanched Part, and cutting the Root into four equal Parts.

Lettuce, Cresses, Radish, &c. (as was directed) must be exquisitely pick'd, cleans'd, wash'd, and put into the Strainer; swing'd, and shaken gently, and, if you please, separately, or all together; because some like not so well the *blanch'd* and bitter Herbs, if eaten with the rest: Others mingle *Endive, Succory*, and *Rampions*, without distinction, and generally eat *Sellery* by itself, as also Sweet *Fennel*.

From *April* till *September* (and during all the hot *Months*) may *Guiney-Pepper* and *Horse-Radish* be left out; and therefore we only mention them in the *Dressing*, which should be in this manner.

Your *Herbs* being handsomely parcell'd, and spread on a clean Napkin before you, are to be mingl'd together in one of the Earthen glaz'd Dishes: Then for the *Oxolean*; take of clear, and perfectly good *Oyl-Olive*, three Parts; of sharpest *Vinegar*
(* sweetest

(* sweetest of all *Condiments*) *Limon*, or Juice of *Orange*, one Part; and therein let steep some Slices of *Horse-Radish*, with a little *Salt*: Some, in a separate *Vinegar*, gently bruise a *Pod* of *Guiney-Pepper*, straining both the *Vinegars* apart, to make use of either, or one alone, or of both, as they best like; then add as much *Tewksbury*, or other dry *Mustard* grated, as will lie upon an Half-Crown Piece: Beat and mingle all these very well together; but pour not on the *Oyl* and *Vinegar*, till immediately before the *Sallet* is ready to be eaten: And then with the *Yolk* of two new-laid *Eggs* (boil'd and prepar'd, as before is taught) squash and bruise them all into mash with a Spoon; and lastly, pour it all upon the *Herbs*, stirring and mingling them till they are well and thoroughly imbib'd; not forgetting the Sprinklings of *Aromatics*, and such Flowers as we have already mentioned, if you think fit, and garnishing the Dish with the thin Slices of *Horse-Radish*, *Red Beet*, *Berberries*, &c.

* For so some pronounce it.
V. Athenæum Deip. Lib. II. Cap. 26. ἡ δὲ ὅτι, perhaps for that it incites Appetite, and causes Hunger, which is the best Sauce.

Note, That the *Liquids* may be made more or less *Acid*, as is most agreeable to your Taste.

These *Rules* and *Prescriptions* duly observ'd, you have a *Sallet* (for a Table of Six or Eight Persons) dress'd, and accommodated *secundum Artem*: For, as the † Proverb has it,

† Cratinus in Glauco.

Οὐ παντὸς ἀνδρὸς ἐστὶν ἀρτυσάσθαι καλῶς.

Non est cuiusvis recte condire.

And now after all we have advanc'd in favour of the *Herbaceous Diet*, there still emerges a Third Enquiry; namely, Whether the Use of *crude Herbs* and *Plants* are so wholesome as is pretended?

What Opinion the Prince of Physicians had of them, we shall see hereafter; as also what the Sacred Records of elder Times seem to infer, before there were any *Flesh-Shambles* in the World; together with the Reports of such as are often conversant among many Nations and People who to this Day, living on *Herbs* and *Roots*, arrive to incredible Age, in constant Health and Vigor: Which, whether attributable to the *Air* and *Climate*, *Custom*, *Constitution*, &c. should be enquir'd into; especially, when we compare the *Antediluvians* mention'd *Gen. i. 29.* — the whole *Fifth* and *Ninth* Chapters, *ver. 3.* confining them to *Fruit* and wholesome *Sallets*: I deny not that both the *Air* and *Earth* might then be less humid and clammy, and consequently *Plants* and *Herbs* better fermented, concocted, and less rheumatick, than since, and presently after; to say nothing of the infinite Numbers of putrid Carcasses of dead Animals, perishing in the Flood, (of which I find few if any, have taken notice) which needs must have corrupted the *Air*: Those who live in Marshes, and uliginous Places, (like the Hundreds of *Essex*) being more obnoxious to *Fevers*, *Agues*, *Pleurisies*, and generally unhealthful: The *Earth* also then a very Bog, compar'd with what it likely was before that destructive *Cataclysm*, when Men breath'd the pure *Paradisiacal Air*, sucking in a more *ethereal*, nourishing, and baulmy *Pabulum*, so foully vitiated now, thro' the Intemperance, Luxury, and softer Education and Effeminacy of the Ages since.

Custom and *Constitution* come next to be examin'd, together with the Qualities, and *Vertue* of the Food; and, I confess, the two first,

* Nat. Hist.
IV. Cent. VII.
130. See Arist.
Prob. Sect. xx.
Quæst. 36.
Why some
Fruits and
Plants are best
raw, others
boil'd, roasted,
&c. as becom-
ing sweeter;
but the Crude
more sapid and
grateful.

† Card. Con-
tradict.
Med. l. iv.
Cant. 18. Di-
philus not at
all. Athenæ-
us.

first, especially that of *Constitution*, seems to me the more likely Cause of Health, and consequently of Long-life; which induc'd me to consider of what Quality the usual *Sallet* Furniture did more eminently consist, that so it might become more safely applicable to the Temper, Humour, and Disposition of our Bodies; according to which the various Mixtures might be regulated and proportion'd: There's no doubt, but those whose Constitutions are cold and moist, are naturally affected with Things which are hot and dry; as on the contrary, hot and dry Complexions, with such as cool and refrigerate; which perhaps made the *Junior Gordian* (and others like him) prefer the *frigide Mensæ* (as of old they call'd *Sallets*) which, according to *Cornelius Celsus*, is the fittest Diet for *Obese* and corpulent Persons, as not so nutritive, and apt to pamper; and consequently, that for the cold, lean, and emaciated, such Herby Ingredients should be made Choice of, as warm, and cherish the natural Heat, depure the Blood, breed a laudable Juice, and revive the Spirits: And therefore my Lord * *Bacon* shews what are best raw, what boil'd, and what Parts fittest to nourish. *Galen*, indeed, seems to exclude them all, unless well accompany'd with their due Correctives, of which we have taken Care: Notwithstanding yet, that even the most *Crude* and *Herby*, actually cold and weak, may potentially be hot and strengthening, as we find in the most vigorous Animals, whose Food is only Grass. 'Tis true, indeed, Nature has providentially mingled and dress'd a *Sallet* for them in every Field, besides what they distinguish by Smell; nor question I, but Man at first knew what Plants and Fruits were good before the Fall, by his natural Sagacity, and not Experience; which since, by Art and Trial, and long Observation of their Properties and Effects, they hardly recover. In short, I am so well satisfy'd of the wonderful, though yet undetected, Virtue of Plants and Vegetables, applicable to all human Infirmities whatsoever, (extreme old Age excepted, and the irreversible Decree, that we all must die) as shews, that God, by his *Omniscience*, knowing that Man would transgress, and that spontaneously, (though left entirely free,) providentially endow'd the Vegetable with those admirable Properties we daily discover in them, and yet remain'd conceal'd; since otherwise (had our first Parent persisted in his Integrity) there had been no use of Remedies, no Sickness or Disease requiring them: But to return, as to what in the present State Things are, supposing with † *Cardan*, that Plants nourish little, they hurt as little. Nay, Experience tells us, that they not only hurt not at all, but exceedingly benefit those who use them; endu'd as they are with such admirable Properties, as they every Day discover: For some Plants not only nourish laudably, but induce a manifest and wholesome Change; as *Onions*, *Garlick*, *Rocket*, &c. which are both nutritive and warm; *Lettuce*, *Purselan*, the *Intybs*, &c. and indeed most of the *Olera* refresh and cool: And as their respective Juices being converted into the Substances of our Bodies, they become *Aliment*; so in regard of their Change and Alteration, we may allow them *Medicinal*; especially the greater Numbers, among which we all this while have Skill but of very few (not only in the vegetable Kingdom, but in the whole *Materia Medica*) which may be justly call'd *Infallible Specifics*, and upon whose Performance we may as safely depend, as we may on such as familiarly we use for a crude *Herb-Sallet*; discreetly chosen, mingled, and dress'd accordingly:

ingly: Not but that many of them may be improv'd, and render'd better in Broths and Decoctions, than in *Oil, Vinegar*, and other Liquids and Ingredients: But as this holds not in all, nay, perhaps in very few comparatively, (provided, as I said, the Choice, Mixture, Constitution, and *Season* rightly be understood) we stand up in Defence and Vindication of our *Sallet*, against all Attacks and Opposers whoever.

We have mentioned *Season*, and, with the great *Hippocrates*, pronounce them more proper for the Summer than the Winter; and when those Parts of Plants us'd in *Sallet* are yet tender, delicate, and impregnated with the Virtue of the Spring, to cool, refresh, and allay the Heat and Drought of the Hot and *Bilious*, Young and over-*Sanguine*, Cold, *Pituit*, and Melancholy: In a word, for Persons of all Ages, Humours and Constitutions whatsoever.

To this of the *Annual Seasons*, we add that of *Culture* also, as of very great Importance: And this is often discover'd in the Taste, and consequently in the Goodness of such Plants and *Salleting* as are rais'd, and brought us fresh out of the Country, compar'd with those which the Avarice of the *Gardiner*, or Luxury rather of the Age, tempts them to force and *resuscitate* of the most desirable and delicious Plants.

It is certain, says a * learned Person, that about populous Cities, where Grounds are over-forc'd for Fruit and early *Salleting*, nothing is more unwholesome. Men in the Country look so much more healthy and fresh; and commonly are longer liv'd than those who dwell in the Middle and Skirts of vast and crowded Cities, environ'd with rotten Dung, loathsome and common *Lay-Stalls*; whose noisom Steams, wafted by the Wind, poison and infect the ambient Air, and vital Spirits, with those pernicious Exhalations and Materials of which they make the *Hot Beds* for the raising of those *Precoces* indeed, and forward Plants and Roots for the wanton Palate; but which being corrupt in the Original, cannot but produce malignant and ill Effects to those who feed upon them. And the same was well observ'd by the *Editor* of our famous *Roger Bacon's* Treatise concerning the *Cure of Old Age*, and *Preservation of Youth*: There being nothing so proper for *Sallet Herbs*, and other *Edule Plants*, as the genial and natural Mould, impregnate, and enrich'd with well-digested Compost (when requisite) without any Mixture of Garbage, odious Carrion, and other filthy Ordure, not half consum'd and ventilated, and indeed reduc'd to the next Disposition of Earth it self, as it should be; and that in sweet, † rising, aery, and moderately perflatile Grounds, where not only *Plants* but *Men* do last, and live much longer. Nor doubt I, but that every Body would prefer Corn and other Grain, rais'd from *Marle*, *Chalk*, *Lime*, and other sweet Soil and Amendments, before that which is produc'd from the *Dunghil* only. Beside, Experience shews, that the rankness of *Dung* is frequently the cause of Blasts and Smut-tiness; as if the *Lord* of the *Universe*, by an Act of visible Providence would check us, to take heed of all unnatural Sordidness and Mixtures. We sensibly find this difference in Cattle and their Pasture; but most powerfully in *Fowl*, from such as are nourish'd with Corn, sweet and dry Food: And as of vegetable *Meats*, so of *Drinks*, 'tis observ'd, that the same Vine, according to the Soil, produces a *Wine* twice as heady as in the same, and a less forc'd Ground; and the like I

* *Sir Thomas Brown's Miscel.*

† *Caule sub-urbano qui siccis crevit in agris dulcior. — Hor. Sat. l. ii. § 4.*

believe of all other Fruit; not to determine any Thing of the *Peach*, said to be Poison in *Persia*, because 'tis a *vulgar Error*. In the mean while, this is highly remarkable, (if constant) that since the Conflagration, the so frequent *Lay-Stalls* of Dung, and other noxious Filth, which poison'd the ambient Air in and about the City of *London*, have been remov'd, the Pits and Receptacles fill'd up, drain'd, made level, and in divers Places built upon, and turn'd into ample Squares, *Piazzas*, and Streets, (as *Bridewell-Dock*, *Lincoln's-Inn-Fields*, *Covent-Garden*, the great Square and Grounds about St. *James's*, and several other greater, some in the very middle of the Town) I say, since this Purgation, it has been observ'd, that the *Bills of Weekly Mortality* have considerably decreas'd, the Number of Inhabitants and Buildings exceedingly increasing, being compar'd with the former.

* Transact.
Philos. Num.
xxv.

And now to return to those *Olitories*, most sensibly affected with those Contaminations, and for that, among other Things, nothing more betrays its unclean and spurious Birth, than what is so impatiently long'd after, as *early Asparagus*, &c. * Dr. *Lifter*, (according to his communicative and obliging Nature) has taught us how to raise such as our *Gardiners* cover with nasty Litter during the Winter; by rather laying of clean and sweet *Wheat-Straw* upon the Beds, *super-seminating* and over-strowing them thick with the Powder of bruised *Oyster-Shells*, &c. to produce that most tender and delicious *Sallet*. And there is an Art so to raise those Plants, in the midst of the severest *Winter-Season*, without the least Taint of the fulsome Bed, to the loss of the Mother-Roots, which always perish in exerting their utmost Vigor (like a Woman in difficult Travail) with their Life; as shall not only preserve both the one and the other, but be exceedingly agreeable: It being the loss of the Mother-Plant in the vulgar Method, which renders this Delicacy so dear in the *Market*, in recompense of the *Gardiner's* Loss, to gratify the luxurious *Palate*: But this, and other *Secrets* of Horticulture Myseries, are reserv'd for another Occasion: In the mean while, if nothing will satisfy save what is rais'd *Extempore*, and by Miracles of Art, so long before the Time; let them study (like the *Adepti*) as did a very ingenious Gentleman whom I knew; that having some Friends of his accidentally come to dine with him, and wanting an early *Sallet*, before they sat down to Table, sowed *Lettuce*, and some other Seeds, in a certain Composition of Mould he had prepared; which within the Space of two Hours, being risen near two Inches high, presented them with a delicate and tender *Sallet*; and this, without making use of any nauseous or fulsome Mixture; but of Ingredients not altogether so cheap perhaps. *Honoratus Faber* (no mean *Philosopher*) shews us another Method, by sowing the Seeds steep'd in *Vinegar*, casting on it a good quantity of *Bean-Shell* Ashes, irrigating them with *Spirit of Wine*, and keeping the Beds well cover'd under dry Matts. Such another Process for the raising early *Peas* and *Beans*, † Numb. xviii. &c. we have the like † Accounts of, especially that of Mr. *Gifford* Minister of *Montacute*, as follows. May the 10th, 1679. I steep'd Nine Beans first in Sack Five Days, then being taken out, I put them in *Sallet-Oil* Five Days, then in *Brandy* Four Days, and about Noon set them in an *Hot-Bed* against a *South-Wall*, casting all the *Liquor* wherein they had been infus'd (and reserv'd in several Pots)

negli-

negligently about the Holes: The same Day, within Three Hours Space, (that is, about Two a Clock) Eight of the Nine came up, and were then a foot High, with all their Leaves, (as other growing Beans use to have) and on the Morrow a Foot more in Height; the Third Day they Blossom'd, and in a Week were Podded, and full Ripe, and some even black-ey'd, but none of them bigger than our common Field or Horse-Beans, though what I try'd the Experiment with were of the largest. The Process was nothing so speedy as those mention'd. And after all, were it much more practicable and certain, I confess I should not be fonder of them, than of such as the honest industrious Country-Man's Field, and Good-Wife's Garden, seasonably produce; where they are legitimately born in just Time, and without forcing Nature.

But to return again to *Health*, and *Long-Life*, and the Wholeness of the Herby-Diet, * *John Beverovicus*, a Learned Physician, (out of *Peter Moxa*, a Spaniard) treating of the extreme Age which those of *America* usually arrive to, asserts in behalf of crude and natural Herbs: *Diphilus* of Old, † as *Athenæus* tells us, was one of the other Side, against all the Tribe of *Olera* in general; and *Cardan* of late (as already noted) no great Friend to them, affirming-Flesh Eaters to be much wiser and more sagacious. But this his || learned Antagonist utterly denies; whole Nations, Flesh-devourers (such as the farthest *Northern*) becoming heavy, dull, unactive, and much more stupid than the *Southern*; and such as feed much on Plants, are more acute, subtle, and of deeper Penetration; witness the *Chaldeans*, *Affyrians*, *Egyptians*, &c. And further argues from the short Lives of most *Carnivorous* Animals, compar'd with Grass-Feeders, and ruminating Kind; as the *Hart*, *Camel*, and the longævous *Elephant*, and other Feeders on Roots and Vegetables.

I know what is pretended of our Bodies being compos'd of *Dissimilar* Parts, and so requiring variety of Food. Nor do I reject the Opinion, keeping to the same *Species*; of which there is infinitely more Variety in the *Herby* Family, than in all Nature besides: But the danger is in the *Generical* Difference of *Flesh*, *Fish*, *Fruit*, &c. with other made Dishes, and exotic Sauces; which a wanton and expensive Luxury has introduc'd; debauching the Stomach, and sharpening it to devour Things of such difficult Concoction, with those of more easy Digestion, and of contrary Substances, more than it can well dispose of: Otherwise Food of the same Kind would do us little Hurt: So true is that of * *Celsus*, *Eduntur facilius; ad concoctionem autem materia, genus, & modus pertineat*. They are (says he) easily eaten and taken in: But regard should be had to their Digestion, Nature, Quantity and Quality of the Matter. As to that of *Dissimilar* Parts, requiring this contended for Variety: If we may judge by other Animals (as I know not why we may not) there is (after all the late Contests about *Comparative Anatomy*) so little difference in the Structure, as to the Use of those Parts and Vessels destin'd to serve the Offices of Concoction, Nutrition, and other Separations for Supply of Life, &c. that it does not appear why there should need any difference at all of Food; of which the most simple has ever been esteem'd the best and most wholesome, according to that of the † Naturalist, *Hominis cibus utilissimus simplex*. And that so it is in other Animals, we find by their being so seldom afflicted

* *Thesaur. Sani-
tat. c. 2.*

† *As Dalecampius
interprets
the Place.*

|| *Scaliger ad
Card. Exerc.
cit. 213.*

* *Cel. Lib.
Cap. 4.*

† *Plin. Nat.
Hist. l.iii. c. 12.*

with

† Hanc brevitatē Vitæ
(speaking of
Horses) for-
tasse homini
debet. *Verul.*
Hist. Vit. &
Mort. See
this thoroughly
controverted,
Macrobi. Sa-
turn. l. vii.
c. 5.

|| *Arist. Hist.*
Animal. l. v.
c. 14.

* ἀνθρώποις συ-
σπασμένοι.

† *Hor. Sat.*
l. ii. Sat. ii.
Macr. Sat.
l. vii.

with Men's Distempers, deriv'd from the Causes above-mention'd: And if the many Diseases of *Horses* seem to † contradict it, I am apt to think it much imputable to the Rack and Manger, the dry and wither'd Stable Commons, which they must eat or starve, however qualify'd; being restrained from their natural and spontaneous Choice, which Nature and Instinct directs them to: To these add the closeness of the Air, standing in an almost continu'd Posture; besides the sulsome Drenches, unseasonable Wat'rings, and other Practices of ignorant *Horse-Quacks*, and surly Grooms: The Tyranny and cruel Usage of their Masters in tiring Journeys, hard labouring, and unmerciful Treatment, Heats, Colds, &c. which wear out and destroy so many of those useful and generous Creatures before the time. Such as have been better us'd, and some, whom their more gentle and good-natur'd Patrons have in recompence of their long and faithful Service, dismiss'd, and sent to Pasture for the rest of their Lives (as the *Grand Signior* does his *Meccha-Camel*) have been known to live *Forty, Fifty*, nay (says || *Aristotle*) no fewer than *Sixty five* Years. When once Old *Par* came to change his simple homely Diet, to that of the *Court* and *Arundel-House*, he quickly sunk and dropp'd away: For, as we have shew'd, the Stomach easily concocts plain and familiar Food; but finds it a hard and difficult Task to vanquish and overcome Meats of * different Substances: Whence we so often see temperate and abstemious Persons, of a Collegiate Diet, very healthy; Husbandmen and laborious People, more robust, and longer liv'd, than others of an uncertain extravagant Diet.

† — *Nam variæ res*
Ut noceant Homini, credas, memor illius escæ,
Quæ simplex olim tibi sederit. —

For different Meats do hurt; remember how
When to one Dish confin'd, thou healthier wast than now;

was *Osellus's Memorandum* in the Poet.

Not that Variety (which God has certainly ordain'd to delight and assist our Appetite) is unnecessary, nor any thing more grateful, refreshing and proper for those especially who lead sedentary and studious Lives; Men of deep Thought, and such as are otherwise disturb'd with secular Cares and Businesses, which hinders the Function of the Stomach and other Organs; whilst those who have their Minds free, use much Exercise, and are more active, create themselves a natural Appetite, which needs little or no Variety to quicken and content it.

And here might we attest the *Patriarchal* World; nay, and many Persons since, who living very temperately, came not much short of the *Post-diluvians* themselves, counting from *Abraham* to this Day; and some exceeding them, who liv'd in pure Air, a constant, tho' coarse and simple Diet; wholesome and uncompounded Drink; that never tasted *Brandy* or *Exotic Spirits*, but us'd moderate Exercise, and observ'd good Hours: For such a one a curious *Missionary* tells us of in *Persia*, who had attain'd the Age of *Four hundred Years*, (a full *Century* beyond the famous *Johannes de temporibus*) and was living *Anno 1636*, and so may be still for ought we know. But, to our *Sallet*.

* *Gen. ix.*

Certain it is, Almighty God ordaining * *Herbs* and *Fruit* for the Food of Men, speaks not a Word concerning *Flesh* for Two thousand Years. And when after, by the *Mosaic* Constitution, there were distinctions

ctions and Prohibitions about the legal Uncleanneſs of *Animals*; *Plants*, of what kind ſoever, were left free and indifferent for every one to chuſe what beſt he lik'd. And what if it was held undecent and unbecom- ing the Excellency of Man's Nature, before Sin entred, and grew enor- mously wicked, that any Creature ſhould be put to Death and Pain for him who had ſuch infinite Store of the moſt delicious and nourifhing Fruit to delight, and the Tree of Life to ſuſtain him? Doubtleſs there was no need of it. Infants ſought the Mother's Nipple as ſoon as born; and when grown, and able to feed themſelves, run naturally to *Fruit*, and ſtill will chuſe to eat it rather than *Fleſh*; and certainly might ſo perſiſt to do, did not Cuſtom prevail, even againſt the very Dictates of Nature: Nor queſtion I, but that what the Heathen † *Poets* recount of the Happineſs of the *Golden Age*, ſprung from ſome Tradition they had received of the *Paradiſian* Fare, their innocent and healthful Lives in that delightful Garden. Let it ſuffice, that *Adam*, and his yet in- nocent Spouſe, fed on Vegetables, and other Hortulan Productions, before the fatal Lapse; which, by the way, many Learned Men will hardly allow to have fallen out ſo ſoon as thoſe imagine, who ſcarcely grant them a ſingle Day, nay, nor half a one, for their Continuance in the State of Original Perfection; whiſt the ſending him into the Garden; Inſtructions how he ſhould keep and cultivate it; *Edict* and Prohibiti- on concerning the *Sacramental* Trees; the Impoſition of * Names, ſo appoſite to the Nature of ſuch an Infinity of Living Creatures (requir- ing deep Inſpection;) the Formation of *Eve*, a meet Companion to re- lieve his Solitude; the Solemnity of their Marriage; the Dialogues and Succeſs of the crafty Tempter, whom we cannot reaſonably think made but one Affault; and that they ſhould ſo quickly forget the Injunction of their Maker and Benefactor; break their Faith and Faſt, and all o- ther their Obligations, in ſo few Moments: I ſay, all theſe Particulars conſider'd, can it be ſuppoſed they were ſo ſoon tranſacted as thoſe do fancy, who take their Meaſure from the Summary *Mofes* gives us; who did not write to gratify Mens Curioſity, but to tranſmit what was neceſſary and ſufficient for us to know.

† Metam. 1.
Fab. iii. & xv.

* Gen. xi. 19.

This then premis'd (as I ſee no reaſon why it ſhould not) and that during all this Space they liv'd on *Fruits* and *Sallets*; 'tis little proba- ble, that after their Tranſgreſſion, and that they had forfeited their Dominion over the Creatures (and were ſentenc'd and exil'd to a Life of Sweat and Labour on a curſed and ungrateful Soil) the offended God ſhould regale them with pampering *Fleſh*, or ſo much as ſuffer them to ſlay the more innocent Animal: Or, that if at any time they had Per- miſſion, it was for any thing ſave Skins to cloath them, or in way of Adoration, or *Holocaust* for Expiation, of which nothing of the *Fleſh* was to be eaten. Nor did the Brutes themſelves ſubſiſt by Prey (tho' pleas'd perhaps with Hunting, without deſtroying their Fellow-Crea- tures) as may be preſum'd from their long Secluſion of the moſt Car- nivorous among them in the Ark.

Thus then for Two thouſand Years, the Universal Food was *Herbs* and *Plants*; which abundantly recompens'd the want of *Fleſh* and o- ther luxurious Meats, which ſhortned their Lives ſo many Hundred Years; the * μακροβιότης of the Patriarchs, which was an Emblem of Eternity as it were (after the new Conceſſion) beginning to dwindle to a little Span, a Nothing in Compariſon. I know well what the late

* Gen. ix.

Claudius Fressen, in his *Biblica Disquisitiones*, has said upon this occasion; however I still adhere to the other Opinion.

On the other side, examine we the present Usages of several other Heathen Nations; particularly (besides the *Aegyptian* Priests of old) the *Indian Bramins*, Relicts of the ancient *Gymnosophists*, to this Day observing the Institutions of their Founder. *Flesh*, we know, was banish'd the *Platonic* Tables, as well as from those of *Pythagoras*; (See † *Porphyr* and their Disciples) tho' on different Accounts. Among others of the Philosophers, from *Xenocrates*, *Polemon*, &c. we hear of many. The like we find in || *Clement Alexand.* * *Eusebius* names more, *Zeno*, *Archinomus*, *Phraartes*, *Chiron*, and others, whom *Laertius* reckons up. In short, so very many, especially of the Christian Profession, that some, even of the ancient || Fathers themselves, have almost thought that the Permission of eating *Flesh* to *Noah* and his Sons, was granted them no otherwise than *Repudiation* of Wives was to the *Jews*, namely, for the hardness of their Hearts, and to satisfy a murmuring Generation, that a little after loathed *Manna* it self, and *Bread from Heaven*. So difficult a thing it is *circumscribere gulam & ventrem*, to subdue an unruly Appetite; which notwithstanding, * *Seneca* thinks not so hard a Task; where speaking of the Philosopher *Sextius*, and *Socion's* (abhorring Cruelty and Intemperance) he celebrates the Advantages of the *Herby* and *Sallet* Diet, as *Physical*, and *Natural* Advancers of Health and other Blessings; whilst Abstinence from *Flesh* deprives Men of nothing but what *Lions*, *Vultures*, Beasts and Birds of Prey, blood and gorge themselves withal. The whole *Epistle* deserves the reading, for the excellent Advice he gives on this and other Subjects; and how from many troublesome and slavish Impertinences, grown into Habit and Custom (old as he was) he had emancipated and freed himself; and never would eat *Oysters*, *Mushrooms*, &c. *Hæc enim non Cibi, sed Oblectamenta sunt*; not so much as allowing them the Name of Food: Be this apply'd to our present excessive Drinkers of Foreign and *Exotic* Liquors. And now

I am sufficiently sensible how far, and to how little purpose I am gone on this *Topic*: The *Ply* is long since taken, and our raw *Sallet* deck'd in its best Trim, is never like to invite Men who once have tasted *Flesh*, to quit and abdicate a Custom which has now so long obtain'd. Nor truly do I think Conscience at all concern'd in the matter, upon any account of distinction of *Pure* and *Impure*; tho' seriously consider'd (as *Sextius* held) *rationi magis congrua*, as it regards the cruel Butcheries of so many harmless Creatures; some of which we put to merciless and needless Torment, to accommodate them for exquisite and uncommon *Epicurism*. There lies else no positive Prohibition; Discrimination of Meats being * condemn'd as the *Doctrine of Devils*: Nor do Meats commend us to God. One eats *quid vult* (of every thing,) another *Olera*, and of *Sallets* only: But this is not my Business, further than to shew how possible it is by so many Instances and Examples, to live on wholesome Vegetables, both long and happily: For

† *Porphyr. de Abst. Proclum, Fambelum, &c.*
|| *Strom. vii.*
* *Præp. Ev. passim.*
|| *Tertul. de Jejun. cap. iv.*
Hieron. advers. Jovin.

* *Sen. Epist. 108.*

* *1 Cor. viii. 8.*
1 Tim. iv. 1, 3,
14
Rom. ii. 3.

|| *Golci Plaut. Lib. i. Lactuca.*

|| *Has Eupulas habuit teneri gens aurea mundi,
Et cœnæ ingentis tunc caput ipsa fuit.
Semideumque meo creverunt corpora succo,
Materiam tanti sanguinis ille dedit.*

Tunc

*Tunc neque fraus nota est, neque vis, neque sæda libido;
 Hæc nimii proles sæva caloribus erat.
 Sit sacrum illorum, sit detestabile nomen,
 Qui primi servæ regna dedere gulæ.
 Hinc vitiis patefacta via est, morbisque secutis
 Se lethi facies exeruere novæ,
 Ah, fuge crudeles Animantum sanguine mensas,
 Quasque tibi obsonat mors inimica dapes.
 Poscas tandem æger, si sanus negligis, herbas.
 Esse cibus nequeunt? at medicamen erunt.*

The *Golden Age*, with this Provision blest,
 Such a *Grand Sallet* made, and was a Feast.
 The *Demi-Gods* with Bodies large and found,
 Commended then the Product of the Ground.
 Fraud then, nor Force were known, nor filthy Lust,
 Which over-heating and Intemp'rance nurs'd,
 Be their vile Names in Execration held,
 Who with foul Glutt'ny first the World defil'd:
 Parent of Vice, and all Diseases since,
 With ghastly Death sprung up alone from thence.
 Ah, from such reaking, bloody Tables fly,
 Which Death for our Destruction does supply.
 In *Health*, if *Sallet-Herbs* you can't endure;
 Sick, you'll desire them; or for *Food* or *Cure*.

As to the other part of the Controversy which concerns us, αἱμαποφάγοι
 and *Occidental Blood-Eaters*; some Grave and Learned Men of late
 seem to scruple the present Usage, whilst they see the Prohibition appear-
 ing, and to carry such a Face of *Antiquity*, * *Scripture*, † *Councils*,
 ‡ *Canons*, ¶ *Fathers*, *Imperial Constitutions*, and *Universal Pra-*
etice, unless it be among us of these Tracts of *Europe*, whither, with
 other Barbarities, that of eating the *Blood* and *Animal* Life of Crea-
 tures first was brought; and by our Mixtures with the *Goths*, *Vandals*,
 and other Spawn of Pagan *Scythians*, grown a Custom; and since which
 I am persuaded more Blood has been shed between *Christians*, than there
 ever was before the Water of the Flood covered this Corner of the
 World: Not that I impute it only to our eating *Blood*, but sometimes
 wonder how it hapned that so strict, so solemn and famous a *Sanction*,
 not upon a *Ceremonial* Account, but (as some affirm) a *Moral* and
Perpetual from *Noah*, to whom the Concession of eating *Flesh* was
 granted, and that of *Blood* forbidden (nor to this Day once revok'd;) and
 whilst there also seems to lie fairer Proofs than for most other Con-
 troversies agitated among *Christians*, should be so generally forgotten,
 and give place to so many other impertinent Disputes and Cavils about
 other superstitious Fopperies, which frequently end in Blood and cutting
 of Throats.

As to the Reason of this Prohibition, its favouring of Cruelty ex-
 cepted, (and that by *Galen*, and other experienc'd Physicians, the eat-
 ing *Blood* is condemn'd as unwholesome, causing Indigestion and Ob-
 structions) if a positive Command of *Almighty God* were not enough,
 it seems sufficiently intimated; because *Blood* was the *Vehicle* of the
Life and *Animal Soul* of the Creature: For what other mysterious

* Gen. ix.
 † Ancyra xiv.
 ‡ Can. Apost.
 50.
 § Clem. Pæ-
 dag. Lib. 11.
 c. 1. Vide
 Prudent.
 Hymn χαρ-
 μανισμῶν: Nos
 Oloris Coma,
 nos filiqua fa-
 cta legumine
 multitudo pa-
 raveris inno-
 cuis Epulis.

† Quæst. &
Resp. ad Or-
thod. The.
Bartholinus de
Efu Saugui-
nis.

* Acts xv.
20, 29.

Cause, as haply its being always dedicated to *Expiatory Sacrifices*, &c. it is not for us to enquire. 'Tis said, that † *Justin Martyr* being asked, Why the *Christians* of his time were permitted the eating *Flesh*, and not the *Blood*? readily answer'd, That God might distinguish them from Beasts, which eat them both together. 'Tis likewise urg'd, that by the *Apostolical Synod* (when the rest of the *Jewish* Ceremonies and Types were abolish'd) this Prohibition was mention'd as a thing * *necessary*, and rank'd with *Idolatry*; which was not to be local or temporary; but universally enjoin'd to converted Strangers and *Profelytes*, as well as *Jews*: Nor cou'd the Scandal of neglecting to observe it concern them alone, after so many Ages as it was and still is in continual Use; and those who transgress'd so severely punish'd, as by an *Imperial Law* to be scourg'd to *Blood* and Bone. Indeed, so terrible was the Interdiction, that *Idolatry* excepted (which was also moral and perpetual) nothing in Scripture seems to be more express. In the mean time, to relieve all other Scruples, it does not, they say, extend to that *ἀκρίβεια* of those few diluted Drops of *Extravasated Blood*, which might happen to tinge the Juice and *Gravy* of the *Flesh* (which were indeed to strain at a Gnat) but to those who devour the *Venal* and *Arterial Blood* separately, and in Quantity, as a choice Ingredient of their luxurious Preparations, and *Apician Tables*.

But this, and all the rest will, I fear, seem but *Oleribus verba facere*, and (as the Proverb goes) be Labour-in-vain to think of preaching down *Hogs-Puddings*, and usurp the Chair of *Rabby-Busy*: And therefore what is advanc'd in Countenance of the *Antediluvian Diet*, we leave to be ventilated by the Learned, and such as *Curcellanus*, who has borrow'd of all the antient Fathers, from *Tertullian*, *Hierom*, *St. Chrysostom*, &c. to the later Doctors and Divines, *Lyra*, *Tostatus*, *Dionysius Carthusianus*, *Pererius*, amongst the *Pontificians*; of *Peter Martyr*, *Zanchy*, *Aretius*, *Jac. Capellus*, *Hiddiger*, *Cocceius*, *Bochartus*, &c. amongst the *Protestants*; and *instar omnium*, by *Salmatus*, *Grotius*, *Vossius*, *Blundel*: In a word, by the Learned of both Persuasions, favourable enough to these Opinions, *Cajetan* and *Calvin* only excepted, who hold, that as to *Abstinence* from *Flesh*, there was no positive Command or Imposition concerning it; but that the Use of *Herbs* and *Fruit* was recommended rather for Temperance sake, and the Prolongation of Life. Upon which score I am inclin'd to believe, that the antient *Σεραπιδία*, and other devout and contemplative Sects, distinguish'd themselves; whose Course of Life we have at large describ'd in * *Philo*, (who liv'd and taught much in Gardens) with others of the abstemious Christians; among whom *Clemens* brings in *St. Mark* the *Evangelist* himself, *James* our Lord's Brother, *St. John*, &c. and with several of the devout Sex, the famous *Diaconess Olympias*, mention'd by *Palladius*, (not to name the rest) who abstaining from *Flesh*, betook themselves to *Herbs* and *Sallets* upon the account of Temperance, and the Virtues accompanying it; and concerning which the incomparable *Grotius* declares ingenuously his Opinion to be far from censuring, not only those who forbear the eating *Flesh* and *Blood*, *Experimenti Causâ*, and for Discipline sake; but such as forbear *ex Opinione*, (because it has been the antient Custom) provided they blam'd none who freely us'd their Liberty; and I think he's in the right.

* *Philo* de
Vit. Contem.
Joseph. Antiq. Lib. xiii. cap. 9.

But leaving this Controversy (*nè nimium extra oleas*) it has often been objected, That *Fruit* and *Plants*, and all other things, may, since the Beginning, and as the World grows older, have universally become *effete*, impair'd and divested of those nutritious and transcendent Virtues they were at first endow'd withal: But as this is begging the Question, and to which we have already spoken; so all are not agreed that there is any, the least † *Decay in Nature*, where equal Industry and Skill's apply'd. 'Tis true indeed, that the *Ordo Foliatorum*, † *Hackwell, Apolog.* *Feuillantines* (a late Order of *Ascetic Nuns*) amongst other Mortifications, made Trial upon the *Leaves* of *Plants* alone, to which they would needs confine themselves; but were not able to go thro' that thin and meagre Diet: But then it would be enquir'd, whether they had not first, and from their very Childhood, been fed and brought up with *Flesh*, and better Sustenance, till they enter'd the Cloyster; and what the Vegetables and the Preparation of them were allow'd by their Institution? Wherefore this is nothing to our modern Use of *Sallets*, or its Disparagement. In the mean time, that we still think it not only possible, but likely, and with no great Art or Charge (taking *Roots* and *Fruit* into the Basket) substantially to maintain Mens Lives in Health and Vigor: For to *this*, and less than this, we have the Suffrage of the great * *Hippocrates* himself; who thinks, *ab initio etiam hominum* (as well as other Animals) *tali victu usum esse*, and needed no other Food. Nor is it an inconsiderable Speculation, That since *all Flesh is Grass* (not in a *figurative*, but *natural* and *real* Sense) *Man* himself, who lives on *Flesh*, and I think upon no earthly Animal whatsoever but such as feed on Grass, is nourish'd with them still; and so becoming an *incarnate Herb*, and innocent *Canibal*, may truly be said to devour himself. * *Hippoc. de veteri Medicina, cap. 6, 7.*

We have said nothing of the *Lotophagi*, and such as (like St. *John the Baptist*, and other religious *Ascetics*) were Feeders on the *Summities* and *Tops* of *Plants*: But as divers of those, and others we have mention'd, were much in Times of Streights, Persecutions, and other Circumstances, which did not in the least make it a Pretence, exempting them from Labour, and other human Offices, by ensnaring Obligations and *Vows*, (never to be useful to the Publick in whatever Exigency) so I cannot but take notice of what a learned || *Critic*, speaking of Men's neglecting plain and essential Duties, under colour of exercising themselves in a more sublime course of Piety, and being righteous above what is commanded (as those who seclude themselves in *Monasteries*) that they manifestly discover excessive Pride, Hatred of their Neighbour, Impatience of Injuries; to which add, *melancholy Plots* and *Machinations*; and that he must be either stupid, or infected with the same Vice himself, who admires this *ἐδελοπελοσθησκεια*, or thinks they were for that Cause the more pleasing to God. This being so, what may we then think of such Armies of *Hermits*, *Monks* and *Friars*, who pretending to justify a mistaken Zeal and meritorious Abstinence, not only by a peculiar Diet and Distinction of Meats (which God without Distinction has made the moderate Use of, common and * indifferent amongst Christians) but by other sordid Usages, and unnecessary Hardships, wilfully prejudice their Health and Constitution? And through a singular manner of living, dark and *Saturnine*; whilst they would seem to abdicate and forsake the World (in Imitation, as they pretend, of the antient *Eremites*) take care to settle and build

|| L. C. Annot. in Coloss. c. 2.

* 2 Tim. iv. 3.

build their warm and stately Nests in the most populous Cities, and Places of Resort; ambitious, doubtless, of the Peoples Veneration and Opinion of an extraordinary Sanctity; and therefore flying the *Deserts*, where there is indeed no Use of them; and flocking to the *Towns* and *Cities* where there is less, indeed none at all; and therefore no marvel that the Emperor *Valentinian* banish'd them the Cities, and *Constantine Copronimus* finding them seditious, oblig'd them to marry, to leave their Cells, and live as did others. For of these, some there are who seldom speak, and therefore edify none; sleep little, and lie hard, are clad nastily, and eat meanly (and oftentimes that which is unwholesome) and therefore benefit none: Not because they might not, both for their own, and the Good of others, and the Publick; but because they will not; Custom and a prodigious^a Sloth accompanying it; which renders it so far from *Penance*, and the Mortification pretended, that they know not how to live, or spend their Time otherwise. This, as I have often consider'd, so was I glad to find it justly perstring'd, and taken notice of by a learned^b Person amongst others of his useful Remarks Abroad.

" These, says he, willingly renouncing the innocent Comforts of
 " Life, plainly shew it to proceed more from a chagrin and morose
 " Humour, than from any true and serious Principle of sound Religi-
 " on; which teaches Men to be useful in their Generations, sociable
 " and communicative, unaffected, and by no means singular and fan-
 " tastick in Garb and Habit, as are these (forsooth) *Fathers* (as
 " they affect to be call'd,) spending their Days in idle and fruitless
 Forms, and tedious Repetitions, and thereby thinking to merit the
 Reward of those ancient and truly pious *Solitaries*, who, God knows,
 were driven from their Countries and Repose, by the Incursions of bar-
 barous Nations, (whilst these have no such Cause) and compell'd to
 Austerities, not of their own chusing and making, but the Publick
 Calamity; and to *labour* with their Hands for their own, and others,
 necessary Support, as well as with their *Prayers* and holy Lives, Ex-
 amples to all the World: And some of these indeed (besides the *Soli-
 taries* of the *Thebaid*, who wrought for abundance of poor Christians,
 sick, and in Captivity) I might bring in, as such who deserve to have
 their Names preserv'd; not for their rigorous Fare, and uncouth Dis-
 guises; but for teaching that the Grace of Temperance and other Virtues,
 consisted in a chearful, innocent, and profitable Conversation; so far
 from giving the least Encouragement to those Millions of *idle Lubbers*,
 swarming about, and diffus'd over the *Superstitious* Parts of *Christen-
 dom*; that there are hardly left Men enough to plow, sow, and culti-
 vate the Countries (where those *Vermin* nurture themselves, and live
 upon the Labour of others) where this Devastation continues and
 prevails.

And now to recapitulate what other Prerogatives the *Hortulan Pro-
 vision* has been celebrated for, besides its Antiquity, Health and *Lon-
 gevity* of the *Antediluvians*; that Temperance, Frugality, Leisure,
 Ease, and innumerable other Virtues and Advantages, which accom-

^a This with their prodigious Ignorance. See Mab. des Erudes Monast. Part. ii. c. 17.

^b Dr. Lister's Journey to Paris. See L'Apocalyps de Meliton, ou Revelation des Mysteres Cenobitiques.

pany it, are no less attributable to it. Let us hear our excellent *Botanist*,^c Mr. Ray.

“The Use of Plants (says he) is all our Life long of that universal Importance and Concern, that we can neither live nor subsist in any Plenty with Decency or Conveniency, or be said to live indeed at all without them: Whatsoever Food is necessary to sustain us, whatsoever contributes to delight and refresh us, are supply’d and brought forth out of that plentiful and abundant Store: And ah, how much more innocent, sweet, and healthful, is a Table cover’d with these, than with all the reeking Flesh of butcher’d and slaughter’d Animals! Certainly Man by Nature was never made to be a *Carnivorous* Creature; nor is he arm’d at all for Prey and Rapine, with gag’d and pointed Teeth, and crooked Claws, sharpened to rend and tear: But with gentle Hands to gather Fruit and Vegetables, and with Teeth to chew and eat them: Nor do we so much as read the Use of *Flesh* for Food, was at all permitted him, till after the universal Deluge, &c.

To this might we add that transporting Consideration, becoming both our Veneration and Admiration of the infinitely wise and glorious Author of Nature, who has given to *Plants* such astonishing Properties; such fiery *Heat* in some to warm and cherish, such *Coolness* in others to temper and refresh, such pinguid *Juice* to nourish and feed the Body, such quickning *Acids* to compel the Appetite, and grateful *Vehicles* to court the Obedience of the Palate, such *Vigor* to renew and support our natural Strength, such ravishing Flavour and Perfumes to recreate and delight us: In short, such *spirituous* and *active* Force to animate and revive every Faculty and Part, to all the kinds of *Human*, and, I had almost said, *Heavenly* Capacity too. What shall we add more? Our Gardens present us with them all; and whilst the Shambles are cover’d with Gore and Stench, our *Sallets* escape the Insults of the Summer *Fly*, purify and warm the Blood against Winter Rage: Nor wants there Variety in more abundance than any of the former Ages could shew.

Survey we their *Bills of Fare*, and Numbers of Courses serv’d up by *Athenæus*, dress’d with all the Garnish of *Nicander* and other *Grecian* Wits: What has the *Roman Grand Sallet* worth the naming? *Parat Convivium*: The Guests are nam’d indeed, and we are told,

d ——— *Varias, quas habet hortus opes?*

How richly the Garden’s stor’d!

*In quibus est Lactuca sedens, & tonsile porrum,
Nec deest ruëtrix Mentha, nec herba salax, &c.*

A Goodly Sallet!

^c Plantarum usus latissimè pater, & in omni vitæ parte occurrit, sine illis laurè, sine illis commodè non vivitur, ac nec vivitur omninò. Quæcunque ad victum necessaria sunt, quæcunque ad delicias faciunt, è locupletissimo suo penu abunde subministrant: Quàto ex eis mensa innocentior, mundior, salubrior, quam ex animalium cæde & Laniena! Homo certè naturâ animal carnivorum non est; nullis ad prædam & rapinam armis instructum; non dentibus exertis & ferratis, non unguibus aduncis: Manus ad fructus colligendos dentes ad mandendos comparati; nec legimus ei ante diluvium carnes ad esum concessas, &c. *Raii Hist. Plant. lib. i. cap. 24.*

^d Mart. lib. x. *Epig.* 44.

Lettuce, Leeks, Mint, Rocket, Colewort-Tops, with *Oyl* and *Eggs*, and such an *Hotch-Pot* following (as the Cook in *Plantus* would deservedly laugh at.) But how infinitely outdone in this Age of ours, by the Variety of so many rare *Edules* unknown to the Ancients, that there is no room for the Comparifon? And for Magnificence, let the *Sallet* dress'd by the Lady for an Entertainment made by *Jacobus Catsius* (describ'd by the Poet *c* *Barlaeus*) shew; not at all yet outdoing what we every Day almost find at our *Lord Mayor's Table*, and other great Persons, Lovers of the Gardens; that sort of elegant Cookery being capable of such wonderful Variety, though not altogether wanting of old, if that be true which is related to us of *Nicomedes* a certain King of *Bithynia*, whose Cook made him a *Pilchard* (a Fish he exceedingly long'd for) of a well dissembled *Tur-nip*, carv'd in its Shape, and dress'd with *Oyl*, *Salt*, and *Pepper*, that so deceiv'd, and yet pleas'd the Prince, that he commended it for the best Fish he had ever eaten. Such a σφισμα, *Cibaria scitè appa-rata*, *Xenophon* says, purchas'd the Name of σφιστής, to a skilful *Sallet-Dresser*. Nor does all this exceed what every industrious *Gardiner* may innocently enjoy, as well as the greatest Potentate on Earth.

*Vitellius's Table, to which every Day
All Countries did a constant Tribute pay,
Could nothing more delicious afford
Then Nature's Liberality,
Help'd with a little Art and Industry,
Allows the meanest Gardiner's Board.
The wanton Taste no Fish or Fowl can chuse,
For which the Grape or Melon she would lose.
Tho' all th' Inhabitants of Sea and Air
Be listed in the Glutton's Bill of Fare,
Yet still the Sallet and the Fruit we see
Plac'd the third Story high in all her Luxury.*

So the sweet *Poet*, whom I can never part with for his Love to this delicious Toil, and the Honour he has done me.

Verily, the infinite Plenty and Abundance with which the benign and bountiful Author of Nature has stor'd the whole Terrestrial World, more with *Plants* and *Vegetables*, than with any other Provision whatsoever; and the Variety not only equal, but by far exceeding the Pleasure and Delight of Taste (above all the Art of the *Kitchen*, that ever *h* *Apicius* knew) seems loudly to call, and kindly invite all her living Inhabitants (none excepted) who are of gentle Nature, and most useful to the same *Hospitable* and *Common-Board*, which first she furnished with *Plants* and *Fruit*, as to their natural and genuine Pasture; nay, and of the most wild and savage too, *ab origine*: As in *Paradise*, where, as the *Evangelical* *i* Prophet adumbrating the future Glory of the *Catholick Church*, (of which that happy *Garden* was the *Anti-type*) the *Wolf* and the *Lamb*, the *angry* and *furious*

c Barl. Eleg. lib. iii.

f Athen. Deip. l. i.

g Cowley, Garden. Stanz. 6.

h Hence in Macrobius Sat. lib. vii. c. 5. we find Eupolis the Comedian in his *Agès* bringing in Goats boasting the Variety of their Food, βοσκήμεθ' ὅλους καὶ παντοδαπούς, ἐλάτους, &c. After which follows a Banquet of innumerable Sorts.

i Isa. lxx. 25.

Lion should eat Grass and Herbs together with the Ox. But after all, *latet anguis in herba*, there's a Snake in the Grass; Luxury and Excess in our most innocent Fruitions. There was a Time indeed, when the Garden furnish'd Entertainments for the most renown'd Heroes, virtuous and excellent Persons; till the Blood-thirsty and Ambitious, over-running the Nations, by Murders and Rapine rifled the World, to transplant its Luxury to its new Mistress, *Rome*. Those whom heretofore ^a two Acres of Land would have satisfy'd, and plentifully maintain'd; had afterwards their very Kitchens almost as large as their first Territories: Nor was that enough: Entire ^b *Forests* and *Parks*, *Warrens* and *Fish-Ponds*, and ample *Lakes*, to furnish their Tables, so as Men could not live by one another without Oppression: Nay, and to shew how the best and most innocent Things may be perverted, they chang'd those frugal and *inemptas Dapes* of their Ancestors to that Height and Profusion, that we read of ^c *Edicts* and *Sumptuary Laws*, enacted to restrain even the Pride and Excess of *Sallets*. Tastes (says *Pliny*) were mingled, and one is forc'd to please and gratify another: Nay, Heaven and Earth are blended together; for one kind of Fruit *India* is summon'd; for another, *Aegypt*; *Crete*, *Cyrene*, and every Country in its Turn; nor abstain Men from ^d *Poison* it self, till they devour all. This is sufficiently evident in *Herbarum Natura*, the Tribe of *Sallet-Herbs*. But so it was not when the *Pease-Field* spread a Table for the Conquerors of the World, and their Grounds were cultivated *Vomere laureato, & triumphali aratore*: The greatest Princes took the *Spade* and the *Plough-Staff* in the same Hand they held the *Sceptre*; and the noblest ^e Families thought it no Dishonour to derive their Names from *Plants* and *Sallet-Herbs*: They arriv'd, I say, to that pitch of ingrossing all that was but green, and could be vary'd by the Cook (*Hec quam prodiga ventris!*) that, as *Pliny* tells us (*non sine pudore*, not without blushing) a poor Man could hardly find a *Thistle* to dress for his Supper; or what his hungry ^f *Ass* would not touch, for fear of pricking his Lips.

Verily, the Luxury of the *East* ruin'd the greatest Monarchies; first, the *Persian*, then the *Grecian*, and afterwards *Rome* her self; nor are we of the *West* inexcusable, whilst we so studiously mangle and disguise the plain and wholesome Diet of our Fore-fathers, that 'tis almost impossible to tell by the Taste what it is we eat: Add to this the *Quelques-chofes*, and other *Cupediae*, that debauch the natural Appetite. By what Steps this wanton Exuberance ruin'd that once glorious Empire, see elegantly describ'd in Old's *Gratius* the *Faliscian*, deploring his own Age, compar'd with the former:

^a Bina tunc jugera populo Romano satis erat, nullique majorem modum attribuit, quo servos paulo ante Principis Neronis, contemptis hujus spatii Viridariis, piscinas juvat, habere majores, gratumque, si non aliquem & culinas. *Plin. Hist. Nat. lib. xvii. c. 2.*

^b Interea gustus elementa per omnia quaerunt. *Juv. Sat. 4.*

^c Cicero. *Epist. Lib. vii. Ep. 26.* Complaining of a costly Sallet, that had almost cost him his Life.

^d Nec cessat in veneficiiis vita, & dummodo omnia devoret: Planius hoc fiet in *Herbarum Natura*. *Plin. H. Nat. lib. xv. cap. 26.*

^e Valeriana, That of Laetucini, Achilleia, Lyfimachia, Fabius, Cicero, Lentuli, Pifo, &c.

^f Fabis, Cicere, Lente, Pisis, bene ferendis dicti. *Plin.*

^g Mirum esset non licere pecori Carduis vesci, non licet plebei, &c. And in another Place, Quoniam portenta quoque terrarum in ganeam vertimus, etiam quae refugiant quadrupedes conficiant. *Plin. Hist. Nat. lib. xix. cap. 8.*

^h Gra. Falisc. Cynaget. Waf. See concerning this Excess, *Macr. Sat. l. 2. c. 9. & seq.*

*O quantum, & quoties decoris frustrata paterni!
 At qualis nostris, quam simplex mensa Camillis!
 Qui tibi cultus erat post, tot Serrane triumphos?
 Ergo illi ex habitu, virtutisque indole prisca,
 Imposuere orbi Romam caput:—*

Neighb'ring Excesses being made thine own,
 How art thou fallen from thine old Renown!
 But our *Camilli* did but plainly fare,
 No Port did oft triumphant *Serran* bear:
 Therefore such Hardship, and their Heart so great,
 Gave *Rome* to be the World's Imperial Seat.

But as these were the Sensual and Voluptuous, who abus'd their Plenty, spent their Fortunes and shortned their Lives by their Debauches; so never did they taste the Delicacies, and true Satisfaction of a sober Repast, and the infinite Conveniences of what a well-stor'd *Garden* affords; so elegantly describ'd by the ^a *Naturalist*, as costing neither Fuel nor Fire to boil, Pains or Time to gather and prepare, *Res expedita & parata semper*: All was so near at Hand, readily dress'd, and of so easy Digestion, as neither to offend the Brain, or dull the Senses; and in the greatest Dearth of Corn, a little Bread suffic'd. In all Events,

^b *Panis ematur, Olus, Vini Sextarius; adde,
 Quis humana sibi doleat natura negatis.*

Bread, Wine, and wholesome Sallet you may buy:
 What Nature adds besides is Luxury.

They could then make an honest Meal, and dine upon a *Sallet*, without so much as a Grain of *Exotic Spice*; and the *Potagere* was in such Reputation, ^c that she who neglected her *Kitchen-Garden* (for that was still the Good-Woman's Province) was never reputed a tolerable Housewife: *Si vespertinus subito te oppresserit hospes*, she was never surpriz'd, had all (as we said) at Hand, and could in a Trice set forth an handsome *Sallet*: ^d A Dinner of *Herbs* where Love is, how preferable to a stall'd Ox! And if this was Happiness, *Convictus facilis sine arte Mensa*, (as the *Poet* reckons it) and the innocent ^e Cup went merrily round; it was here in Perfection. In a word, so universal was the *Sallet*, that the Unbloody Shambles (as *Pliny* calls them) yeilded the ^f *Roman State* a more considerable Custom (when there was little more than honest *Cabbage* and *Worts*) than almost any thing besides brought to Market.

2

^a Horti maxime placebant, quia non egerent igni, parcerentque ligno, expedita res, & parata semper, unde *Acetaria* appellantur, facilia concoqui, nec oneratura sentium cibo, & quae minime accenderent desiderium panis. *Plin. Hist. Nat. lib. xix. c. 4.* And of this exceeding Frugality of the Romans, till after the Mithridatic War, see *Athenæus Deip. lib. vi. cap. 21.*

^b *Horat. Sat. I. i. Sat. 1.*

^c Nequam esse in domo matrem familias (etenim hæc cura Fæminæ dicebatur) ubi indigens esset hortus.

^d *Prov. xv. 17.*

^e Et prisco more bibantur aquæ. Caulibus & pomis & aperto viveret hortus. *Tibul. l. ii. El. 3. Juv. Sat. 6.*

^f Alterum succidium. *Cic. in Catone.* Tiberius had a Tribune of Skirrits paid him.

They

They spent not then so much precious Time as afterwards they did, gorging themselves with *Flesh* and *Fish*, so as hardly able to rise, without reeking and reeling from Table.

§ ———— *Vides ut pallidus omnis
Cæna defurgat dubia? quin corpus onustum
Hesternis vitiis animum quoque prægravat unâ,
Atque affigit humo divinæ particulam auræ.*

See but how pale they look, how wretchedly
With Yesterday's Surcharge disturb'd they be!
Nor Body only suff'ring, but the Mind,
That nobler Part, dull'd and depress'd we find:

Drowsy and unapt for Business, and other nobler Parts of Life.

Time was before Men in those golden Days: Their Spirits were brisk and lively.

————— *Ubi dicto citius curata sopori
Membra dedit, Vegetus præscripta ad munera surgit.*

With shorter, but much sweeter Sleep, content,
Vigorous and fresh, about their Business went.

And Men had their Wits about them; their Appetites were natural, their Sleep *molli sub arbore*, sound, sweet, and kindly: That excellent Emperor *Tacitus* being us'd to say of *Lettuce*, that he did *somnum se mercari* when he eat of them, and call'd it a sumptuous Feast, with a *Sallet* and a single *Pullet*, which was usually all the *Flesh-Meat* that sober Prince eat of; whilst *Maximinus* (a profess'd Enemy to *Sallet*) is reported to have scarce been satisfy'd with Sixty Pounds of *Flesh*, and Drink proportionable.

There was then also far less expensive Grandeur, but far more true State; when *Consuls*, great Statesmen, and such as atchiev'd the most renown'd Actions, supp'd in their *Gardens*; not under costly, gilded, and inlaid Roofs, but the spreading *Platan*; and drank of the Crystal Brook, and by Temperance, and healthy Frugality, maintain'd the Glory of *Sallets*, *Ab, quanto innocentiore victu!* with what Content and Satisfaction! Nor, as we said, wanted there Variety; for so in the most blissful Place, and innocent State of Nature, see how the first *Empress* of the *World* regales her *Celestial* Guest:

^h *With sav'ry Fruit of Taste to please
True Appetite, ——— and brings
Whatever Earth's all-bearing Mother yields,
——— Fruit of all Kinds, in Coat
Rough, or smooth-Rind, or bearded Husk, or Shell,
Heaps with unsparing Hand: For Drink the Grape
She crushes, inoffensive Moust and Meathes
From many a Berry, and from sweet Kernel prest,
She temper'd dulcid Creams.———*

Then for the Board:

* Hor. Sat. ii. l. ii. Vix præ vino sustinet palpebras, eunti in consilium, &c. See the Oration of C. Titius de Leg. Fan. Mac. Sat. l. ii. c. 12.

^h Milton's *Paradise*, l. v. ver. 228.

———*Rais'd of the grassy Turf*
The Table was, and Mossy Seats had round;
And on the ample Square from Side to Side
All Autumn pil'd: Ah Innocence,
Deserving Paradise!

Thus the *Hortulan* Provision of the ¹ *Golden Age* fitted all *Places*, *Times*, and *Persons*; and when Man is restor'd to that State again, it will be as it was in the Beginning.

But now after all (and for close of all) let none yet imagine, that whilst we justify our present Subject through all the *Topicks* of *Panegyrick*, we would, in favour of the *Sallet*, dress'd with all its Pomp and Advantage, turn Mankind to *Grass* again; which were ungratefully to neglect the Bounty of Heaven, as well as his Health and Comfort: But by these noble Instances and Examples, reproach the *Luxury* of the present Age; by shewing the infinite Blessing and Effects of Temperance, and the Virtues accompanying it; with how little Nature, and a ^k civil Appetite may be happy, contented with moderate Things, and within a little Compass, reserving the rest to the nobler Parts of Life. And thus of Old,

^k Bene moratus venter.

Hoc erat in votis, modus agri non ita magnus, &c.

He that was possess'd of a little Spot of Ground, and well-cultivated
¹ T A B. II. *Garden*, with other moderate Circumstances, had ¹ *Heredium*: All that a modest Man could well desire. Then,

^m Cowley, Pl. lib. iv.

^m *Felix, quem misera procul ambitione remotum,*
Parvus ager placide, parvus & hortus, alit.
Præbet ager quicquid frugi natura requirit,
Hortus habet quicquid luxuriosa petit,
Cætera sollicitæ speciosa incommoda vitæ
Permittit stultis querere, habere malis.

Happy the Man, whom from Ambition freed,
 A little Garden, little Field, does feed.
 The Field gives frugal Nature what's requir'd;
 The Garden, what's luxuriously desir'd:
 The specious Evils of an anxious Life,
 He leaves to Fools to be their endless Strife.

O fortunatos nimium bona si sua nôrint
Horticolæ!

ⁱ At vetus illa ætas cui fecimus aurea nomen.
 Fructibus arboreis, & quas humus educat herbis.
 Fortunata fuit. ——— *Met. xv.*

APPENDIX.

TH O' it was far from our first Intention to charge this small Volume and Discourse concerning *Crude Sallets*, with any of the following Receipts: Yet having since received them from an *Experienc'd House-wife*; and that they may possibly be useful to correct, preserve and improve our *Acetaria*, we have allow'd them Place as an *Appendant Variety* upon Occasion: Nor account we it the least Dishonour to our former Treatise, that we kindly entertain'd them; since (besides divers Learned *Physicians*, and such as have *ex professo* written *de re Cibaria*) we have the Examples of many other * *Noble and Illustrious* Persons, both among the *Ancient and Modern*.

* Plin. Athenæus, Macrobius. Bacon, Boyle, Digby, &c.

1. *Artichook*. Clear it of the Leaves, and cut the Bottoms in pretty thin Slices or Quarters; then fry them in fresh Butter, with some Parsley, till it is crisp, and the Slices tender; and so dish them with other fresh melted Butter.

How a *Poiverade* is made, and the Bottoms preserv'd all the Winter, See *Acetaria*, p. 122, 123.

Aspen-Keys.

Asparagus.

Beets.

Broom.

Buds.

Capers.

Carrot, See *Pudding*.

Champignon, See *Mushroom*.

2. *Chestnut*. Roasted under the Embers, or dry-fry'd, till they shell, and quit their Husks, may be slit; the Juice of Orange squeezed on a lump of hard Sugar dissolv'd; to which add some Claret-Wine.

Cauly-Flower,

Cucumber,

Elder Flowers,

Flowers,

July-Flowers,

Herbs, See *Pudding and Tart*.

Limon, See *Pickle*.

3. *Mushroom*. Chuse the small, firm, and white Buttons, growing upon sweet Pasture Grounds, neither under, or about any Trees: Strip off the upper Skin, and pare away all the black spungy Bottom part; then slice them in Quarters, and cast them in Water a while to cleanse: Then boil them in fresh Water, and a little sweet Butter; (some boil them a quarter of an Hour first) and then taking them out, dry them in a Cloth, pressing out the Water, and, whilst hot add the Butter; and then boiling a full Hour (to exhaust the Malignity) shift them in another clean Water, with Butter, as before, till they become sufficiently tender. Then being taken out, pour upon

them as much strong Mutton (or other) Broth as will cover them, with six Spoonfuls of White-Wine, twelve Cloves, as many Pepper-Corns, four small young Onions, half an Handful of *Parsley* bound up with two or three Sprigs of *Thyme*, an *Anchovy*, *Oysters* raw or pickl'd; a little *Salt*, *Sweet-Butter*; and so let them stew. See *Ace-tar*. p. 131.

Another.

Prepar'd, and cleans'd as above, and cast into Fountain-Water, to preserve them from growing black, boil them in fresh Water and Salt; and whilst on the Fire, cast in the *Mushrooms*, letting them boil till they become tender: Then stew them leisurely between two Dishes (the Water being drained from them) in a third Part of White-Wine and Butter, a small bundle of Sweet-Herbs at discretion. To these add Broth as before, with Cloves, Mace, Nutmeg, *Anchovies* (one is sufficient) *Oysters*, &c. a small Onion, with the green Stem chopp'd small; and lastly, some Mutton-Gravy, rubbing the Dish gently with a Clove of Garlick, or some *Roccombo* Seeds in its stead. Some beat the Yolk of a fresh Egg with Vinegar and Butter, and a little Pepper.

In *France* some (more compendiously being peel'd and prepar'd) cast them into a Pipkin, where, with the Sweet-Herbs, Spice, and an Onion, they stew them in their own Juice, without any other Water or Liquor at all; and then taking out the Herbs and Onion, thicken it with a little Butter, and so eat them.

In Poiverade.

The large *Mushrooms* well cleans'd, &c. being cut into Quarters, and strew'd with Pepper and Salt, are broil'd on the Grid-Iron, and eaten with Fresh-Butter.

In Powder.

Being fresh gather'd, cleans'd, &c. and cut in Pieces, stew them in Water and Salt; and being taken forth, dry them with a Cloth: Then putting them into an Earth-Glaz'd Pot, set them into the Oven after the Bread is drawn: Repeat this till they are perfectly dry; and reserve them in Papers, to crumble into what Sauce you please. For the rest, See *Pickle*.

4. *Mustard*. Procure the best and weightiest Seed: Cast it into Water two or three times, till no more of the Husk arise: Then taking out the sound (which will sink to the bottom) rub it very dry in warm coarse Cloths, shewing it also a little to the Fire in a Dish or Pan. Then stamp it as small as to pass thro' a fine Tiffany Sieve: Then slice some Horse-Radish, and lay it to soak in strong Vinegar, with a small lump of hard Sugar (which some leave out) to temper the Flower with, being drained from the Radish, and so put it all in a glaz'd Mug, with an Onion, and keep it well stopp'd with a Cork upon a Bladder, which is the more cleanly: But this *Receipt* is improv'd, if, instead of Vinegar, Water only, or the Broth of powder'd Beef, be made use of. And to some of this *Mustard* adding Verjuice, Sugar, Claret-Wine, and Juice of Limon, you have an excellent Sauce to any sort of Flesh or Fish.

Note,

Note, That a Pint of good Seed is enough to make at one time, and to keep fresh a competent while. What part of it does not pass the *Sarse*, may be beaten again; and you may reserve the Flower in a well clos'd Glass, and make fresh Mustard when you please. See *Acetaria*, p. 133, 148.

Nasturtium, Vide *Pickle*.

Orange, See *Limon* in *Pickle*.

5. *Parsnip*. Take the large Roots, boil them, and strip the Skin: Then slit them long-ways into pretty thin Slices; Flower and fry them in Fresh-Butter till they look brown. The Sauce is other Sweet-Butter melted. Some strow Sugar and Cinamon upon them. Thus you may accommodate other Roots.

There is made a Mash or Pomate of this Root, being boil'd very tender, with a little fresh Cream; and being heated again, put to it some Butter, a little Sugar and Juice of Limon; dish it upon Sippets; sometimes a few *Corinths* are added.

Penny-royal, See *Pudding*.

P I C K L E S.

6. *Artichocks*, See *Acetaria*, p. 123.

7. *Ashen-keys*. Gather them young, and boil them in three or four Waters to extract the bitterness; and when they feel tender, prepare a Syrup of sharp White-wine Vinegar, Sugar, and a little Water. Then boil them on a very quick Fire, and they will become of a green Colour fit to be potted so soon as cold.

8. *Asparagus*. Break off the hard Ends, and put them in White-wine Vinegar, and Salt, well cover'd with it; and so let them remain for Six weeks: Then taking them out, boil the Liquor or Pickle, and scum it carefully. If need be, renew the Vinegar and Salt; and when 'tis cold, pot them up again. Thus may one keep them the whole Year.

9. *Beans*. Take such as are fresh, young, and approaching their full growth. Put them into a strong Brine of White-wine Vinegar and Salt able to bear an Egg. Cover them very close, and so will they be preserved Twelve Months: But a Month before you use them, take out what Quantity you think sufficient for your spending a Quarter of a Year, (for so long the second Pickle will keep them sound) and boil them in a Skillet of fresh Water, till they begin to look green, as they soon will do. Then placing them one by one (to drain upon a clean course Napkin) range them row by row in a *Jarr*, and cover them with Vinegar, and what Spice you please; some Weight being laid upon them to keep them under the Pickle. Thus you may preserve *French-Beans*, *Harico's*, &c. the whole Year about.

10. *Broom-Buds* and *Pods*. Make a strong Pickle, as above; stir it very well, till the Salt be quite dissolv'd, clearing off the Dregs and Scum. The next Day pour it from the bottom; and having rubbed the Buds dry, pot them up in a Pickle-Glass, which should be frequently shaken, till they sink under it, and keep it well stopp'd and cover'd.

Thus may you pickle any other *Buds*. Or as follows:

11. Of *Elder*. Take the largest *Buds*, and boil them in a Skillet with Salt and Water, sufficient only to scald them; and so (being taken

ken off the Fire) let them remain cover'd till green; and then pot them with Vinegar and Salt, which has had one Boil up to cleanse it.

12. *Caulyflowers*. Boil them till they fall in Pieces: Then with some of the Stalk, and worst of the Flower, boil it in a part of the Liquor till pretty strong: Then being taken off, strain it; and when settled, clear it from the bottom. Then with *Dill*, gross Pepper, a pretty Quantity of Salt, when cold, add as much Vinegar as will make it sharp, and pour all upon the *Caulyflower*; and so as to keep them from touching one another; which is prevented by putting Paper close to them.

Cornelians are pickl'd like *Olives*.

13. *Cowslips*. Pick'd very clean; to each Pound of Flowers allow about one Pound of Loaf-Sugar, and one Pint of White-wine Vinegar, which boil to a Syrup, and cover it scalding hot. Thus you may pickle *Clove-July-Flowers*, *Elder*, and other Flowers, which being eaten alone, make a very agreeable Salletine.

Note, That the Cucumbers and the Gorkems are not to be boil'd in either of the Vinegars, but poured scalding hot upon them.

14. *Cucumbers*. Take the *Gorkems*, or smaller *Cucumbers*; put them into *Rape-Vinegar*, and boil, and cover them so close, as none of the Vapour may issue forth; and also let them stand till the next Day, or longer: Then boil them in fresh White-wine Vinegar, with large Mace, Nutmeg, Ginger, White Pepper, and a little Salt, (according to discretion) straining the former Liquor from the *Cucumbers*; and so place them in a Jarr, or wide-mouth'd Glass, laying a little Dill and Fennel between each rank; and covering all with the fresh scalding-hot Pickle, keep all close, and repeat it daily, till you find them sufficiently green.

In the same sort *Cucumbers* of the largest size, being peel'd and cut into thin Slices, are very delicate.

Another.

Wiping them clean, put them into a very strong Brine of Water and Salt, to soak two or three Hours, or longer, if you see cause: Then range them in the *Jarr* or *Barellet* with Herbs and Spice as usual; and cover them with hot Liquor, made of two Parts Beer-Vinegar, and one of White-wine Vinegar: let all be very well clos'd. A Fortnight after scald the Pickle again, and repeat it as above: Thus they will keep longer, and from being so soon sharp, eat crimp, and well tasted, tho' not altogether so green. You may add a Walnut-Leaf, Hyssop, Costmary, &c. and as some do, strow on them a little Powder of *Roch-Allom*, which makes them firm and eatable within a Month or Six Weeks after.

Mango of Cucumbers.

Take the biggest *Cucumbers* (and most of the *Mango* size) that look green: Open them on the Top or Side; and scooping out the Seeds, supply their Place with a small Clove of Garlick, or some *Roccombo* Seeds. Then put them into an earthen-glaz'd Jar, or wide-mouth'd Glass, with as much White-Wine Vinegar as will cover them. Boil them in the Vinegar with Pepper, Cloves, Mace, &c. and when off the Fire, as much Salt as will make a gentle Brine; and so pour all boiling-hot on the *Cucumbers*, covering them close till the next Day. Then put them with a little Dill and Pickle into a large Skillet; and giving them a Boil or two, return them into the Vessel again: And

when all is cold, add a good Spoonful of the best *Mustard*, keeping it from the Air; and so have you an excellent *Mango*. When you have occasion to take any out, make use of a Spoon, and not your Fingers.

Elder, see *Buds*.

Flowers, see *Cowslips*, and for other *Flowers*.

15. *Limon*. Take Slices of the thick Rind *Limon*, boil and shift them in several Waters, till they are pretty tender: Then drain and wipe them dry with a clean Cloth; and make a Pickle with a little White-Wine Vinegar, one Part to two of fair Water, and a little Sugar, carefully scumm'd. When all is cold, pour it on the peel'd Rind, and cover it all close in a convenient Glass Jar. Some make a Syrup of Vinegar, White-Wine and Sugar, not too thick, and pour it on hot.

16. *Melon*. The abortive and after-Fruit of Melons being pickl'd as *Cucumber*, make an excellent Sallet.

17. *Mushrom*. Take a Quart of the best White-Wine Vinegar; as much of White-Wine, Cloves, Mace, Nutmeg a pretty Quantity, beaten together: Let the Spice boil therein to the Consumption of half; then taken off, and being cold, pour the Liquor on the *Mushroms*; but leave out the boiled Spice, and cast in of the same sort of Spice whole, the Nutmeg only slit in quarters, with some Limon-Peel, White Pepper; and, if you please, a whole raw Onion, which take out again when it begins to perish.

Another.

The *Mushroms* peel'd, &c. throw them into Water, and then into a Saucepan, with some long Pepper, Cloves, Mace, a quarter'd Nutmeg, with an Onion, Shallot, or Roccombo-Seed, and a little Salt. Let them all boil a quarter of an Hour on a very quick Fire: Then take out, and cold, with a pretty Quantity of the former Spice, boil them in some White-Wine; which (being cold) cast upon the *Mushroms*, and fill up the Pot with the best White-Wine, a Bay-Leaf or two, and an Handful Salt: Then cover them with the Liquor; and if for long keeping, pour Sallet-Oyl over all, tho' they will be preserv'd a Year without it.

They are sometimes boil'd in Salt and Water, with some Milk, and laying them in the Cullender to drain till cold; and wip'd dry, cast them into the Pickle with the White-Wine, Vinegar and Salt, grated Nutmeg, Ginger bruised, Cloves, Mace, White-Pepper, and Limon-Peel: Pour the Liquor on them cold without boiling. And when all this Cost is bestow'd upon them, take my Advice, and *fling them away*. Malignant, extial, mortal, and deleterious, *qualicunque sit apparatus instructu*.

Athanas Kircher de Peste.

18. *Nasturtium Indicum*. Gather the Buds before they open to flower; lay them in the Shade three or four Hours, and putting them into an earthen-glaz'd Vessel, pour good Vinegar on them, and cover it with a Board. Thus letting it stand for eight or ten Days: Then being taken out, and gently press'd, cast them into fresh Vinegar, and let them so remain as before. Repeat this a third time, and barrel them up with Vinegar and a little Salt.

Orange, see *Limon*.

20. *Potato*. The small green Fruit (when about the size of the wild Cherry) being pickl'd, is an agreeable Sallet. But the Root being

ing roasted under the Embers, or otherwise, open'd with a Knife, the Pulp is butter'd in the Skin, of which it will take up a good quantity, and is season'd with a little Salt and Pepper. Some eat them with Sugar together in the Skin, which has a pleasant Crimpness. They are also stew'd and bak'd in Pies, &c.

21. *Purfelan*. Lay the Stalks in an earthen Pan; then cover them with Beer-Vinegar and Water, keeping them down with a competent Weight, to imbibe, three Days: Being taken out, put them into a Pot with as much White-Wine Vinegar as will cover them again; and close the Lid with Paste, to keep in the Steam: Then set them on the Fire for three or four Hours, often shaking and stirring them: Then open the Cover, and turn and remove those Stalks which lie at the bottom to the top, and boil them as before, till they are all of a Colour. When all is cold, pot them with fresh White-Wine Vinegar, and so you may preserve them the whole Year round.

22. *Radish*. The Seed-Pods of this Root being pickl'd, are a pretty Sallet.

23. *Sampier*. Let it be gather'd about *Michaelmas* (or the *Spring*) and put two or three Hours into a Brine of Water and Salt; then into a clean tinn'd Brass Pot, with three Parts of strong White-Wine Vinegar, and one Part of Water and Salt, or as much as will cover the *Sampier*, keeping the Vapour from issuing out, by pasting down the Pot-lid, and so hang it over the Fire for half an Hour only. Being taken off, let it remain cover'd till it be cold; and then put it up into small *Barrels* and *Jars*, with the Liquor, and some fresh Vinegar, Water, and Salt; and thus it will keep very green. If you be near the Sea, that Water will supply the Place of Brine. This is the *Dover* Receipt.

24. *Walnuts*. Gather the Nuts young, before they begin to harden, but not before the Kernel is pretty white: Steep them in as much Water as will more than cover them. Then set them on the Fire, and when the Water boils, and grows black, pour it off, and supply it with fresh, boiling it as before, and continuing to shift it till it become clear, and the *Nuts* pretty tender: Then let them be put into clean Spring-Water for two Days, changing it as before with fresh, two or three times within this space: Then lay them to drain and dry on a clean coarse Cloth, and put them up in a Glass Jar, with a few Walnut-Leaves, Dill, Cloves, Pepper, whole Mace and Salt; strewing them under every Layer of Nuts, till the *Vessel* be three quarters full; and lastly, replenishing it with the best *Vinegar*, keep it well covered; and so they will be fit to spend within three Months.

To make a Mango with them.

The green Nuts prepared as before, cover the bottom of the Jar with some Dill, an Handful of Bay-Salt, &c. and then a Bed of Nuts; and so *stratum* upon *stratum*, as above, adding to the Spice some *Roc-combo-Seeds*; and filling the rest of the Jar with the best White-Wine *Vinegar*, mingled with the best Mustard; and so let them remain close cover'd, during two or three Months time: And thus have you a more agreeable *Mango* than what is brought us from Abroad; which you may use in any Sauce, and is of itself a rich Condiment.

Thus far *Pickles*.

25. *Potage Maigre.* Take four Quarts of Spring-Water, two or three Onions stuck with some Cloves, two or three Slices of Limon-Peel, Salt, whole White-Pepper, Mace, a Race or two of Ginger ty'd up in a fine Cloth (Lawn or Tiffany) and make all boil for half an Hour: Then having Spinage, Sorrel, white Beet-Chard, a little Cabbage, a few small Tops of Cives, wash'd and pick'd clean, shred them well, and cast them into the Liquor, with a Pint of blue Pease boil'd soft and strain'd, with a Bunch of Sweet-Herbs, the top and bottom of a *French Roll*; and so suffer it to boil during three Hours; and then dish it with another small *French Roll*, and Slices about the Dish: Some cut Bread in Slices, and frying them brown (being dry'd) put them into the Pottage just as it is going to be eaten.

The same Herbs clean wash'd, broken and pull'd asunder only, being put in a close cover'd Pipkin, without any other Water or Liquor, will stew in their own Juice and Moisture. Some add an whole Onion, which after a while should be taken out, remembring to season it with Salt and Spice, and serve it up with Bread and a Piece of fresh Butter.

26. *Pudding of Carrot.* Pare off the Crust and tougher Part of two Penny White-Loaves, grating the rest, as also half as much of the Root: Then take a Pint of fresh Cream or new Milk, half a Pound of fresh Butter, six new-laid Eggs (taking out three of the Whites) mash and mingle them well with the Cream and Butter: Then put in the grated Bread and Carrot, with near half a Pound of Sugar, and a little Salt, some grated Nutmeg and beaten Spice; and pour all into a convenient Dish or Pan butter'd, to keep the Ingredients from sticking and burning; set it in a quick Oven for about an Hour, and so have you a Composition for any *Root-Pudding*.

27. *Penny-royal.* The Cream, Eggs, Spice, &c. as above, but not so much Sugar and Salt: Take a pretty quantity of Penny-royal and Marigold Flowers, &c. very well shred, and mingle with the Cream, Eggs, &c. four Spoonfuls of Sack; half a Pint more of Cream, and almost a Pound of Beef-Suet chopp'd very small, the Gratings of a Two-penny Loaf; and stirring all well together, put it into a Bag flower'd, and tie it fast. It will be boil'd within an Hour; or may be bak'd in the Pan like the *Carrot-Pudding*. The Sauce is for both, a little Rose-water, less Vinegar, with Butter beaten together and poured on it, sweetned with the Sugar Caster.

Of this Plant discreetly dry'd, is made a most wholesome and excellent Tea.

28. Of *Spinage.* Take a sufficient Quantity of *Spinach*; stamp and strain out the Juice; put to it grated Manchet, the Yolk of as many Eggs as in the former Composition of the *Carrot-Pudding*; some Marrow shred small, Nutmeg, Sugar, some Corinths (if you please) a few Carroways, Rose or Orange-flower Water (as you best like) to make it grateful. Mingle all with a little boil'd Cream; and set the Dish or Pan in the Oven, with a Garnish of Puff-paste. It will require but very moderate baking. Thus have you Receipts for *Herb-Puddings*.

29. *Skirret-Milk* is made by boiling the Roots tender, and the Pulp strained out, put into Cream or New-Milk boil'd, with three or four Yolks of Eggs, Sugar, large Mace, and other Spice, &c. And thus is compos'd any other Root-Milk. See *Acetar.* p. 138.

30. *Tanfy*. Take the Gratings or Slices of three *Naples-Biscuits*, put them into half a Pint of Cream, with twelve fresh Eggs, four of the Whites cast out, strain the rest, and break them with two Spoonfuls of Rose-water, a little Salt and Sugar, half a grated Nutmeg: And when ready for the Pan, put almost a Pint of the Juice of Spinach, Cleaver, Beets, Corn-Sallet, green Corn, Violet or Primrose tender Leaves, (for of any of these you may take your Choice) with a very small Sprig of Tanfy, and let it be fry'd so as to look green in the Dish, with a Strew of Sugar, and store of the Juice of Orange: Some affect to have it fry'd a little brown and crisp.

31. *Tart of Herbs*. An *Herb-Tart* is made thus: Boil fresh Cream or Milk, with a little grated Bread or *Naples-Biscuit* (which is better) to thicken it; a pretty quantity of Chervile, Spinach, Beet (or what other Herb you please) being first parboil'd and chopp'd. Then add *Macaron*, or Almonds beaten to a Paste, a little sweet Butter, the Yolk of five Eggs, three of the Whites rejected. To these some add Corinths plump'd in Milk, or boil'd therein, Sugar, Spice at Discretion, and stirring it all together over the Fire, bake it in the Tart-Pan.

32. *Thistle*. Take the long Stalks of the middle Leaf of the *Milky-Thistle* about May, when they are young and tender: Wash and scrape them, and boil them in Water, with a little Salt, till they are very soft, and so let them lie to drain. They are eaten with fresh Butter melted not too thin, and is a delicate and wholesome Dish. Other Stalks of the same kind may be so treated, as the *Bur*, being tender and disarmed of its Prickles, &c.

33. *Truffles*, and other *Tubers* and *Boleti*, are roasted whole in the Embers; then slic'd and stew'd in strong *Broth* with Spice, &c. as *Mushrooms* are. Vide *Acetar*. p. 132.

34. *Turnip*. Take their Stalks (when they begin to run up to Seed) as far as they will easily break downwards: Peel and tie them in Bundles. Then boiling them as they do *Sparagus*, are to be eaten with melted Butter. Lastly,

35. *Minc'd*, or *Sallet-all-sorts*.

Take Almonds blanch'd in cold Water, cut them round and thin, and so leave them in the Water: Then have pickl'd Cucumbers, Olives, Cornelians, Capers, Berberries, Red Beet, Buds of *Nasturtium*, Broom, &c. Purslain-Stalk, Sampier, Ash-keys, Walnuts, Mushrooms (and almost of all the pickl'd Furniture) with Raisins of the Sun ston'd, Citron and Orange-peel, Corinths (well cleans'd and dry'd) &c. mince them severally (except the Corinths) or all together; and strew them over with any Candy'd Flowers, and so dispose of them in the same Dish both mix'd, and by themselves. To these add roasted *Maroons*, *Pistachios*, *Pine-Kernels*, and of *Almonds* four times as much as of the rest, with some Rose-water. Here also come in the pickl'd Flowers and Vinegar in little *China-Dishes*. And thus have you an Universal *Winter-Sallet*, or an *All-sort* in Compendium, fitted for a City-Feast, and distinguished from the *Grand-Sallet*; which should consist of the Green blanch'd and unpickl'd, under a stately *Pennash* of *Sellery*, adorn'd with Buds and Flowers.

And thus have we presented you a Taste of our *English Garden Housewifry* in the matter of *Sallets*: And tho' some of 'em may be vulgar, (as are most of the best Things;) yet she was willing to impart them, to shew the Plenty, Riches, and Variety of the *Sallet-Garden*:

den: And to justify what has been asserted of the Possibility of living (not unhappily) on *Herbs* and *Plants*, according to *Original* and *Divine Institution*, improved by Time and long Experience. And if we have admitted *Mushrooms* among the rest (contrary to our Intention, and for Reasons given, *Acetar.* p. 132.) since many will by no means abandon them, we have endeavoured to preserve them from those pernicious Effects which are attributed to, and really in them: We cannot tell indeed, whether they were so treated and accommodated for the most luxurious of the *Cæsarean Tables*, when that Monarchy was in its highest Strain of *Epicurism*, and ingross'd this *Haugout* for their second Course; whilst this we know, that 'tis but what *Nature* affords all her Vagabonds under every Hedge.

And now, that our *Sallets* may not want a Glass of generous Wine of the same Growth with the rest of the Garden to recommend it, let us have your Opinion of the following.

Cowslip-Wine. To every Gallon of Water put two Pounds of *Sugar*; boil it an Hour, and set it to cool: Then spread a good brown *Toast* on both Sides with *Yeast*: But before you make use of it, beat some Syrop of *Citron* with it, an Ounce and half of Syrop to each Gallon of Liquor: Then put in the *Toast* whilst hot, to assist its *Fermentation*, which will cease in two Days; during which time cast in the *Cowslip-Flowers* (a little bruised, but not much stamp'd) to the Quantity of half a Bushel to ten Gallons (or rather three Pecks) four *Limons* slic'd, with the Rinds and all. Lastly, one Pottle of *White* or *Rhenish* Wine; and then after two Days, tun it up in a sweet Cask. Some leave out all the Syrop.

And here, before we conclude, since there is nothing of more constant Use than good Vinegar; or that has so near an Affinity to all our *Acetaria*, we think it not amiss to add the following (much approved) Receipt.

Vinegar. To every Gallon of Spring Water, let there be allowed three Pounds of *Malaga-Raisins*: Put them in an earthen Jar, and place them where they may have the hottest Sun from *May* till *Michaelmas*: Then pressing them well, tun the Liquor up in a very strong Iron-hoop'd Vessel, to prevent its bursting. It will appear very thick and muddy when newly press'd, but will refine in the Vessel, and be as clear as Wine. Thus let it remain untouch'd for three Months before it be drawn off, and it will prove excellent *Vinegar*.

Butter. *Butter* being likewise so frequent and necessary an Ingredient to divers of the foregoing *Appendants*, it should be carefully melted, that it turn not to Oil; which is prevented by melting it leisurely, with a little fair Water at the bottom of the Dish or Pan; and by continual shaking and stirring, kept from boiling or over-heating, which makes it rank.

Other rare and exquisite *Liquors* and *Teas* (Products of our *Gardens* only) we might superadd, which we leave to our *Lady Housewives*, whose Province indeed all this while it is.



Kalendarium Hortense:
OR, THE
Gardiner's Almanack,
Directing what he is to do
MONTHLY throughout the YEAR;
And what
FRUITS and FLOWERS
Are in PRIME.

By JOHN EVELYN, Esq;
Fellow of the Royal Society.

—————*Labor actus in orbem.*

VIRG. Georg. 2.

Satis admirari nequeo, quod primo scriptorum meorum exordio jure conquestus sum: Cæterarum Artium minus vitæ necessariarum repertos Antistites, Agriculturæ neq; Discipulos, neq; Præceptores inventos.

COLUMELL. lib. ix. cap. 1.



Kalendarium Hortense:

OR THE

Gardiner's Almanack,

Direſting what he is to do

MONTHLY throughout the YEAR,

And what

FRUITS and FLOWERS

Are in PRIME.

By JOHN EVELYN, Esq;

Fellow of the Royal Society.

London: ſold in ſheets.

Viſit. Georg. n.

ſuit admirant regno, quod primo ſcriptum manu exordio ſuit
compoſuit ſeu: Cateroque Actum ſunt ſcriptum in
ſuit ſcriptum, Actum ſunt ſcriptum, ſuit ſcriptum
ſuit ſcriptum.

Collected by the Rev. Dr. J.

T O

ABRAHAM COWLEY, Esq;

S I R,

THIS *Hortulan Kalendar* is yours, mindful of the Honour once conferr'd on it, when you were pleased to suspend your nobler *Raptures*, and think it worthy your *transcribing*. It appears now with some *Advantages* which it then wanted; because it had not *that* of publishing to the *World*, how infinitely I magnify your *Contempt* of (not to say *Revenge* upon) it; whilst you still continue in *Possession* of your *Self*, and of that *Repose* which so few understand, in exchange for those *pretty Miseries* you have essay'd: O the sweet *Evenings* and *Mornings*, and all the *Day* besides, which are yours!

— while Cowley's made
The happy Tenant of the Shade.

And the *Sun* in his *Garden* gives him all he desires, and all that he would enjoy: The Purity of visible Objects, and of pure *Nature*, before she was vitiated by *Imposture* or *Luxury*!

— Books, wise Discourse, Gardens and Fields,
And all the Joys that unmix'd Nature yields. Misc.

You gather the first *Roses* of the *Spring*, and *Apples* of *Autumn*: And as the *Philosopher* in *Seneca* desir'd only *Bread* and *Herbs* to dispute Felicity with *Jupiter*; you vie Happiness in a thousand easy and sweet Diversions; not forgetting the innocent *Toils* which you cultivate; the *Leisure* and the *Liberty*, the *Books*, the *Meditations*, and above all, the learned and choice *Friendships* that you enjoy: Who would not, like *You*, *Cacher sa vie*? 'Twas the wise *Impress* of *Balzac*, and of *Plutarch* before him; you give it *Lustre* and *Interpretation*. I assure you, Sir, it is what in the *World* I most inwardly breathe after and pursue, not to say that I envy your *Felicity*, deliver'd from the gilded *Impertinencies* of *Life*, to enjoy the Moments of a solid and pure *Contentment*; since those who know how *usefully* you employ this glorious *Recess*, must needs be forc'd either to *Imitate*, or, as I do, to *Celebrate* your *Example*.

Primus cere
rosam atq; au-
tumno carpere
pomum.

2

J. EVELYN.



INTRODUCTION

TO THE

KALENDAR.

Gen. ii. 15.



S Paradise (*tho' of God's own Planting*) was no longer Paradise than the Man was put into it, to dress it, and to keep it; so, nor will our Gardens (as near as we can contrive them to the resemblance of that blessed Abode) remain long in their Perfection, unless they are also continually cultivated. But when we have so much celebrated the Life and Felicity of an excellent Gard'ner, as to think it preferable to all other Diversions whatsoever; it is not because of the Leisure which he enjoys above other Men; Ease and Opportunity, which minister to vain and insignificant Delights; such as Fools derive from sensual Objects: We dare boldly pronounce it, there is not amongst Men a more laborious Life than is that of a good Gard'ner's; but because a Labour full of Tranquility and Satisfaction; Natural and Instructive, and such as (if any) contributes to the most serious Contemplation, Experience, Health, and Longævity, munera nondum intellecta Deum. In sum, a Condition it is, furnished with the most innocent, laudable, and purest of earthly Felicities; and such as does certainly make the nearest Approaches to that blessed State, where only they enjoy all things without Pains; so as those who were led only by the Light of Nature, because they cou'd fancy none more happy, thought it worthy of entertaining the Souls of their departed Heroes, and most Illustrious of Mortals.

*Prætermittas
duodecim
horas, sed an-
num, periisse,
nisi sua qua-
que quod instat
effecerit.
Quare, neces-
saria est Men-
strui cujusque
officii monitio
ea, quæ pendet
ex ratione
Syderum Cœ-
li, &c. Col. R.
R. l. ix.*

But to return to the Labour, because there is nothing excellent which is to be attained without it: A Gard'ner's Work is never at an end; it begins with the Year, and continues to the next: He prepares the Ground, and then he sows it; after that he plants, and then he gathers the Fruits: But in all the intermedial Spaces he is careful to dress it; so as Columella, speaking of this continual Assiduity, tells us, A Gard'ner is not only to reckon upon the loss of bare twelve Hours, but of a whole Year, unless he immediately set about the doing that which ought to be done that very instant: And therefore is such a Monthly Notice of this Task as depends upon the Signs and Seasons, highly necessary.

* Geor. 1.

* ——— tam sunt Arcturi Sydera nobis.

Hedorumque dies servandi, & lucidus Anguis;
Quam quibus in patriam ventosa per æquora vectis.
Pontus, & Ostiferi fauces tentantur Abydi.

Gardiners

*Gard'ners had need each Star as well to know,
The Kid, the Dragon, and Arcturus too,
As Sea-men, who, thro' dismal Storms, are wout
To pass the Oyster-breeding Hellespont.*

*All which duly weighed, how precious the Time is, how precipitous the Occasion, how many Things to be done in their just Season, and how intolerable a Confusion succeeds the smallest Neglect (after once a Ground is in order) we thought we should not attempt an unacceptable Work, if here we endeavour'd to present our Lovers of the Garden with a compleat Cycle of what is requisite to be done throughout every Month of the Year; and the Parts dispos'd in such Order, as may not only facilitate the Work, but render it agreeable, and redeem it from that extreme Perplexity, which for want of a constant and uniform Method, we find does so universally distract the vulgar Sort of Gardiners: They know not (for the most part) the Seasons when Things are to be * done; and when at any Time they come to know, there often falls out so many Things to be done on the sudden, that some of them must of Necessity be neglected for that whole Year, which is the greatest Detriment to this Mystery, and frequently irrecoverable.*

* *Quia caput est in omni negotio nescit quid agendum sit, &c. Col. l. i. c. i.*

We are yet far from imposing (by any Thing we have here alledg'd concerning these Menstrual Periods) those nice and hypercritical Punctilo's, which some Astrologers, and such as pursue their Rules, seem to oblige our Gardiners to; as if, forsooth, all were lost, and our Pains to no Purpose, unless the Sowing and the Planting, the Cutting, and the Pruning, were perform'd in such and such an exact Minute of the Moon: In hac autem Ruris disciplina non desideratur ejusmodi scrupulositas. There are, indeed, some certain Seasons, and suspecta tempora, which the prudent Gardiner ought carefully (as much as in him lies) to prevent: But as to the rest, let it suffice, that he diligently follow the Observations which (with some Industry) we have collected together, and here present him, as in so many Synoptical Tables calculated for his Monthly Use; to the end he may pretermitt nothing which is under his Inspection, and is necessary, or distract his Thoughts and Employment before the Seasons require it.

Col. de R. R. lib. ix. cap. 364.

Let none therefore despise and neglect these short Directions, so freely and ingenuously imparted; I shall not say to the Regret of all our Mercenary Gardiners, because I have much Obligation to some above that Epithet; who being certainly amongst the most expert of their Profession in England, are no less to be celebrated for their free Communications to the Publick, by divers Observations of theirs which have furnished to this Design. And it is from the Result of very much Experience, and an extraordinary Inclination to cherish so innocent and laudable a Diversion, and to incite an Affection in the Nobles of this Nation towards it; that there are some so kind and generous, as to communicate their Knowledge in the Hortulan Mystery, without Imposture, or invidious Reserve. The very Catalogue of Fruits and Flowers, for the Orchard and the Parterre, will gratify the most innocent of the Senses, and whoever else shall be to seek a rare and universal Choice for his Plantation.

Touching the Method, it is so obvious, that there needs no farther Directions; and the Consequent will prove so certain, that a Work of the busiest Pains is by this little Instrument made not only easy, and, (as we said) agreeable, but capable to preserve a Garden in that Perfection of Beauty and Lustre, without Confusion or Prejudice. Nor indeed could we think of a more comprehensive Expedient, whereby to assist the frail and torpent Memory through so multifarious and numerous an Employment (the daily Subject of a Gardiner's Care) than by such an Oeconomy and Discipline, as our Industrious Gardiner may himself be continually improving from his own Observations and Experience. In the mean time, we have, at the Instance of very many Persons, who have been pleased to acknowledge the Effects of former less perfect Impressions, thought good to publish and enlarge this Edition. But the Kalendar might be considerably augmented, and recommend it self to more Universal Use, by taking in the Monthly Employments of all the Parts of Agriculture, as they have been begun to us in Columella, Palladius, de Seres, Augustino Gallo, Vincenzo Tanara, Herrera, our Tusser, Markham, and others; especially, if well and judiciously apply'd to the Climate and Temper of the several Countries: But it were here besides our Institution, nor would the Pages contain them. What is yet found vacant, has been purposely left so, that our Gardiner may supply as he finds Cause; for which reason likewise we have rang'd both the Fruits and Flowers in Prime after somewhat a promiscuous Order, that the Method might be pursu'd with the least Disorder. Lastly,

Col. de R. R.
lib. xi. c. 11.
Pall. lib. i.
Tit. 1.

The Fruits and Flowers in Prime are to be as well consider'd in relation to their Lasting and Continuance, as to their Maturity and Beauty.

That it may appear what Additions, and considerable Improvements, are made to this Edition, I have caused the Margents to be pointed where they occur.

J. E.



Kalen-



Kalendarium Hortense.



JANUARY

Hath xxxi Days, — long 8^h—0^m

Sun rises 8^h—0^m — Sets 4^h—0^m

To be done

In the Orchard and Olitory Garden.

Note, That for the Rising and Setting of the Sun, and Length of the Days, I compute from the first of every Month, London Lat.



TRENCH the Ground, and make it ready for the Spring: Prepare also *Soil*, and use it where you have Occasion; for which Purpose make plentiful Provision of *Neats, Horse, and Sheeps Dung*, especially, that you may have some of two Years Preparation, by now and then stirring, and opening it to the Air, and lastly, screening it, reserve it for Use in some hard-bottom'd shady Place; a

little excavated, that the Rain wash not away the Virtue of it: Suffer no *Weeds* to grow on it: Have some Heaps of sweet *Under-Pasture natural Mould*, and fine *Loam*, to mingle with your *Dung*, as occasion requires.

Note, That the *Dung of Pigeons and Poultry*, mix'd with *Mould*, is excellent for the *Fig-Tree*, (to which I now advise you to lay it) *Asparagus, Strawberries, &c.* but then it must have pass'd its first Heat, lest apply'd before, it burn the Plant.

Horse-dung, if not exceedingly rotted, will infect the Ground with Knot-grass, the very worst of Garden-weeds; and is therefore only proper for moist and cold Grounds, and to be us'd for the *Hot-Bed*.

Abricots and Peaches require rather a natural, rich, and mellow Soil, than much *Dung*.

Dress your *Sweet-Herb Beds* rather with a new Moulding every Second Year, than with over-dunging or rank Soil.

Mould, made of the rotting of *Weeds, &c.* is apt to produce the same *Weeds*. Vide *Discourse of Earth*, p. 19.

See the Directions in my Treatise of Earth.

Jan. Olit. Dig *Borders*, &c. *Uncover*, as yet, *Roots of Trees*, where *Ablaqueation* is requisite.

* See Mr. Rose's Vineyard vindicated, c. 5.

Plant *Quick-sets*, and transplant *Fruit-Trees*, if not finish'd: Set * *Vines*, and begin to *prune the Old*: *Prune* the Branches of *Orchard Fruit-Trees*; especially the long planted, and that towards the *Decrease*: But for such as are newly planted, they need not be disbranched till the *Sap* begins to stir, that is, not till *March*; that so the Wound may be healed, with the *Scar* and *Stub*, which our Frosts do frequently leave: Besides, one then best discerns the *Fruit-buds*. In this Work cut off all the Shoot of *August*, unless the nakedness of the Place incline you to spare it: Consult my French Gardiner, *Part 1.*

Pomon. c. 8.

Sept. 3. For this is a most material *Address*, towards which these short Directions may contribute.

- Learn first to know and distinguish the *Bearing* and *Fruit-buds* from the *Leaf-buds*: The *Fruit-buds* are always fuller and more turgid: These you are carefully to spare, and what you prune from the rest, cut off slanting above the *Bud*, with a very sharp Knife, leaving no Rags.

- In taking off an whole Branch or Limb, cut close to the *Stem*, that the *Bark* may cover it the sooner.

- Those *Buds* which either put forth just between the *Stem* and *Wall* (in *Mural-Trees* only) or opposite to them, are to be rubbed off as soon as they appear, sparing only the collateral Branches.

- Keep your *Wall* and *Palisade-Trees* from mounting too hastily, that they may form beautiful and spreading Branches, sharp'd like a *Lady's Fan*, and close to the Ground.

- Take the *Water-boughs* quite away, which are those that on *Standards* being shaded, and dripp'd upon, remain smooth and naked without *Buds*.

- Where you desire *Mural Fruit-Trees* should spread, garnish, and bear, cut smoothly off the next unbearing Branch.

- Forbear pruning *Wall-Fruit* that is tender, till *February*.

- Where *Branches* are so thick and entangled, that they gall one another, or exclude the *Sun* and *Air*, thin the Place at Discretion.

You may now begin to *Nail* and *Trim* your *Wall-Fruit*, and *Espaliers*.

Cleanse *Trees* of *Moss*, &c. the *Weather* moist.

Gather *Cyons* for *Graffs* before the *Buds* sprout; and about the latter end, *graft* them in the *Stock*, *Pears*, *Cherries*, and *Plums*, and remember this for a *special Rule*, That you always take the *Cyon* from some *goodly* and *plentifully-bearing Tree*: For if it be from a young Tree, or one which has not yet born Fruit (though of never so excellent a Kind) it will be a long Time e'er your *Graff* produce any *Fruits* considerable.

Now also remove your *Kernel-stocks* to more commodious Distances in your *Nursery*, cutting off the † *Top-Root*. Set *Beans*, *Pease*, &c.

Sow also (if you please) for early *Cauly-flowers*.

Sow *Chervil*, *Lettuce*, *Radish*, and other (more delicate) *Salletings*; if you will raise in the *Hot-Bed*.

In over-wet, or hard Weather, cleanse, mend, sharpen, and prepare *Garden-Tools*.

Turn

Turn up your *Bee-hives*, and sprinkle them with a little warm and sweet *Wort*; do it dexterously. *Jan. Obit.*

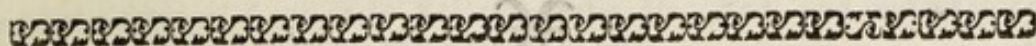
Fruits in Prime, and yet lasting.

A P P L E S.

K *Entish Pippin, Russet Pippin, Golden Pippin, French Pippin, Kirton Pippin, Holland Pippin, John-Apple, Winter Queening, Marigold, Harvey-Apple, Pome-water, Pomeroy, Golden Doucet, Apis, Reineting, Lones Pear-main, Winter Pear-main, &c.*

P E A R S.

Winter *Musk*, (bakes well) Winter *Norwich*, (excellently baked) Winter *Bergamot*, Winter *Bon-crestien*, both *Mural: Vergoules*, the great *Surrein*, &c.



J A N U A R Y

Hath xxxi Days—long 8^h—0^m

Sun rises 8^h—0^m—Sets 4^h—6^m

To be done

In the *Parterre* and *Flower-Garden*.

SET up your *Traps* for *Vermine*; especially in your *Nurseries* of *Kernels* and *Stones*, and amongst your *bulbous Roots*; which will now be in Danger. A *Paste* made of coarse *Honey*, wherein is mingled *Green-glass* beaten, with *Copperas*, may be laid near their Haunts. About the middle of this *Month*, plant now your *Anemony Roots*, and *Ranunculus's*, which you will be secure of, without covering, or farther Trouble: Preserve from too great and continuing *Rains* (if they happen) *Snow* and *Frost*, our choicest *Anemonies* and *Ranunculus's* sow'd in *September* or *October* for earlier *Flowers*: Also your *Carnations*, and such *Seeds* as are in peril of being wash'd out, or over-chill'd and frozen; covering them under *Shelter*, and striking off the *Snow* where it lies too weighty; for it certainly rots, and bursts your early-set *Anemonies* and *Ranunculus's*, &c. unless planted now in the *Hot-Beds*; for now is the *Season*, and they will *Flower* even in *London*. Towards the end, earth-up, with fresh and light Mould, the *Roots* of those *Auricula's* which the *Frosts* may have uncover'd; filling up the *Chinks* about the *Sides* of the *Pots* where your choicest are set, but they need not be hous'd; it is a hardy Plant.

Flowers in Prime, or yet lasting.

Winter *Aconite*, some *Anemonies*, Winter *Cyclamen*, Black *Hellebor*, *Brumal Hyacinth*, *Oriental Jacinth*, *Levantine Narcissus*, *Hepatica*, *Primroses*, *Laurus-tinus*, *Mezereon*, *Præcoce Tulips*, &c. especially if raised in the *Hot-Bed*. Note,

That both these *Fruits* and *Flowers*, are more *early* or *tardy*, both as to their prime *Seasons* for *eating*, and *Perfection* of *blowing*, according as the *Soil* and *Situation* are qualify'd, by *Nature* or *Accident*. Note also,

That in this *Recension* of *Monthly Flowers*, it is to be understood for the *whole* Period that any *Flower* continues, from its first *appearing* to its final *withering*.



FEBRUARY

Hath xxviii Days, — long 9^h—24^m

Sun rises 7^h—13^m — Sets 4^h—45^m

To be done

In the Orchard and Olitory Garden.

PRUNE *Fruit-Trees* and *Vines* as yet; for now is your Season to bind, plash, nail, and dress, without danger of Frost: This to be understood of the most tender and delicate *Wall-Fruit*, not finish'd before; do this before the *Buds* and *Bearers* grow turgid; and yet in the *Nectarine* and like delicate *Mural-Fruit*, the later your *Pruning* the better, whatever has been, and still is, the contrary Custom.

And let your *Gardiner* endeavour to apply the *Collateral Branches* of his *Wall-Fruits*, as near as possibly he can (without Violation and unnatural bending and reverting) to the *Earth* or *Borders*; so as the *Fruit* (when grown) may almost touch the Ground: The rest of the *Branches* following the same Order, will display the *Tree* like a *Lady's Fan*, and repress the common Exuberance of the leading and middle Shoots, which usually make too hasty an Advance: A *Gardiner* expert in this, and the right Art of *Pruning*, may call himself a *Workman sans Reproach*.

Remove *Grafts* of former Years *Grafting*. Cut and lay *Quicksets*; and trim up your *Palisade Hedges* and *Espaliers*. Plant *Vines* as yet, other *Shrubs*, *Hops*, &c.

Set all Sorts of *Kernels* and *stony Seeds*, which *Field-Mice* will certainly ruin, before they sprout, unless prevented: Also sow *Beans*, *Pease*, *Rounsevals*, *Corn-sallet*, *Marigold*, *Anniseeds*, *Radish*, *Parfenips*, *Carrots*, *Onions*, *Garlick*, &c. And plant *Potatoes* in your worst Ground.

Now

Now is your Season for *Circumposition* by *Tubs* or *Baskets* of *Earth*, *Feb. Olit.* and for laying of *Branches* to take root. You may plant forth your *Cabbage-Plants*.

Rub *Moss* off your *Trees* after a soaking *Rain*, and scrape, and cleanse them of *Cankers*, &c. draining away the *wet* (if need require) from the too much moistned *Roots*, and earth-up those *Roots* of your *Fruit-Trees*, if any were uncover'd. Continue to *dig* and *manure*, if Weather permit. Cut off the *Webs* of *Caterpillars*, &c. from the *Tops* of *Twigs* and *Trees* to burn. Gather *Worms* in the *Evenings* after *Rain*.

Kitchen-Garden Herbs may now be planted, as *Parsly*, *Spinage*, *Onions*, *Leeks*, and other hardy *Pot-Herbs*. Towards the *middle* or *latter end* of this *Month*, till the *Sap* rises briskly, *graft* in the *Cleft*, and so continue till the last of *March*; they will hold *Apples*, *Pears*, *Cherries*, *Plums*, &c. the *New Moon*, and the *Old Wood* is best. Now also plant out your *Cauly-flowers* to have early; and begin to make your *Hot-Bed* for the first *Melons* and *Cucumbers* to be sow'd in the *Full*; but trust not altogether to them. You may all this *Month*, and the former, have early *Sallets* on the *Hot-Bed*, and under *Glass* Frames and *Bells*. Sow *Asparagus*. Lastly,

Half open your *Passages* for the *Bees*, or a little before (if *Weather* invite;) but continue to feed weak *Stocks*, &c.

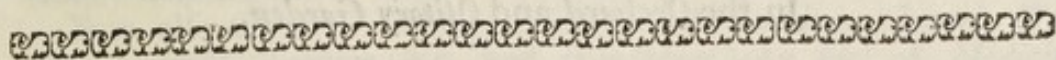
Fruits in Prime, or yet lasting.

A P P L E S.

K *Entish*, *Kirton*, *Russet*, *Holland Pippins*; *Deux-ans*, *Winter Queening*, *Harvy* sometimes, *Pome-water*, *Pome-roy*, *Golden-Doucet*, *Reineting*, *Lones*, *Pearmain*, *Winter Pearmain*, &c.

P E A R S.

Bon-Chrestien of *Winter*, *Winter Poppering*, *Little Dagobert*, &c.



F E B R U A R Y

Hath xxviii days, —long 9^h—24^m

Sun rises 7^h—13^m—Sets 4^h—45^m

To be done

In the *Parterre* and *Flower-Garden*.

Continue *Baits*, *Vermine-Traps*, &c. Sow *Alaternus* Seeds in *Cases*, or open *Beds*; cover them with *Thorns*, that the *Poultry* scratch them not out. Sow also *Lark-Spurs*, &c.

Feb. Par.

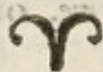
Now and then air your hous'd *Carnations*, in warm Days especially, and mild *Showers*; but if like to prove cold, fet them in again at Night.

Furnish (now towards the end) your *Aviaries* with *Birds* before they couple, &c. and hang up Materials for them to build their *Nests* with.

Note, That such *Birds* as feed not on *Seeds* alone, should be separated by a Partition of *Wyre*, from those who feed on bruised *Seeds*, *Pastes*, fleshy or pulpy Mixtures; as the *Sky-Lark*, *Wood-Lark*, *Throstle*, *R. Red-breast*, &c.

Flowers in Prime, or yet lasting.

Winter *Aconite*, single *Anemonies*, and some double; *Tulips*, *Præcoce*, *Hyacinthus*, *Stellatus*, *Vernal Crocus*, Black *Helbore*, single *Hepatica*, *Persian Iris*, *Leucoium Bulbosum*, *Dens Caninus* three leav'd, *Vernal Cyclamen* white and red, *Mezereon*, *Ornithogal. max. alb.* Yellow *Violets* with large Leaves, early *Daffodils*, &c.



M A R C H

Hath xxxi days,—long 11^h—22^m

Sun rises 6^h—19^m—Sets 05^h—41^m

To be done

In the Orchard and Olitory Garden.

YET *Stercoration* is seasonable, and you may plant what *Trees* are left, tho' it be something of the latest, unless in very backward or moist Places.

Now is your chiefest and best time for raising on the Hot-bed *Melons Cucumbers*, *Gourds*, &c. which about the *sixth*, *eighth*, or *tenth* Day will be ready for the *Seeds*; and eight Days after, prick them forth at distances, according to the *Method*, &c.

If you will have them later, begin again in ten or twelve Days after the first; and so a third time, to make *Experiments*. Remember to preserve the *Hot-bed* as much as possible from *Rain*; for cool him you may easily, if too violent, but not give it a competent Heat, if it be spent, without new-making. See *Discourse of Earth*, &c.

Now is the best time for pruning your young *Murals*, and indeed other *Wall-Trees*. See the Reason in *January*.

Graff all this Month, beginning with *Pears*, and ending with *Apples*, unless the *Spring* prove extraordinary forwards: See our *Pomona*,

Now also plant *Peaches* and *Nectarines*, but cut not off the *Top*. *Mar. Olit.*
Roots, as you do of other Trees; for it will much prejudice them: Prune
 last Year's *Grafts*, and cut off the *Heads* of your *budded Stocks*. Take
 off the *Littier* from your *Kernel-Beds*; see *Octob.* or you may forbear
 till *April*. Stir your new-planted *Ground*, as directed in *Disc. of*
Earth, p. 13. and for the *Nursery*, p. 14.

You may as yet cut *Quick-sets*, and cover such *Tree-Roots* as you laid
 bare in *Autumn*.

It were profitable now also to *top* your *Rose-Trees*, (• which always
 • bear on the fresh Sprouts of the same Spring,) a little with your Knife
 near a *Leaf-bud*, and to prune off the dead and withered Branches,
 keeping them lower than the Custom is, and to a single *Stem*. • Cut
 • away some Branches of the *Monthly Rose-Tree* close, after the first
 • bearing.

Slip and set *Sage*, *Rosemary*, *Lavender*, *Thyme*, &c.

• *Note*, That *Rosemary* thrives better by cutting off the Sprigs, than
 • by ragged Slips, which leaves an incurable *Scar* on the *old Plant*.
 • Cut them therefore at a little distance from the *Stem*, and this so soon
 • as it *flowers*, which is commonly in this *Month*.

• Where the Soil is *Clay*, or over moist, mingle it plentifully with
 • *Brick-dust*.

Sow in the beginning *Endive*, *Succory*, *Leeks*, *Radish*, *Beets*,
Chard Beet, *Scorzonera*, *Parasnips*, *Skirrets*: Sow *Skirrets* in rich,
 • mellow, fresh Earth and moist; and when about a Finger long, plant
 • but one *single Root* in a Hole at a Foot distance: Sow also *Parfly*,
Sorrel, *Bugloss*, *Borage*, *Chervil*, *Sampier* (to replant in *May*)
Sellery, *Smallage*, *Alisanders*, &c. Several of which continue many
 Years without renewing, and are most of them to be *blanch'd* by lay-
 ing them under *Littier*, and earthing up.

Sow also *Lettuce*, *Onions*, *Garlick*, *Orack*, *Purslain*, *Turnips*,
 (to have early) *Monthly Pease*, &c. these *annually*. Begin to tie
 up some *Lettuce*.

Transplant the *Beet-chard* which you sow'd in *August*, to have most
 ample *Chards*.

Sow also *Carrots*, *Cabbages*, *Cresses*, *Nasturtium*, *Fennel*, *Mar-
 joram*, *Basil*, *Tobacco*, &c. And transplant any sort of *Medicinal*
Herbs.

• Whatsoever you now *Sow* or *Plant* of this sort, water not over
 • *hastily*, nor with too great a *Stream*, for it hardens the *Ground*, with-
 out penetrating; rather endeavour to imitate the *natural Shower*; but
 spare not Watering if necessary.

• Never cast Water on things newly planted, nor on *Flowers*, but
 • at convenient distance, so as rather to *moisten* the *Ground*, without
fobbing the *Leaves* of the *Plant*, which ends in *scorching*.

Mid-March dress up (with a little fresh *Manure*) and string your
Strawberry-Beds, • clipping away all their Runners till they blossom.
 • And *note*, That you can hardly over-water your *Strawberry-Beds*
 • in a dry Season; yet better not water at all, than too sparingly. Un-
 cover your *Asparagus*, spreading and loosning the Mould about them,
 for their more easy penetrating; • flourishing the Beds thinly, with a
 • little fine fresh *Manure*. Also may you now transplant *Asparagus*
 Roots to make new *Beds*. See *Disc. of Earth*, p. 34. Uncover also
Artichokes

Mar. Par. • *Artichocks* cautiously, and by degrees: The like your *Fig-Trees*,
 ~~~~~ • cutting off the dead Wood.  
 By this time your *Bees* fit; keep them close Night and Morning,  
 if the Weather prove unkind.  
 Turn your *Fruit* in the Room where it lies, but open not yet the  
*Windows*.

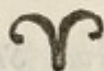
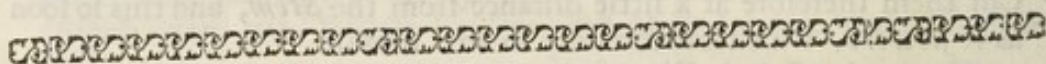
*Fruits in Prime, or yet lasting.*

### A P P L E S.

**G**olden *Ducket*, [*Doucet*] *Pippins*, *Reineting*, *Lones Pear-*  
*main*, *Winter Pearmain*, *Winter Bon-Cretienne*, *John-Apple*,  
 &c.

### P E A R S.

Later *Bon-Chretien*, *Double Blossom Pear*.



## M A R C H

Hath xxxi days,—long 11<sup>h</sup>—22<sup>m</sup>

Sun rises 6<sup>h</sup>—19<sup>m</sup>—Sets 05<sup>h</sup>—41<sup>m</sup>

To be done

In the *Parterre* and *Flower-Garden*.

**S**Take and *Bind* up your weakest *Plants* and *Flowers* against the  
 Winds, before they come too fiercely, and in a moment *prostrate*  
 a whole Year's Labour.

Plant *Box*, &c. in *Parterres*. Sow *Pinks*, *Sweet-Williams* and  
*Carnations*, from the middle to the end of this Month. Sow *Pine-*  
*kernels*, *Fir-seeds*, *Bays*, *Alaternus*, *Phillyrea*, and most *perennial*  
*Greens*, &c. Or you may stay till somewhat later in the Month.  
 Sow *Auricula-seeds* in *Pots* or *Cases*, in fine *Willow-earth*, a little  
*loamy*; and place what you sow'd in *September* (which is the more  
 proper Season) now in the Shade, and water it.

Plant some *Anemony Roots* to bear late, and successively; especially  
 in and about *London*, where the *Smoke* is any thing tolerable; and if  
 the Season be very dry, water them well once in two or three Days, as  
 likewise *Ranunculus's*. *Fibrous Roots* may be transplanted about the  
 middle of this Month; such as *Hepatica's*, *Primroses*, *Auricula's*,  
*Camomile*, *Narcissus Tuberoses*, *Matricaria*, *Gentianella*, *Hellebore*,  
 and other *Summer-flowers*. Set *Leucoium*, slip the *Keris* or *Wall-*  
*flower*; and towards the end, *Lupines*, *Convolvulus's*, *Spanish* or or-  
 dinary *Jasmine*. You may now, a little after the *Equinox*, prune  
*Pine* and *Fir-Trees*. See *September*.

Towards



Towards the middle, or latter end of *March*, sow on the *Hot-bed* *Mar. Par.* such Plants as are late bearing Flowers or Fruit in our Climate; as *Balsamine*, and *Balsamum mas*, *Pomum Amoris*, *Datura*, *Æthiopic Apples*, some choice *Amaranthus*, *Dactyls*, *Geranium's*, *Hedysarum Clipeatum*, *Humble* and *Sensitive* Plants; *Lentiscus*, *Myrtle-Berries* (steep'd a while) *Capsicum Indicum*, *Canna Indica*, *Flos Africanus*, *Mirabile Peruvian*: *Nasturtium Ind.* *Indian Phaseoli*, *Volubilis*, *Myrrh*, *Carrots*, *Marcoc*, five *Flos Passionis*, and the like rare and exotic Plants which are brought us from hot Countries. Note, That the *Nasturtium Ind.* *African Marigolds*, *Volubilis*, and some others, will come (though not altogether so forward) in the *Cold-bed* without Art; but the rest require much, and constant Heat, and therefore several *Hot-beds*, till the common Earth be very warm by the Advance of the Sun, to bring them to a due Stature, and perfect their Seeds: Therefore your choicest *Amaranthus* being risen pretty high, remove them into another temperate *Hot-bed*; the same you may do with your *African* and *Sensitive* Plants especially, which always keep under Glasses. See *Discourse of Earth*, p. 36, 37.

About the Expiration of this Month carry into the Shade such *Auricula's*, Seedlings, or *Plants*, as are for their Choiceness reserved in *Pots*.

Transplant also *Carnation Seedlings*. Giving your *Layers* fresh Earth, and setting them in the Shade for a Week; then likewise cut off all the sick and infected Leaves; for now you may set your choice ones out of *Covert*, as directed in *February*.

Now do the *farewel Frosts* and *Easterly Winds* prejudice your choicest *Tulips*, and spot them; therefore cover such with Mats or Canvas to prevent *Freckles*, and sometimes Destruction. The same Care have of your most precious *Anemonies*, *Auricula's*, *Chamæ-iris*, *Brumal Jacynths*, early *Cyclamen*, &c. Wrap your shorn *Cypress* Tops with Straw Wisps, if the *Eastern Blasts* prove very tedious; and forget not to cover with dry Straw or Pease-hame, your young exposed *Ever-greens*, as yet Seedlings; such as *Fir*, *Pine*, *Phillyrea*, *Bays*, *Cypress*, &c. till they have pass'd two or three Years in the Nursery, and are fit to be transplanted; for the sharp *Easterly* and *Northery* Winds transpierce, and dry them up. Let this also caution you upon all such Extremities of Weather during the whole Winter; but be mindful to uncover them in all benign and tolerable Seasons and Intermissions; it being these acute Winds, and seldom or never the hardest Frosts or Snows, which do the Mischief. About the End uncover even your choicest Plants, but with Caution; for the Tail of the Frosts yet continuing, and sharp Winds, with the sudden darting Heat of the Sun, scorch and destroy them in a moment; and in such Weather neither sow nor transplant.

Sow *Stock-Gilly-flower* Seeds in the *Full*, to produce double *Flowers*.

- In the mean time let Gentlemen and Ladies, who are curious,
- trust little by *Mangonisme*, *Insuccations*, or *Medicine* to alter the
- Species, or indeed the Forms and Shapes of *Flowers* considerably,
- that is, to render that *double*, which Nature produces but *single*,
- &c. but by frequent *transplanting*, *removing*, &c. *enriching* the
- Mould to *multiply* and *double*; and by starving and hardening the



Mar. Pæ.

• Earth, and consequently taking from the Roots the freer Nourishment, for *variation* and *change*. *Make much of this Document.*

Now you may set your *Oranges, Limons, Myrtles, Oleanders, Lentisci, Dates, Aloes, Amomums*, and like tender Trees and Plants in the *Portico*, or with the Windows and Doors of the *Green-houses* and *Conservatories* open, for eight or ten Days before *April*, or earlier, if the Season invite (that is, if the sharp Winds be past) to acquaint them gradually with the Air: I say gradually and carefully, for this Change is the most *critical* of the whole Year; trust not therefore the Nights too confidently, unless the Weather be thoroughly settled: Now is also your Season to raise Stocks to bud *Oranges* and *Limons* on, by sowing the Seeds early this Month, in such Mould as is mentioned in *May*: Let the Seeds be of the *Sevil Orange*, half a dozen in a Pot is enough, plunging it in the *Hot-bed*; renew'd some time in *May*: Thus they will have shot near a Foot before Winter, and at the End of three Years be fit for *Inoculation*; which you may now also bud at the End of this Month, placing two *Buds* opposite to each other within an Inch of the Earth. *Make much of this Direction.*

Some of the hardiest *Ever-greens* may not be transplanted, especially if the Weather be *moist* and temperate. Lastly,

Bring in Materials for the *Birds* in the *Aviary* to build their *Nests* withal.

### Flowers in Prime, or yet lasting.

**A** *Nemonies*, Spring *Cyclamen*, Winter *Aconite*, *Crocus*, *Bellis*, white and black *Hellebore*, single and double *Hepatica*, *Leucoion*, *Chamæ-iris* of all Colours, *Dens Caninus*, *Violets*, *Fritillaria*, *Chelidonium* small with double Flowers, *Hermodactyls*, *Tuberous Iris*, *Hyacinth Zeboin*, *Brumal*, *Oriental*, &c. *Junquills*, great *Chalic'd*, *Dutch Mezereon*, *Persian Iris*, *Auricula's*, *Narcissus* with large Tufts, common, double, and single *Primroses*, *Præcoce Tulips*, *Spanish Trumpets* or *Junquils*, *Violets*, yellow *Dutch Violets*, *Ornithogalum max. alb.* *Crown Imperial*, *Grape Flowers*, *Almonds* and *Peach Blossoms*, *Rubus Odoratus*, *Arbo Judæ*, &c.

8

### A P R I L

Hath xxx days,—long 13<sup>h</sup>—23<sup>m</sup>

Sun rises 5<sup>h</sup>—18<sup>m</sup>—Sets 6<sup>h</sup>—42<sup>m</sup>

To be done

In the Orchard and Olitory Garden.

**S**OW Sweet *Marjorum*, *Hyssop*, *Basil*, *Thyme*, Winter *Savory*, *Scurvy-grass*, and all fine and tender *Seeds* that require the *Hot-bed*.

• Note,



- *Note*, That *Sweet Herbs* should be stirr'd up and new moulded, *April Olit.*
- to make them strike fresh Roots.
- Sow also *Lettuce, Purslan, Caully-flower, Radish, Leeks, &c.*
- One may sow *Radish* and *Carrots* together in the same Bed, so as the first may be drawn, whilst the other is ready. Sow *Radish, Lettuce, Purslan, Sampier, Parsnips, Carrots*, on the same Ground, gathering each Kind in their Seasons, leaving the *Parsnips* to Winter: But it were good to change the Ground for Carrots and Parsnips now and then.

- Remember to *weed* them when they are about two Inches high, and a little after to *thin* them with a small *Haugh*.

Plant *Artichok-slips, &c.*

Set *French-Beans, &c.* And sow *Turnips* to have them early.

- You may yet clip *Lavendar, Thyme, Pennyroyal, Sage, Rosemary, &c.* and the oftner you clip and cut them, the more will they thrive.
- *Sage* so dress'd at the *Spring* and *Autumn*, will cause it to continue long and fair without replanting.

- To have excellent *Salleting* all the Year round, sow *Turnip-seed, Radish, Lettuce, Purslan, Borrage, Tarragon*, and all other kinds, in very rich Ground, and in *Winter* and *Spring* on the *Hot-bed* cover'd, &c. drawing them Root and all as soon as they open a Leaf as broad as a Three-penny Piece, and so repeat sowing monthly.

- *Geld* and prune *Strawberries*: Now also *Wall-Trees*, especially the *Peach*, should have a *second* Pruning, shortning the Branches just above the *knit Fruit*.

Towards the *middle* of this Month begin to plant forth your *Melons* and *Cucumbers*, and so to the *latter end*, your *Ridges* well prepared.

Gather up *Worms* and *Snails* after Evening Showers; continue this after all Summer Rains.

- Soot-Ashes, Refuse Sweepings of Tobacco-Stalks, made into a fine Powder, or Dust, and strewed half an Inch in thickness at the foot of Trees, and now and then renewed, prevents Pismires, and other crawling Insects, from invading the Fruit, &c.

- *Weed* and *haugh* betimes. See *July*. In such *Bordures* as you plant *Wall-Fruit*, or *Espaliers* (which *Bordures* should be, at the least, four or five Foot in breadth) plant neither *Herbs* nor *Flowers*, that you may be continually stirring the Mould with the Spade, and (as need is) recreating it with Composts: This may be instead (and far better) of *Hand-weeding*; only you may adorn the outward Verge with an Edging of *Pink, Limon, Thyme, Veronica, &c.* renewing them when you perceive them to grow sticky, and leave Gaps; and you may sprinkle the rest of the Surface with *Lettuce, Radish, Turnip-seeds* for tender *Salleting*, so you be sure to pull them up Root and all by that time they are an Inch high, and shew a Leaf no broader than a Three-pence.

Open now your *Bee-hives*, for now they *hatch*; look carefully to them, and prepare your *Hives, &c.*



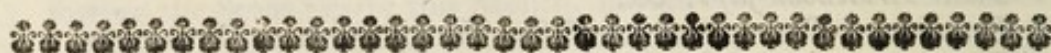
## Fruits in Prime, or yet lasting.

## ( A P P L E S.

**P**ippins, Deux-ans, West-berry Apple, Russeting, July-flowers, flat Reinet, &c.

## P E A R S.

Latter Bon-chrestien, Oak-pear, &c. Double Blossom, &c.



## 8

## A P R I L

Hath xxx Days,—long 13<sup>h</sup>—23<sup>m</sup>  
 Sun rises 5<sup>h</sup>—18<sup>m</sup>—Sets 06<sup>h</sup>—42<sup>m</sup>

To be done

## In the Parterre and Flower-Garden.

**S**OW divers *Annuals* to have *Flowers* all *Summer*; as double *Marigold*, *Digitalis*, *Delphinium*, *Cyanus* of all Sorts, *Candy Tufts*, *Garden Pansy*, *Muscipula*, *Scabius*, *Scorpoides*, *Medica*, *Hollyhocks*, *Columbines*, *Bellvidere*, which renew every five or six Years, else they will degenerate, &c.

Continue *new* and *fresh Hot-beds* to entertain such *exotick* Plants as arrive not to their Perfection without them, till the *Air* and *common Earth* be qualified with sufficient *Warmth* to preserve them abroad: A *Catalogue* of these you have in the former *Month*.

Transplant such *Fibrous Roots* as you had not finish'd in *March*; (for this is the better Season) as *Violets*, *Hepatica*, *Primroses*, *Hellebore*, *Matricaria*, &c. Place *Auricula* Seedlings in the Shade.

Sow *Pinks*, *Carnations*, which you may continue to trim up, and cleanse from dead and rotten Leaves, viz. your old Roots. Sow *Sweet-williams*, &c. to flower next Year: This after Rain.

Set *Lupines*, &c.

Sow *Leucoium* in full Moon, sprinkle it thin, frequently remove them, and replant in moist Weather the following *Spring*.

Sow also yet *Pine-kernels*, *Fir-seeds*, *Phillyrea*, *Alaternus*, and most *Perennial Greens*. Vide *September*.

Now take out your *Indian Tuberoses*, parting the *Off-sets*, (but with Care, lest you break their Fangs; for it is from *Off-sets* only that you may expect *Flowers* in due Time, and not from the Mother *Bulb*) then pot them in \* *natural* (not forc'd) Earth; a Layer of *rich Mould* beneath, and about this *natural Earth* to nourish the *Fibres*, but not so as to touch the *Bulbs*: Then plunge your *Pots* in a *Hot-bed* temperately warm, and give them no *Water* till they *spring*, and

\* Vide May.



and then *set* them under a *South-Wall*: In dry Weather *water* them *freely*, and expect an incomparable *Flower* in *August*. Thus likewise treat the *Narcissus* of *Japan* (or *Guernsey Lilly*) for a later *Flower*; although that nice *Curiosity*, set only in a warm Corner, exposed to the *South*, without any Removal at all for many Years, has sometimes prospered better. *Sea-sand* mingled with the Mould more plentifully towards the Surface, exceedingly contributes to the flourishing of this rare *Exotick*. The protuberant *Fangs* of the *Tuca* are to be treated like the *Tuberoses*. Make much of this *precious* Direction.

Set out and expose *Flos Cardinalis*: Slip and set *Marums*: Water *Anemonies*, *Ranunculus's* (especially) and Plants in *Pots* and *Cases*, once in two or three Days, if *Drought* require it.

*Note*, That even *Anemonies* and *Flowers* of that Class should be discreetly pruned, where they mat too thick; as also *July-flowers* and *Carnations*, to produce fair Flowers.

But carefully protect from violent *Storms* of *Rain*, *Hail*, tails of the *Frosts*, and the too parching Darts of the *Sun*, your *Pennach'd Tulips*, *Ranunculus's*, *Anemonies*, *Auricula's*, covering them with *Matrasses* supported on *Cradles* of *Hoops*, which have now in Readiness. Now is the *Season* for you to bring the choice and tender *Shrubs*, &c. out of the *Conservatory*; such as you durst not adventure forth in *March*; let it be in a fair Day; only your *Orange-trees* may remain in the *House* till *May*, (see the *Caution* there) to prevent all Danger. Yet if the Weather prove benign, you may adventure about the middle of this Month, giving a Refreshment of Water not too cold: About four *Gallons* of heated Water to twenty, will render it *Blood-warm*, which is the fittest Temper upon all Occasions throughout the Year: Above all Things, beware both of cold *Spring*, *Pump*, or *stagnant shaded* Waters; that of the *River* is best, but of *Rain* incomparable. In heat of Summer, let the Water stand in the *Sun* till it grow tepid: Cold Applications, and all Extreams are pernicious.

Now is the *Season* (about the beginning of this *Month*) to prune and cut off the *Tops* of such *Trees* as have shot above four or five Inches.

You may now graff these tender *Shrubs*, &c. by *Approach*, viz. *Oranges*, *Limons*, *Pomegranads*, *Jasmines*, &c.

Now, towards the end of *April*, you may *Transplant* and *Remove* your tender *Shrubs*, &c. as *Spanish Jasmines*, *Myrtles*, *Oleanders*, young *Oranges*, *Cyclamen*, *Pomegranads*, &c. But first let them begin to *sprout*; placing them a Fortnight in the *Shade*: But about *London* it may be better to defer this Work till *Mid-August*: Vide also *May*, from whence take Directions how to refresh and trim them. Prune now your *Spanish Jasmine*, within an Inch or two of the *Stock*; but first see it begin to *shoot*: Mow *Carpet-walks*, and ply *Weeding*, &c. Be diligent in ridding this Work, before they run to *Seed* and grow *downy*, and speedily to rake away what you pull or *haugh* up, lest they take Root, and fasten again, and infect the Ground.

*Note*, That an half-spit deep stirring, and turning up of the Earth about your *Bordures* of *Mural Trees*, &c. is to be preferred to *Hand-weeding*, and more expeditious.



May Olit.

Towards the end (if the cold *Winds* are past) and especially after *Showers*, clip *Phillyrea*, *Alaternus*, *Cypress*, *Box*, *Myrtles*, *Barbafomis*, and other *tonfile Shrubs*, &c.

• Here to take off a *Reproach* which *Box* may lie under, (otherwise a most beautiful and useful Shrub, for *Edgings*, *Knots*, and other *Ornaments* of the *Coronary-Garden*) because its *Scent* is not agreeable to many; if immediately upon *Clipping* (when only it is most *offensive*) you *water* it, the *Smell* vanishes, and is no more considerable.

### Flowers in Prime, or yet lasting.

**A** *Nemonies*, *Ranunculus's*, *Auricula Ursi*, *Chamae-iris*, *Crown Imperial*, *Caprifolium*, *Cyclamen*, *Bell-flower*, *Dens Caninus*, *Fritillaria*, *Gentianella*, *Hypericum frutex*, double *Hepatica's*, *Jacinth* starry, double *Dasies*, *Florence Iris*, tufted *Narcissus*, white, double, and common *English* double *Primrose*, *Cowslips*, *Pulsatilla*, *Ladies Smock*, *Tulips medias*, *Ranunculus's* of *Tripoly*, white *Violets*, *Musk Grape-flower*, *Geranium*, *Radix Cava*, *Caltha Palustris*, *Parietaria Lutea*, *Leucoium*, *Persian Lilies*, *Paeonies*, double *Jonquils*, *Muscaria* reversed, *Cochlearia*, *Persian Jasmine*, *Acanthus*, *Lilac*, *Rosemary*, *Cherries*, *Wall-Pears*, *Almonds*, *Abricots*, *Peaches*, *White Thorn*, *Arbor Judæ* blossoming, &c.

## II

### M A Y

Hath xxxi Days—long 15<sup>h</sup>—09<sup>m</sup>

Sun rises 4<sup>h</sup>—25<sup>m</sup>—Sets 07<sup>h</sup>—35<sup>m</sup>

To be done

In the Orchard and Olitory Garden.

**S**OW *Sweet Marjoran*, *Basil*, *Thyme*, hot and *Aromatick Herbs* and *Plants* which are the most tender. • Transplant *Sampier* to some very warm *Exposure*, as under a *South-Wall*: You cannot provide too much of this excellent *Ingredient* to all crude *Sallads*.

Sow *Purslan*, to have young: *Lettuce*, large-sided *Cabbage*, painted *Beans*, &c. • Plant out *Cabbages* and *Caully-flowers*, *Nasturces*, *Bete-Chard*, *Sellery*.


Look carefully to your *Melons*; and towards the end of this *Month* forbear to cover them any longer on *Ridges*, either with *Straw* or *Matrasses*, &c.

• Prune *Fig-trees*.

• You may now give a third *Pruning* to *Peach-trees*, taking away and pinching off *unblossoming* Branches.

• Break,



- Break, and pull off all crumpl'd dry'd *Leaves* and wither'd Bran- *May Part.*  
ches of *Mural Trees*, and cleanse them from *Snails*, *Caterpillars*, 
- &c. every where.

• *Fig-Trees* may be grafted by *Inarching*.

Ply the *Laboratory*, and distill *Plants* for *Waters*, *Spirits*, &c.

- Continue *Weeding* before they run to *Seeds*: • Carefully observing  
the *Directions* of *April* and *July*, as of *extraordinary Importance*  
• both for saving *Charge*, Improvement of the *Fruit*, and the neat  
• maintaining of your *Garden*.

Now set your *Bees* at full *liberty*, look out often, and expect  
*Swarms*, &c.

*Fruits in Prime, or yet lasting.*

## A P P L E S.

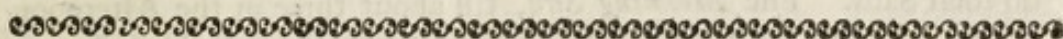
**P**ippins, *Deux-ans* or *John Apples*, *West-berry Apples*, *Russet-*  
*ting*, *Gilly-flower Apples*, the *Maligar*, &c. *Codlin*.

## P E A R S.

Great *Kairville*, Winter *Bon-Chrestien*, Black Pear of *Worcester*,  
*Surrein*, Double *Blossom-Pear*, &c.

## C H E R R I E S, &c.

The *May-Cherry*, *Strawberries*, &c.



# II

## M A Y

Hath xxxi days, — long 15<sup>h</sup>—09<sup>m</sup>

Sun rises 4<sup>h</sup>—25<sup>m</sup> — Sets 07<sup>h</sup>—35<sup>m</sup>

To be done

*In the Parterre and Flower-Garden.*

- **N**O W forasmuch as *Gentlemen* are very inquisitive, when were  
• the best and securest Seasons for exposing their *Orange-trees*,  
• and more tender *Curiosities*: I give them this for a Rule the most in-  
• fallible; That they observe the *Mulberry-tree*, when it begins to put  
• forth and open the *Leaves*, (be it earlier or later) bring your *Oran-*  
• *ges*, &c. boldly out of the *Conservatory*; 'tis your only *Season* to  
• *Transplant* and *Remove* them. • Let this be done with Care, if the  
• Tree be too ponderous to be lifted *perpendicular* by the Hand alone,  
• by applying a *Triangle* and *Pully*, and so with a *Rope*, and a broad  
• *Horse-girth* at the end, lapped about the *Stem* (to prevent galling)  
• draw out the Tree with competent Mould adhering to it, having be-  
• fore



May. Par. • fore loosened it from the sides of the *Cafe*, and so with ease transfer it  
 ~~~~~ into another. Let the *Cases* be filled with *natural Earth* (such as  
 is taken the first half *spit* from just under the *Turf* of the best *Pasture*-
 ground, in a place that has been well *fother'd* on) mixing it with one
 part of rotten *Cow-dung*, (• some prefer *Horse-dung*) or very mellow
Soil screen'd, and prepar'd some time before; if this be too *stiff*, sift a
 little *Lime* discreetly with it, or rather *Sea-coal Ashes*, or the rotten
 Sticks and Stuff found in hollow *Willows*; and if it want binding, a
 little *Loamy Earth*: Then *cutting* the too thick and extravagant
Roots a little, especially at bottom, set your *Plant*, but not too deep;
 rather let some of the *Roots* appear. • If you see cause to form the
 • *Heads* of your *Trees*, by cutting off any considerable *Branch*, co-
 • ver the Wound or *Amputation* with a Mixture of *Bees-wax*, *Rosin*
 • and *Turpentine*: Of the *Wax* and *Turpentine* each one Ounce, of
 • *Rosin* two; some add a little *Tallow*. Lastly, settle it with tempe-
 rately enrich'd *Water*, (such as is impregnated with *Neat* and *Sheeps-*
dung especially, set and stirred in the *Sun* some few days before; but be
 careful not to drench them too much at first; but giving it by degrees
 day after day, without wetting the *Stem* or *Leaves*;) having before
 put some *Rubbish* of *Lime-stones*, *Pebbles*, *Shells*, *Faggot-spray*, or
 the like, at the bottom of the *Cases*, to make the *Moisture* passage,
 and keep the *Earth* loose, for fear of rotting the *Fibres*: See *Novem-*
ber. Then set them in the *Shade* for a Fortnight, and afterwards ex-
 pose them to the *Sun*; • yet not where it is too scorching by the Refle-
 • ction of *Walls*, but rather where they may have the gentle *Shade* of
 • distant *Trees*, or a *Palisade thin Hedge*, or *Curtain* drawn before
 • them, which may now and then be *sprinkl'd* with *Water*, as *Seamen*
 • do their *Sails*. The *Morning Sun*, till about three in the Afternoon
 • is best. Be not yet over-hasty in giving them the full *Sun*; for in
 • your discreet acquainting them with this *Change*, consists their Prof-
 • perity during all the *Summer* after. See *Disc. of Earth*, p. 37.

Give now also all your *bous'd Plants* (such as you do not think re-
 quisite to take out) fresh *Earth* at the *surface*, in place of some of
 the old *Earth* (a hand depth or so) and loosening the rest with a *Fork*,
 * Vide July. without wounding the *Roots*: Let this be of excellent rich * *Soil*, such
 as is thoroughly *consumed*, and will *sift*, that it may wash in the *virtue*
 and comfort the *Plant*: *Brush* and *cleanse* them likewise from the
Dust contracted during their enclosure: • If you do not *Transplant* or
 • *Remove* them about the middle of the Month, take off the *Surface-*
 • *earth* about an Inch or two deep, and put *Cow-dung* of the last Years
 • Preparation in place of it, covering it over with the same Mould:
 • See *July*. But now for a *Compendium*, and to gratify *Gentlemen*
 • with what is most *effectual*, as well as easy; let them always be pro-
 • vided with a plentiful Stock of old *Neats-dung*, well air'd and stirr'd
 • for two Years: Then with *Three* Parts of this, and *One* of the bot-
 • tom of the *Tanner's Pit*, (with some Addition of a light *under-turf*
 • Mould) they will be provided with an incomparable *Composition*, not
 • only for their *Orange-trees*, but for all other sorts of *Verdures*: But
 • after all, where there is to be found a *natural Earth*, with an Eye
 • of *Loam* in it (such as is proper for most Flowers, *Carnations* espe-
 • cially) *mixing it with well-consumed Horse-dung, and something of*
 • *a drying nature, such as is the Ashes of Sea-coal, in due proportion*
 • *to keep it loose and from clogging, you need seek for nothing more.*

- Neither shall they need much to trim the *Roots*, (unless they find *May Par.* them exceedingly matted and stragling) or put so much loose Trash at the bottom of their Cases; but it were good to *change* them once in three or four Years into large ones, if they prosper. The *least* Size of Cases ought to be of sixteen Inches, the *middle* Sort of two Foot, and the *largest* near a Yard Diameter, supported from the Ground with *Knobs* or Feet four Inches.

These last Directions have till now been kept as considerable Secrets amongst our Gardiners: Vide August and September.

Shade your *Carnations* and *Gilly-flowers* after *Mid-day* about this *Season*: You may likewise sow *Clove-Gilly-flowers*, *New-Moon*. Plant also your *Stock-Gilly-flowers* in Beds, *Full-Moon*.

Continue watering *Ranunculus's*. Transplant forth your *Amaranthus's*, where you would have them stand: Sow *Antirrhinum*; or you may set it.

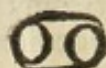
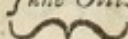
Gather what *Anemony-seed* you find ripe, and that is worth saving; preserve it very dry: You may plant *Single Anemonies*. Prune *Jasmine* close, within half an Inch.

Cut likewise the *Stalks* of such *Bulbous Flowers* as you find dry.

Towards the end take up those *Tulips* which are dry'd in the *Stalk*; covering what you find to lie bare from the *Sun* and *Showers*: And if you find any to be *Canker'd*, bury them immediately in the Earth again, before they be dry: 'Tis the best Cure.

Flowers in Prime, or yet lasting.

L A T E set *Anemonies* and *Ranunculus omn. gen.* *Anapodophylon*, *Blattaria*, *Chama-iris*, *Augustifol.* *Cyanus*, *Cytisus*, *Maranthe*, *Cyclamen*, *Helleborine*, *Columbines*, *Caltha Palustris*, double *Cotyledon*, *Digitalis*, *Fraxinella*, *Gladiolus*, *Geranium*, *Horminum Crediticum*, yellow *Hemerocallis*, strip'd *Jacinth*, early *Bulbous Iris*, *Asphodel*, yellow *Lillies*, *Lychnis*, *Jacea*, *Bellis*, double, white and red, *Millefolium luteum*, *Phalangium Orchis*, *Lilium Convallium*, *Span. Pinks*, *Deptford Pinks*, *Rosa common*, *Cinnamon*, *Guelder*, and *Centifol.* &c. *Oleaster*, *Cherry-bay*, *Trachelium*, *Cowslips*, *Hesperis*, *Antirrhinum*, *Syringa's*, *Sedums*, *Tulips Serotin*, &c. *Veronican*, *Veronica* double and single, *Musk Violets*, *Ladies Slipper*, *Stock-Gilly-flowers*, *Spanish Nut*, *Star-flower*, *Chalcedons*, ordinary *Crowfoot*, red *Martagon*, *Bee-flowers*, *Companella's* white and blue, *Persian Lilly*, *Honey-suckles*, *Bugloss*, *Homer's Moly*, and the white of *Dioscorides*, *Pansies*, *Prunella*, purple *Thalictrum*, *Sisymbrium* double and simple, *Leucoium bulbosum serotinum*, *Peonies*, *Sambucus*, *Rosemary*, *Stachas*, *Sea-Narcissus*, *Barba Jovis*, *Laurus*, *Satyrium*, *Oxyacanthus*, *Tamariscus*, *Apple Blossoms*, &c.

June Olit.


J U N E

Hath xxx Days, — long 16^h—17^mSun rises 3^h—51^m—Sets 08^h—09^m

To be done

In the Orchard and Olitory Garden.

SOW Lettuce, Chervil, Radish, &c. to have young and tender Salleting.

About the midst of June you may Inoculate Peaches, Abricots, Cherries, Plums, Apples, Pears, &c. On what Stocks, see November.

You may now also, (or in May before) cleanse Vines of exuberant Branches and Tendrels, cropping (not cutting) and stopping the second Joint, or immediately before the Fruit, and some of the under Branches which bear no Fruit; especially in young Vineyards, when they first begin to bear, and thence forwards; binding up the rest to Props. More ample Directions for the Nursery this Month's beginning. See Disc. of Earth, p. 14.

Gather Herbs in the Full to keep dry; they keep and retain their Virtue and sweet Smell, provided you take the same Care as you do in Hay, that you expose them not in too thin, but competent Heaps, which you may turn and move till they be reasonably dry, not brittle; and the sooner it be dispatch'd, the better: The Gardiner therefore should attend it himself, for there is very great difference in the Virtue of Plants, according as they are dry'd.

To preserve the Colour of Flowers or Herbs, they should be dry'd in the Shade; but they will be apt to contract Mustiness, unless shew'd to the Sun a little.

Now is your Season to distill Aromatick Plants, &c.

Water lately planted Trees, and put moist and half rotten Fearn, &c. about the Foot of their Stems, having first clear'd them of Weeds, and a little stirred the Earth.

Now because the excessive Scorchings of this and the two following Months (and not seldom the Winters also) do frequently endanger the untimely falling both of Blossom and Fruit before their Maturity; place a Vessel of impregnated Water near the Stem of the Tree, and lap a reasonable long Piece of Flannel, or other Woollen or Linnen Clout about it, letting one end thereof hang in the Water, by which the Moisture ascending, will be suck'd through the very Bark, and consequently nourish and invigorate the Tree to reproduce its former Verdure: The Water is to be supply'd as you find it convenient, and no longer, lest it sob your Stem too much. This manner of refreshing is more to be preferr'd, than by suffering it to drop only upon the Earth (which yet in other Occasions is profitable) per lingulam; which, if too plentifully, endangers the chilling and rotting of the Fibres.

• *Note*, That *Sick Trees*, as *Orange*, &c. frequently impair'd by
 • *Removes*, *Carriage*, in handling, and other Accidents, are many
 • times recover'd by a *Milk-diet*; that is, *diluting* it with a Portion
 • of *Water* discreetly administer'd, as you find Amendment: Some-
 • times also by plunging them in the *Hot-bed*; or by letting the *Tree*
 • down into a *Pit* of four or five Foot Depth, covering the *Head*, and
 • the rest of the *Tree* above, with a *glaz'd Frame*: Either of these
 • *Remedies* profit according as the Plant is affected, wanting Warmth
 • or Nourishment.

• • *Ply Weeding* as in the former Month.

Look to your *Bees* for *Swarms* and *Casts*; and begin to destroy *In-*
sects with *Hoofs*, *Canes*, and tempting *Baits*, &c. Gather *Snails* af-
 ter *Rain*, &c.

Fruits in Prime, or yet lasting.

A P P L E S.

JUniting (first ripe) *Pippins*, *John-Apples*, *Robillard*, Red *Fen-*
nouil, &c. French.

P E A R S.

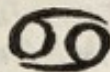
• The *Maudlin* (first ripe,) *Madera*, *Green-Royal*, St. *Laurence*
Pear, &c.

C H E R R I E S, &c.

Duke, *Flanders*, *Heart*, { Black.
 { Red.
 { White.

Lukeward, early *Flanders*, the *Common Cherry*, *Spanish Black*,
Naples Cherries, &c.

Rasberries, *Corinths*, *Strawberries*, *Melons*, &c.



J U N E

Hath xxx Days, ——— long 16^h—17^m
 Sun rises 3^h—51^m ——— Sets 08^h—09^m

To be done

In the Parterre and Flower-Garden.

TRansplant *Autumnal Cyclamens* now, if you would change their
 Place; otherwise let them stand. Take up *Iris Chalcedon*.

Gather the ripe *Seeds* of *Flowers* worth the saving, as of the choi-
 cest *Oriental Jacinth*, *Narcissus*, (the two lesser, pale spurious *Daffo-*
dils

June Par. *dils* of a whitish green, often produce Varieties) *Auricula's*, *Ranunculus's*, &c. and preserve them dry: Shade your *Carnations* from the Afternoon Sun.

You may now begin to lay your *Gilly-flowers*. Sow some *Annals* to flower in the later Months.

Take up your rarest *Anemonies* and *Ranunculus's* after Rain (if it come seasonable, not before) the *Stalk* wither'd, and dry the *Roots* well: This about the end of the Month. In Mid-June inoculate *Jasmine*, *Roses*, and some other rare *Shrubs*. Sow now also some *Anemomy Seeds*. Take up your *Tulip Bulbs*, burying such immediately as you find naked upon your *Beds*; or else plant them in some cooler Place; and refresh over-parch'd *Beds* with Water. Water your *Pots* of *Narcissus* of *Japan* (that precious Flower) &c. Stop some of your *Scabious's* from running to Seed the first Year, by now removing them, and next Year they will produce excellent *Flowers*. Also you may now take up all such *Plants* and *Flower-Roots* as endure not well out of the Ground, and replant them again immediately; such as the early *Cyclamen*, *Jacinth Oriental*, and other bulbous *Jacinths*, *Iris*, *Fritillaria*, *Crown Imperial*, *Martagon*, *Muscari*, *Dens Caninus*, &c. The *Slips* of *Myrtle* set in some cool and moist Place, do now frequently take Root: Also *Cytisus lunatus* will be multiplied by *Slips* in a moist Place, such as are an *Handful* long of that *Spring*, but neither by *Seeds* or *Layers*. Look now to your *Aviary*; for now the *Birds* grow sick of their *Feathers*; therefore assist them with *Emulsions* of the cooler *Seeds* bruised in their *Water*, as *Melons*, *Cucumbers*, &c. Also give them *Succory*, *Beets*, *Groundsel*, *Chickweed*, fresh *Gravel*, and *Earth*, &c.

Flowers in Prime, or yet lasting.

A *Maranthus*, *Anemonies* single, *Antirrhinum*, *Asphodel*, *Campanula*, *Convolvulus*, *Cyclamen*, *Clematis Panonica*, *Cyannus*, *Plattaria*, *Digitalis*, *Gladiolas*, *Hedysarum*, *Geranium*, *Horminum*, *Creticum*, *Hieracium*, *Hesperis*, *Bulbous Iris*, and divers others, *Lychnis* var generum, *Martagon* white and red, *Millefolium* white and yellow, *Nasturtium Indicum*, *Nigella*, *Aster Atticus*, *Hellebore*, *Alb. Gentiana*, *Trachelium*, *Ficus Indica*, *Fraxinella*, *Shrub Nightshade*, *Jasmines*, *Honey-suckles*, *Genista Hisp.* *Carnations*, *Pinks*, *Armerius*, *Ornithogalum*, *Pansy*, *Phalangium Virginianum*, *Larksheel* early, *Philosella*, *Roses*, *Tblaspi Creticum*, &c. *Veronica*, *Viola Pentaphyl.* *Campions* or *Sultans*, *Mountain Lillies* white, red; double *Poppies*, *Palm Christi*, *Stock-Gilly-flowers*, *Corn-flag*, *Hollyhoc*, *Muscaria*, *Serpillum Citratum*, *Phalangium Allobrogicum*, *Oranges*, *Rosemary*, *Gelder*, and *Cynomon* *Roses*, *Tuber-rose*, *Lentiscus*, *Pomegranade*, the *Lime-tree*, &c.



JULY

Hath xxxi days,—long 15^h-59^m

Sun rises 4^h-00^m —Sets 08^h-01^m

To be done

In the Orchard and Olitory Garden.

SOW Lettuce, Radish, &c. to have tender *Salleting*.
 Sow later *Pease* to be ripe six Weeks after *Michaelmas*.
 Water young planted *Trees*, and *Layers*, &c. and re-prune now
Abricots and *Peaches*, saving as many of the young likeliest *Shoots* as
 are well plac'd; for the now *Bearers* commonly perish, the new ones
 succeeding. Cut close and even, purging your *Wall-Fruit* of super-
 fluous Leaves which hinder from the *Sun*; but do it discreetly, as al-
 so *Vines*.

• It were now fit (and especially when the *Fruit* is either forming,
 • or requires *filling*, and before, if the Season be very dry) to give
 • plentiful Refreshments to your *Mural Fruit-Trees*, pouring it leisurely
 • into Holes made with a wooden-pointed *Stake*, at competent distance
 • from the *Stem*, and so as not to touch or wound any of the *Roots*:
 • You may leave the short *Stakes* in the Holes for a while, or fill them
 • with Mould again: Thus may you feed your *Vines* with *Blood*, sweet,
 • and mingled with Water, &c. But *this*, and all other *Summer Re-*
 • *freshings*, is only to be done early in the Morning, or late in the *Eve-*
 • *nings*.

You may now also begin to *Inoculate*.

Let such *Olitory-Herbs* run to *Seed* as you would save.

Towards the latter end visit your *Vineyards* again, &c. and stop the
 exuberant *Shoots* at the second Joint above the *Fruit* (if not finish'd
 before;) but not so as to expose it to the *Sun*, without some Um-
 brage.

Remove long sided *Cabbages* planted in *May*, to head in *Autumn*;
 'tis the best *Cabbage* in the World. Remember to cut away all rotten
 and putrify'd Leaves from your *Cabbages*, which else will infect both
 • *Earth* and *Air*.

Now begin to streighten the entrance of your *Bees* a little; and help
 them to kill their *Drones*, if you observe too many; setting the new-
 invented *Cucurbit-Glasses* of *Beer* mingled with *Honey*, to entice the
Wasps, *Flies*, &c. which waste your *Store*. Also hang *Bottles* of
 the same *Mixture* near your *Red Roman Nectarines*, and other tem-
 pting *Fruits* and *Flowers*, for their destruction; else they many times
 invade your best *Fruit*. Set therefore up *Hoofs* of *Neats-feet* for the
 • *Earwigs*, and remember to cleanse and shake them out at Noon, when
 • they constantly repair for the Shade: They are cursed *Devourers*;
 • nor ought you to be less diligent to prevent the *Ants*, which above
 6 Z

July. Par. • all invade the *Orange-Flower*, by casting scalding Brine on their *Hills*, and other Receptacles.

Look now also diligently under the *Leaves* of *Mural Trees* for the *Snails*; they stick commonly somewhat *above* the *Fruit*: Pull not off what is *bitten*, for then they will certainly begin *afresh*.

• Have still an Eye to the *weeding* and *cleansing* Part; begin the Work of *Haughing* as soon as ever they begin to peep; you will rid more in a few *Hours*, than afterwards in a whole *Day*; whereas neglecting it till they are ready to sow themselves, you do but stir and prepare for a more numerous Crop of these *Garden-Sins*: I cannot too often inculcate and repeat it.

Fruits in Prime, or yet lasting.

A P P L E S.

D *Eux-ans*, *Pippins*, *Winter Russeting*, *Andrew Apples*, *Cinnamon Apple*, red and white *Juneting*, the *Margaret-Apple*, &c.

P E A R S.

The *Primat*, *Russet Pears*, *Summer Pears*, green *Chesil Pears*, *Orange Pear*, *Cuisse Madame*, *Pearl Pear*, &c.

C H E R R I E S.

Carnations, *Morella*, *Great-bearer*, *Morocco Cherry*, the *Egriot*, *Bigarreux*, &c.

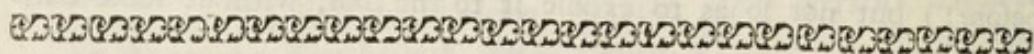
P E A C H E S.

Nutmeg, *Isabella*, *Persian*, *Newington*, *Violet*, *Muscat*, *Rambouillet*.

P L U M S, &c.

Primordial, *Myrobalan*; the red, blue, and amber *Violets*, *Damasc. Denny Damasc. Pear-Plum*, *Damasc. Violet* or *Cheson-Plum*, *Abricot-Plum*, *Cinnamon-Plum*, the *King's-Plum*, *Spanish*, *Morocco-Plum*, *Lady Eliz. Plum*, *Tawny*, *Damascene*, &c. *Figs*.

Rasberries, *Gooseberries*, *Corinths*, *Strawberries*, *Melons*, &c.



J U L Y

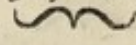
Hath xxxi days,—long 15^h—59^m

Sun rises 4^h—0^m—Sets 08^h—01^m

To be done

In the *Parterre* and *Flower-Garden*.

S LIP *Stocks*, and other *lignous Plants* and *Flowers*. From henceforth to *Michaelmas* you may also lay *Gilly-flowers* and *Carnations* for *Increase*, leaving not above *two* or *three Spindles* for *Flowers*,

Flowers, and nipping off superfluous *Buds*, with *Supports*, *Cradles*, *July Par.* *Canes*, or *Hoofs*, to establish them against *Winds*, and destroy *Ear-wigs*. 

The *Layers* will (in a *Month* or *Six Weeks*) strike *Root*, being planted in a *light loamy Earth*, mixed with excellent *rotten Soil*, *sifted*: Plant six or eight in a *Pot* to save *Room* in *Winter*: Keep them well from too much *Rains*; yet water them in drought, sparing the *Leaves*: If it prove too wet, lay your *Pots* side long; but *shade* those which *blow* from the *Afternoon Sun*, as in the former *Month*.

Yet also you may lay *Myrtles*, *Laurels*, and other curious *Greens*.

Water young planted *Shrubs* and *Layers*, &c. as *Orange-Trees*, *Myrtles*, *Granades*, *Amomum* especially, which *Shrub* you can hardly *refresh* too often, and it requires abundant *Compost*; as do likewise both the *Myrtle* and *Granade-Trees*; therefore whenever you trim their *Roots*, or change their *Earth*, apply the richest *Soil* (so it be sweet and well consum'd) you can to them, &c. *Clip Box*, &c. in *Parterres*, *Knots*, and *Compartiments*, if need be, and that it grow out of *order*; do it after *Rain*.

Note, That the *Granade* flourishes best in *Earth* not over-rich.

Graff by *Approach*, *Inarch*, and *Inoculate* *Jasmines*, *Oranges*, and other your choicest *Shrubs*.

Take up your early *Autumnal Cyclamen*, *Tulips*, and *Bulbs* (if you will *remove* them, &c.) before mentioned; *Transplanting* them immediately, or a *Month* after, if you please, and then cutting off and trimming the *Fibres*, spread them to the *Air* in some *dry Place*. But separate not the *Off-sets* of *Tulips*, &c. until the *Mother Bulb* be fully dry.

Gather *Tulip-Seed*, if you please; but let it lie in the *Pods*.

Gather now also your early *Cyclamen-Seed*, and sow it presently in *Pots*.

Remove seedling *Crocus's* sowed in *September* constantly at this *Season*, placing them at wider *Intervals* till they begin to bear.

Likewise you may take up some *Anemonies*, *Ranunculus's*, *Crocus*, *Crown Imper.* *Persian Iris*, *Fritillaria*, and *Colchicums*; but plant the three last as soon as you have taken them up, as you did the *Cyclamens*; or you may stay till *August* or *September* e'er you take them up and replant *Colchicums*.

Remove now *Dens Caninus*, &c.

Take up your *Gladiolus* now yearly, the *Blades* being dry, or else their *Off-sets* will poison the *Ground*.

Latter end of *July*, treat your *Orange-Trees*, &c. as directed in *May*, by refreshing the *Surface* of the *Cases*, to nourish and keep the *Fruit* cool and in vigour. Sift your *Beds* for *Off-sets* of *Tulips*, and all other *bulbous Roots*; also for *Anemonies*, *Ranunculus's*, &c. which will prepare it for *replanting* with such things as you have already in *Pots* to plunge, or set in the *naked Earth* till the next *Season*; as *Amaranths*, *Canna Ind.* *Mirabile Peruv.* *Capsicum Ind.* *Nasturtium Ind.* &c. that they may not lie empty and disfurnished.

You may sow some *Anemonies*, keeping them temperately moist.

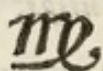
Continue to cut off the wither'd *Stalks* of your lower *Flowers*, &c. and all others, covering with *Earth* the *bared Roots*, &c.

Now (in the *driest Season*) with *Lime*, *Brine*, *Pot-Ashes*, (which is the very best of all; because being cast on fine *Turf* it destroys the *Worms*, and improves the *Grass*, which most other *Applications* mortify)

July Par. mortify) and *Water*, or a *Decoction* of *Tobacco Refuse*, water your *Gravel-Walks*, &c. to destroy both *Worms* and *Weeds*, of which it will cure them for some *Years*.

Flowers in Prime, or yet lasting.

A *Maranthus*, *Asphodel*, *Antirrhinum*, *Campanula*, *Clematis*, *Cyanus*, *Convolvulus*, *Sultana*, *Veronica* purple and odoriferous; *Digitalis*, *Eryngium Planum*, *Ind. Phaseolus*, *Geranium Triste*, *Nocte Olens*, and *Creticum*, *Gladiolus*, *Gentiana*, *Hesperis*, *Nigella*, *Hedysarum*, *Fraxinella*, *Lychnis Chalcedon*, *Jacea* white and double, *Nasturt. Ind.* *Millefolium*, *Musk-rose*, *Flos Africanus*, *Tblaspi Creticum*, *Veronica mag.* & *parva*, *Volubilis*, *Balsam-Apple*, *Holy-hoc*, *Corn flower*, *Alkekengi*, *Lupines*, *Scorpion-grass*, *Caryophyllata omn. gen.* *Stock-Gilly-flower*, *Scabiosa*, *Mirab. Peru* *Spartum Hispan.* *Monthly Rose*, *Jasmine*, *Indian Tuberous Jacinth*, *Limonium*, *Linaria Cretica*, *Pansies*, *Prunella*, *Delphinium*, *Phalangium*, *Periploca Virgin.* *Flos Passionis*, *Flos Cardinalis*, *Tucca*, *Oranges*, *Amomum Plinii*, *Oleanders* red and white, *Agnus Castus*, *Arbutus*, *Olive*, *Ligustrum*, *Tilia*, &c.



AUGUST

Hath xxxi days,—long 14^h—33^m

Sun rises 4^h—43^m—Sets 07^h—17^m

To be done

In the Orchard and Olitory Garden.

I *Noculate* now *early*, if before you began not, and gather your *Bud* of that Year. Let this Work be done before you remove the *Stocks*.

Prune off yet also superfluous *Branches* and *Shoots* of this *second Spring*; but be careful not to expose the *Fruit* without *Leaves* sufficient to *skreen* it from the *Sun*; *furnishing* and *nailing* up what you will spare to cover the defects of your *Walls*. Continue yet to cleanse your *Vines* from exuberant *Branches* that too much hinder the *Sun*. Do this discreetly, lest the *Fruit* shrivel, being too much expos'd.

Pull up the *Suckers*.

Clip *Roses* now done bearing.

Sow *Radish*, especially the *Black*, to prevent running up to *Seed*, pale tender *Cabbages*, *Cawly-flowers* for *Winter Plants*, *Corn-sallet*, *Marigolds*, *Lettuce*, *Carrots*, *Parsnips*, *Turnips*, *Spinage*, *Onions*; also curl'd *Endive*, *Angelica*, *Scurvy-grass*, &c.

• Strip or tread down *Onions*, and strip the Leaves of *Beets*, *Carrots*, *Parfnips*, &c. to improve the *Roots*. Aug. Olit.

• *Note*, That if *Plants* run up to *Seed* over-hastily, (as they will be apt to do, being early sown, and the Weather hot) pull their *Roots* a little out of the Ground, and lay them along in it somewhat *slanting*, and clap some *Mould* about them.

• *Cauly-flowers* over-speeding to *pome* and head (before they have quite perfected their Heads) should be quite eradicated, and may be buried in a *Cellar*, or some cool Place, both *Root* and *Stalk* up to the very *Head*, and so they will furnish goodly *Heads* without *Sun*, or exposure abroad.

Likewise now pull up ripe *Onions* and *Garlick*, &c.

Towards the end sow *Purslan*, *Chard-beet*, *Chervil*, &c.

Transplant such *Lettuce* as you will have abide all *Winter*.

Gather your *Olitory-Seeds*, and clip and cut all such *Herbs* and *Plants* within one *handful* of the *Ground* before the *Full*. Lastly,

Unbind and release the *Buds* you *inoculated*, if taken, &c. likewise stop and prune them.

• Pluck up *Strawberry Runners*, extirpate the tall *Stalks*, and purge the old *Tufts* and *Leaves*.

Now *vindemiate*, and take your *Bees* towards the expiration of this *Month*; unless you see Cause (by reason of the *Weather* or *Season*) to defer it till *Mid-September*: But if your *Stocks* be very *light* and weak, begin the earlier.

Make your *Summer Perry* and *Cider*. • See *Discourse of Cider* at the end of our *Pomona*.

Fruits in Prime, or yet lasting.

A P P L E S.

THE *Ladies Longing*, the *Kirkham Apple*, *John Apple*; the *Seaming Apple*, *Cushion Apple*, *Spicing*, *May-flower*, *Sheeps Snout*.

P E A R S.

Windsor, *Sovereign*, *Orange*, *Bergamot*, *Slipper Pear*, *Red Catherine*, *King Catherine*, *Denny Pear*, *Prussia Pear*, *Summer Poppering*, *Sugar Pear*, *Lording Pear*, &c.

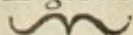
P E A C H E S and A B R I C O T S.

Roman Peach, *Man Peach*, *Quince Peach*, *Rambouillet*, *Musk Peach*, *Grand Carnation*, *Portugal Peach*, *Crown Peach*, *Bourdeaux Peach*, *Lavar Peach*, *Maudlen*, *Minion Peach*, the *Peach Des Pot*, *Savoy Malacoton*, which lasts till *Michaelmas*.

N E C T A R I N E S.

The *Muroy Nectarine*, *Tawny*, *Red Roman*, little *Green Nectarine*, *Cluster Nectarine*, *Yellow Nectarine*.

Aug. Olit.

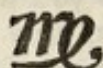


P L U M S.

Imperial, Blue, White Dates, Yellow Pear-Plum, Black Pear-Plum, White Nutmeg, late Pear-Plum, Great Anthony, Turkey-Plum, the Jane-Plum.

Other Fruit.

Cluster-Grape, Muscadine, Corinths, Cornelians, Mulberries, Figs, Filberts, Melons, &c.



AUGUST

Hath xxxi Days,—long 14^h-33^m
Sun rises 4^h-43^m —Sets 07^h-17^m

To be done

In the Parterre and Flower-Garden.

NOW (and not till now, if you expect Success) is the just Season for the budding of the *Orange-Tree*: Inoculate therefore at the Commencement of this Month, upon Seedling Stocks of four Years Growth. And to have excellent Buds, cut off the Head of some very old *Orange-Tree* of a good Kind, which making large Shoots, will furnish the best.

Now likewise take up your *Bulbous Iris*; or you may sow their Seeds, as also those of *Larks-beel, Candy-tufts, Columbines, Iron-colour'd Fox-gloves, Holly-hocks*, and such Plants as endure Winter, and the approaching Seasons.

Plant some *Anemomy* Roots to have Flowers all Winter, if the Roots escape; and take up your Seedlings of last Year, which now transplant for bearing: Also plant *Dens Caninus, Autumnal Crocus*, and *Colchicums*. Note, That *English Saffron* may be suffer'd to stand for Increase to the third or fourth Year without removing.

You may now sow *Narcissus*, and *Oriental Jacinths*, and replant such as will not do well out of the Earth; as *Fritillaria, Hyacinths, Martagon, Dens Caninus, Lillies*.

Gilly-flowers may yet be slipp'd.

Continue your taking up of *Bulbs*, dry them, and lay them up; *Lillies, &c.* of which before.

Gather from Day to Day your *Alaternus* Seed as it grows black and ripe, and spread it to sweat and dry before you put it up; therefore move it sometimes with a Broom or Whisk, that the Seeds clog not together, unless you will separate it from the Mucilage, for then you must a little bruise it wet; wash and dry them in a Cloth.

Water well your *Balsamine fam.*

Most

Most other *Seeds* may now likewise be gathered from *Shrubs*, as you *Aug. Par.* find them ripen.

About Mid-*August* transplant *Auricula's*, dividing old and lusty *Roots*; also prick out your *Seedlings*: They best like a *loamy Sand*, or light moist *Earth*; yet rich and shaded: You may likewise sow *Auricula*.

Now, towards the latter end, you may sow *Anemony* *Seeds*, *Ranunculus's*, &c. lightly cover'd with fit Mould in *Cases*, shaded, and frequently refreshed: Also *Cyclamen*, *Jacinths*, *Iris*, *Hepatica*, *Primroses*, *Fritillaria*, *Martagon*, *Fraxinella*, *Tulips*, &c. but with *Patience*, for some of them, because they flower not till *three, four, five, six* and *seven* Years after, especially the *Tulips*, unless you sow the *Seeds* so shallow, that they cannot penetrate or sink above an Inch or two; which is a *Secret*: Therefore disturb not their *Beds* (but hand-weed them) and let them be under some warm Place, shaded yet, till the *Heats* are past, lest the *Seeds* dry; only the *Hepatica's* and *Primroses* may be sow'd in some less expos'd *Beds*.

Now, about *Bartholomew-tide*, is the only secure Season for removing and laying your perennial *Greens*; *Oranges*, *Limons*, *Myrtles*, *Phillyreas*, *Oleanders*, *Jasmines*, *Arbutus*, and other rare *Shrubs*, as *Pomegranads*, *Monthly Roses*, and whatever is most obnoxious to *Frosts*; taking the *Shoots* and *Branches* of the past *Spring*, and pegging them down in a very rich *Earth*, and *Soil* perfectly consum'd, watering them upon all Occasions during the *Summer*; and by this time *Twelve-month*, they will be ready to remove, transplanted in fit *Earth*, set in the *Shade*, and kept moderately moist, not overwet, lest the young *Fibres* rot; after *Three Weeks* set them in some more airy Place, but not in the *Sun* till *Fifteen Days* more: Vide our *Observations* in *April* and *May*, for the rest of these choice *Directions*.

Flowers in Prime, or yet lasting.

A *Maranthus*, *Anagallis*, *Lusitanica*, *Aster Atticus*, *Blattaria*, *Spanish Bells*, *Belvedere*, *Carnations*, *Campanula*, *Clematis*, *Cyclamen Vernal*, *Datura Turcica*, *Eliochryson*, *Eryngium planum* & *Amethystinum*, *Geranium Creticum*, and *Triste*. *Yellow Stocks*, *Hieracium minus*, *Alpestre*, *Tuberosa Hyacinth*, *Limonium*, *Linaria Cretica*, *Lychnis*, *Mirabile Peruvian*, *Yellow Millefolium*, *Nastur. Ind.* *Yellow Mountain Hearts-ease*, *Maracoc*, *Africanus Flos*, *Convolvulus's*, *Scabious*, *Asphodils*, *Delphinium*, *Lupines*, *Colchicum*, *Leucoion*, *Autumnal Hyacinth*, *Holly-hock*, *Star-wort*, *Heliotrop*, *French Marigold*, *Daisies*, *Geranium nocte olens*, *Common Pansies*, *Larks-beels* of all Colours, *Nigella*, *Helleborus*, *Balsamin. fam.* *Lobel's Catch-fly*, *Thlaspi Creticum*, *Rosemary*, *Musk Rose*, *Monthly Rose*, *Oleanders*, *Spanish Jasmine*, *Yellow Indian Jasmine*, *Myrtles*, *Oranges*, *Pomegranads* double and single Flowers, *Shrub Spiraea*, *Agnus Castus*, the *Virginian Martagon*, *Malva arborescens*, &c.



S E P T E M B E R

Hath xxx Days,—long 12^h—37^mSun rises 5^h—41^m—Sets 06^h—19^m

To be done

In the Orchard and Olitory-Garden.

GAther now, (if ripe) your *Winter-Fruits*, as *Apples*, *Pears*, *Plums*, &c. to prevent their falling by the great *Winds*: Also gather your *Wind-falls* from Day to Day: Do this Work in *dry Weather*.

Release Inoculated *Buds*, or sooner, if they pinch. You may yet Inoculate *Peaches*.

Sow *Lettuce*, *Radish*, *Spinage*, *Chervil*, *Parsnips*, *Skirrets*, &c. *Cauly-flowers*, *Cabbages*, *Onions*, &c. *Scurvy-grass*, *Anniseeds*, &c. And fill your vacant Beds with *Sallading*, this Month and the next.

Now you may transplant most sorts of *Esculent* or *Physical* Plants, &c.

Also *Artichocks* and *Asparagus-Roots*. See *Discourse of Earth*, p. 34.

Sow also *Winter Herbs* and *Roots*, and plant *Strawberries* out of the *Woods*: Set them a Foot or more asunder.

Bind up, and blanch *Sellery*, *Chardon*, &c. but tie not up in wet Weather.

Towards the end earth up your *Winter-Plants* and *Sallet-Herbs*; and plant forth your *Cauly-flowers* and *Nursery Cabbages* under Shelter, for *Winter-Store*, which were sown in *August*: Prepare *Compost*; see *January*; and for *Trenching* and *Preparing the Earth*, See *Disc. of Earth*, p. 13.

No longer now defer the *taking* of your *Bees*, streightning the *Entrances* of such *Hives* as you leave to a small *Passage*, and continue still your *Hostility* against *Wasps* and other robbing *Insects*.

Cider-making continues.

Fruits in Prime, or yet lasting.

A P P L E S.

THE *Belle-bonne*, the *William*, *Summer Pear-main*, *Lording-Apple*, *Pear-Apple*, *Quince-Apple*, *Red-greening ribb'd*, *Bloody Tippin*, *Harvey*, *Violet-Apple*, &c.

P E A R S.

Hamden's Bergamot (first ripe,) *Summer Bon-Chrestien*, *Norwich*, *Black Worcester* (baking,) *Green-field*, *Orange*, *Bergamot*,
the

the *Queen Hedge-Pear*, *Lewis-Pear* (to dry excellent) *Fritb-Pear*, *Sept. Par.*
Arundel-Pear (also to bake,) *Brunswick-Pear*, *Butter-Pear*, *Win-*
ter Poppering, *Bing's-Pear*, *Bishop's-Pear* (baking,) *Diego*, *Empe-*
ror's-Pear, *Cluster-Pear*, *Messire Jean*, *Rowling-Pear*, *Balsam-*
Pear, *Bezy d'Hery*, *Pear Evelyn*, &c.

P E A C H E S.

Violet Peach, *Admirable*, *Purple Peach*, *Malacoton*, and some others, if the Year prove backwards.

Almonds, &c.

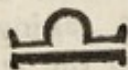
Quinces.

Figs perfectly ripe.

Little Blue Grape, *Muscadine Grape*, *Frontiniac*, *Parshy*, great *Blue Grape*, the *Verjuice Grape* excellent for Sauce, &c.

Barberries, &c.

Melons as yet.



S E P T E M B E R

Hath xxx days,—long 12^h—37^m

Sun rises 5^h—41^m—Sets 06^h—19^m

To be done

In the *Parterre* and *Flower-Garden*.

PLANT some of all the Sorts of *Anemonies* in good, rich, natural Earth, especially the *Latifol.* after the first Rains, if you will have *Flowers* very forwards; but it is surer to attend till *October*, or the Month after, lest the over-moisture of the *Autumnal* Seasons give you cause to repent.

Now is the most proper Season to sow *Auricula-Seeds*, setting the *Cases* in the Sun till *April*. See *April*.

Begin now also to plant some *Tulips*, unless you will stay till the latter End of *October*, to prevent all hazard of rotting the *Bulbs*. Plant *Daffodils* and *Colchicum*.

All *Fibrous* Plants, such as *Hepatica*, *Hellebore*, *Camomile*, &c. Also the *Capillaries*; *Matricaria*, *Violets*, *Primroses*, &c. may now be transplanted; as likewise *Iris Chalcedon*, *Cyclamen*, &c.

Now you may also continue to sow *Alaternus*, *Phillyrea*, (or you may forbear till the Spring) *Iris*, *Crown Imperial*, *Martagon*, *Tulips*, *Delphinium*, *Nigella*, *Candy-Tufts*, *Poppy*; and generally all the *Annals* which are not impaired by the *Frosts*.

Sow *Primroses* likewise: Remove Seedling *Digitalis*, and plant the Slips of *Lychnis* at the beginning.

Your *Tuberoses* will not endure the Wet of this Season, therefore set the *Pots*, (· having laid them side-long to drain) into your *Con-*
serve,

Sept. Par.

• *serve*, and keep them very *dry*. It is best to take them out of the *Pots* about the beginning of this Month, and either to preserve them in dry *Sand*, or wrap them up in *Papers*, and so put them in a Box near the Chimney.

Bind now up your *Autumnal Flowers* and *Plants* to *Stakes*, to prevent sudden *Gusts*, which will else prostrate all you have so industriously raised.

Now you may take off *Gilly-flower-layers* with Earth and all, and plant them in *Pots* or *Borders* shaded.

Crocus will now be rais'd of *Seeds*.

• You may yet transplant *Ever-greens*, and other rare *Shrubs* of the last Month.

Prune *Pines* and *Firs* a little after this *Equinox*, if you omitted it in *March*, (• much the better Season.) Vide *March*.

About *Michaelmas*, (sooner or later, as the Season directs) the Weather fair, and by no means foggy, retire your choice *Greens* and rarest *Plants* (being dry) as *Oranges*, *Limons*, *Indian* and *Spanish Jasmine*, *Oleanders*, *Barba Jovis*, *Amomum Plin.* *Cytisus Lunatus*, *Chamaelæa tricoctos*, *Cistus Ledon Clusii*, *Dates*, *Aloes*, *Sedums*, &c. into your *Conservatory*; ordering them with fresh Mould, as you were taught in *May* and *July*, viz. taking away some of the upmost exhausted Earth, and stirring up the rest, fill the Cases with rich and well-consumed *Soil*, to wash in and nourish the Roots during Winter; but as yet leaving the *Doors* and *Windows* open, and giving them free *Air*, so the *Winds* be not sharp and high, nor Weather foggy; do thus till the Cold being more intense, advertise you to inclose them all together: *Myrtles* will endure abroad near a Month longer.

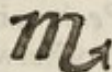
The Cold now advancing, set such *Plants* as will not endure the *House*, into the *Earth*; the *Pots* two or three Inches lower than the Surface of some *Bed* under a *Southern* Exposure: Then cover them with *Glasses*, having clothed them first with sweet and dry *Moss*; but upon all warm and benign *Emissions* of the Sun and sweet Showers, give them *Air*, by taking off all that covers them. Thus you shall preserve your costly and precious *Marum Syriacum*, *Cistus's*, *Geranium nocte olens*, *Flos Cardinalis*, *Marcocs*, seedling *Arbutus's* (a very hardy Plant when greater) choicest *Ranunculus's* and *Anemonies*, *Acacia*, *Egypt*, &c. Thus governing them till *April*. Secrets not till now divulged.

Note, that Cats will eat and destroy your *Marum Syriacum*, if they can come at it; therefore guard it with a *Furse* or *Holly branch*.

Flowers in Prime, or yet lasting.

A *Maranthus tricolor*, and others; *Anagallis* of Portugal, *Antirrhinum*, *African flo.* *Amomum Plinii*, *Aster Atticus*, *Belvedere*, *Bellis*, *Campanula's*, *Colchicum*, *Autumnal Cyclamen*, *Clematis*, *Chrysanthemum angustifol.* *Eupatorium* of Canada, *Sun-flower*, *Stock-gil. flo.* *Geranium Creticum* and *nocte olens*, *Gentianella annual*, *Hieracium minus Alpestre*, *Tuberous Indian Jacinth*, *Linaria Cretica*, *Lychnis*, *Constant. single and double*, *Limonium*, *Indian Lilly*, *Narciss. Pomum Aureum*, *Amoris*, & *Spinosum Ind.* *Marvel of Peru*, *Millefolium yellow*, *Moly Monspeliens.* *Nasturtium Indicum*, *Persian Autumnal Narcissus*, *Virginian Phalangium*, *Indian Phaeolus*,

seolus, Scarlet Beans, *Convolvulus divers. gen.* Candy-tufts, *Veronica* Octob. Olit.
ca, purple *Volubilis*, *Asphodil*, *Crocus*, or English Saffron, *Guernsey*
Lilly, or *Narcissus* of Japan, Poppy of all Colours, single and double,
Malva arborescens, Indian Pinks, *Æthiopick Apples*, *Capsicum Ind.*
Gilly-flowers, *Passion Flower*, *Datura* double and single, *Portugal*
Ranunculus's, Spanish *Jasmine*, yellow *Virginian Jasmine*, *Rhodo-*
dendron white and red, *Oranges*, *Myrtles*, *Balaustia*, *Musk Rose*,
 and *Monthly Rose*, &c.



OCTOBER

Hath xxxi days,—long 10^h—47^m

Sun rises 6^h—38^m—Sets 05^h—22^m

To be done

In the Orchard and Olitory-Garden.

Trench Grounds for *Orcharding*, and the *Kitchen-Garden*, to lie for a Winter mellowing. See *Disc. of Earth*, p. 12. • Finish what you begun last Month.

Plant dry *Trees*, (i. e.) *Fruit* of all sorts, *Standard*, *Mural*, or *Shrubs* which lose their Leaf; and that so soon as it falls: But be sure you chuse no *Trees* for the *Wall* of above two Years *grafting* at the most, *sound* and *smooth*. • See *Disc. of Earth*, p. 35. and *Pomona*, cap. 6.

Now is the time for *Ablaqueation*, and laying bare the Roots of old *unthriving*, or *over-hastily blooming* *Trees*; • stirring up new planted Grounds, as directed in *March*.

Moon now decreasing, gather *Winter-Fruit* that remains, *Weather* dry; take heed of *bruising*; lay them up *clean*, lest they *taint*: Cut and prune *Roses* yearly, reducing them to a *Standard* not over tall.

• To prevent *bruising* by *Wind-falls* and *Gusts* now usually happening, lay some sweet *Straw* under your *Fruit-Trees*.

Plant, and plash *Quick-sets*.

Remove *Grafts* after the second Year, unless *Dwarfs*, which you may let stand till the third.

Save and sow all *stoney* and hard *Kernels* and *Seeds*; such as *Black Cherry*, *Morellos*, *Black Heart*, all good; *Pear-Plum*, *Peaches*, *Almond-stones*, &c. Also *Nuts*, *Haws*, *Alben*, *Sycamore*, and *Maple Keys*; *Acorns*, *Beech-mast*, *Apple*, *Pear*, and *Crab Kernels* for *Stocks*; or you may defer it till the next Month towards the latter end, keeping them dry, and free from *Mustiness*; remembring to cover the Beds with *Littier*. See *Directions* in our *Sylva* for *Forest-Trees*, and *Pomona*, cap. 1.

You may yet sow *Genoa Lettuce*, which will last all the *Winter*, *Radish*, &c. • Make *Winter Cider* and *Perry*: Towards the latter End, plant *Abricots*, *Cherries*, *Plums*, *Vines*, *Winter Pears*, &c.

Fruits

* Especially under Glais Bells or Frames, with a little *Straw* over them, when the hard Frosts come; but then touch them not till they thaw, lest you break the Glasses.

Fruits in Prime, or yet lasting.

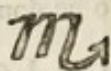
A P P L E S.

Belle-et-Bonne, William, Costard, Lording, Parsley-Apples, Pearmain, Pear-Apple, Honey-meal, Apis, &c.

P E A R S.

The Caw-Pear (baking) Green-butter-Pear, Thorn-Pear, Clove-Pear, Roussel-Pear, Winter Bon-Chrestien, Town-Pear, Lombart-Pear, Russet-Pear, Saffron-Pear, and some of the former Month, Violet-Pear, Petworth-Pear, otherwise called the Winter-Windsor, Lansac, Bearn-Pear, Admirable, Violet Peach, Rambouillet, Paves, &c.

Bullis, and divers of the September Plums, the Chasselas, and other Grapes, Pines, Arbutus, &c.



O C T O B E R

Hath xxxi days,—long 10^h—47^m

Sun rises 6^h—38^m—Sets 05^h—22^m

To be done

In the Parterre and Flower Garden.

NOW your *Narcissus Tuberosa* not enduring the wet, must be set into the House, and preserved very dry till April. See September.

Continue sowing what you did in September, if you please: Likewise *Cypress* may be sown, but take heed of the Frost, therefore forbear much Clipping. Vide March. Also,

You may plant some *Anemonies*, especially the *Tenuifolia's* and *Ranunculus's*, in fresh, sandy Earth, taken from under the Turf; but lay richer Mould at the bottom of the Bed, which the *Fibres* may reach, but not to touch the main *Roots*, which are to be cover'd with the natural Earth two Inches deep: And so soon as they appear, secure them with Mats or dry Straw from the Winds and Frosts, giving them Air in all benign Intervals, if possible, once a day.

Plant also *Ranunculus's* of *Tripoly*, *Vernal Crocus's*, &c. Remove seedling *Holly-hocks*, or others.

Plant now your choice *Tulips*, &c. which you fear'd to inter at the beginning of September; they will be more secure, and forward enough: But plant them in natural Earth somewhat impoverish'd with very fine Sand, else they will soon lose their *Variegations*; some more rich Earth may lie at the bottom, within reach of the *Fibres* (as above:) Now have a care your *Carnations* catch not too much

much wet; therefore retire them to *covert*, where they may be kept *Octob. Par* from the *Rain*, not the *Air*, or lay them on the sides, trimming them with *fresh Mould*.

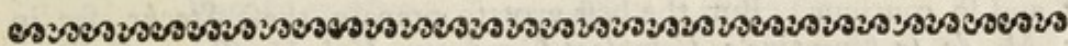
All sorts of *Bulbous Roots* may now also be safely *buried*; likewise *Iris's*, &c.

You may yet sow *Alaternus* and *Phillyrea* Seeds: It will now be good to *Beat*, *Roll*, and *Mow Carpet Walks* and *Camomile*; for now the Ground is *supple*, and it will *even* all *Inequalities*. Finish your last *Weeding*, &c.

Sweep and cleanse your *Walks*, and all other *Places*, from *Autumnal Leaves* fallen, lest the *Worms* draw them into their *Holes*, and foul your *Gardens*, &c.

Flowers in Prime, or yet lasting.

A *Maranthus tricolor*, &c. After *Atticus*, *Amomums*, *Antirrhimum*, *Colchicum*, *Saffron*, *Cyclamen*, *Clematis*, *Heliotrops*; *Stock-gilly-flower*, *Geranium triste*, *Ind. Tuberoze Jacinth*, *Limonium*, *Lychnis* white and double, *Pomum Amoris* and *Æthiop. Marvel* of *Peru*, *Millefol. luteum*, *Autumnal Narciss.* *Pansies*, *Aleppo Narciss.* *Spherical Narciss.* *Nasturt.* *Persicum*, *Gilly-flower*, *Virgin Phalangium*, *Philosella*, *Violets*, *Veronica*, *Arbutus*, *Span. Jasmine*, and yellow *Ind. Jasmine*, *Monthly Rose*, *Oranges*, *Myrtles*, *Balaustor*, *Pomegranade*.



NOVEMBER

Hath xxx days,—long 08^h—52^m

Sun rises 7^h—34^m—Sets 04^h—26^m

To be done

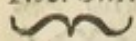
In the Orchard and Olitory Garden.

Carry *Compost* out of your *Melon-Ground*, or turn, and *mingle* it with the *Earth*, and lay it in *Ridges* ready for the *Spring*: Also *trench*, and fit Ground for *Artichoaks*, &c. See *Disc. of Earth*,

P. 34.

- The *Hot-bed* must now supply for *Sallets*, young *Lettuce*, *Cresses*, *Chervil*, &c. and trust not to the accidental mildness of the Weather,
- so as to neglect timely *Cover* to your tender *Olitories*: Shelter *Fig-Trees*. Plant also *Gooseberries*, *Raspis*, *Corinths*, and other *Shrub*
- *Fruit*.

Nov. Olib.



• *Note*, That the *Leaves* fallen in the *Woods*, may supply for *Long-dung*, laid about *Artichokes* and other things, even to the end of *March*.

Continue your *Setting* and *Transplanting* of *Trees*; lose no time, hard *Frosts* come on apace: Yet you may lay bare old *Roots*: • (*Disc. of Earth*, p. 35.

• Remember in all *Transplantings* to observe the former *Aspect* and *Quarter* of the *Compass*; as of much *Importance*, whatever some fancy: Nor set any *deeper* than it stood, establishing it against *Winds*: • You cannot plant too early in *Autumn*, Wind *South* or *West*.

• To Sow moderately *dry*, Plant *moist*, a general *Rule*: but cover not too thick with *Earth* what you sow, for *Nature* covers nothing: • You cannot sow too shallow, so you preserve the *Seed* from *Birds*.

Plant young *Trees*, *Standards*, or *Mural*. • See *Discourse of Earth*, p. 35.

Furnish your *Nursery* with *Stocks* to graft on the following Year.

• Prepare now *Stocks* for all sorts of *Fruit*: The proper ones are, the *Crab-stock* for *Standards*: For *Dwarfs*, *Stocks* of the *Paradise* or sweet *Apple-kernel*, which are likewise to be had from *Layers* and *Suckers*. *Pears*, on the *Pear-kernel Stock* or *Sucker*: *Dwarfs*, on the *Suckers* of the *Portugal Quince*.

• *Cherry Standards*, on the *Black Cherry-stone Stock*; *Dwarfs* for *Walls* or *Pallisades*, &c. on the *Morello Stock*, *Black Heart*, or small, bitter, early *Cherry-Stock*.

• *Peaches*, inoculate on the *Peach* or *Plum-Stock*: If you bud up on the *Almond*, let it be on a *Stock* which has never been removed, and so continue. But the best way to prepare these *Stocks*, see in *M. de la Quintine's Compleat Gardiner*, Vol. II. Part. 6. Page 172. too long here to be inserted.

• *Nectarines*, on *Peach*, or *Pear-Plum Stock*.

• *Abricots*, on the *White Pear-Plum Stock*.

• *Plums*, on *Plum-Stocks*: The *white* and *black Pear-Plum Stock* are best, and from the *Stones* of *Damsons*, and may all be gotten also from their *Suckers*.

• Graft the *Medler* on the *White-Thorn* or *Quince Stock*, near the *Ground*, it will bear the second Year.

• *Figs* and *Mulberries* will be propagated by their *Suckers*, *Cuttings*, and *Layers*; of all which see our *Treatise of Earth*, for their Culture in the *Nursery*.

Sow and set early *Beans* and *Pease* till *Shrovetide*; and now lay up in your *Cellars* for spending, and for *Seed*, to be transplanted at *Spring*, *Carrots*, *Parsnips*, *Turnips*, *Cabbages*, *Cauly-flowers*, &c.

Cut off the *Tops* and *Stalks* of *Asparagus*, and cover it with *long Dung*, or make *Beds* to plant in *Spring*, &c.

Now, in a *dry day*, gather your last *Orchard-Fruits*.

Take up your *Potatoes* for *Winter* spending; there will enough remain for *Stock*, tho' never so exactly gathered.

• *Ablaqueation* now profitable, and to visit the *Roots* of old *Trees*, purge the sickly, and apply fresh *Mould*. Cover also your most delicate *Stone-Fruit* and *Murals*, skreening them with *Straw-burdles*, as long as the *East* and *Northern Winds* continue, even to the end of *March*, to be sure of *Fruit*. Stand not therefore so much upon the *Beauty*, as for its *Preservation* and *Production*.

Fruits in Prime, or yet lasting.

A P P L E S.

THE *Belle-bonne*, the *William*, Summer *Pearmain*, *Lording-Apple*, *Pear-Apple*, *Cardinal*, Winter *Chestnut*, *Calvil*, *Short-start*, &c. and some other of the former two last Months, &c.

P E A R S.

Messire Jean, *Lord-Pear*, long *Bergamot*, *Warden* (to bake) *Burnt-cat*, *Sugar-Pear*, *Lady-Pear*, *Amadot*, *Ambret*, *Ice-Pear*, *Dove-Pear*, *Virgoule*, *Deadman's-Pear*, Winter *Bergamot*, *Bell-Pear*, &c.

Arbutus, *Bullis*, *Medlars*, *Services*.

N O V E M B E R

Hath xxx days, — long 08^h—52^m

Sun rises 7^h—34^m — Sets 04^h—26^m

To be done

In the Parterre and Flower-Garden.

SOW *Auricula* Seeds thus: Prepare very rich *Earth*, more than half *Dung*; upon that sift some very light *sandy Mould*, and the *Earth* gotten out of old hollow *Willow-Trees*; and then sow: Set your *Cases* or *Pans* in the *Sun* till *March* or *April*.

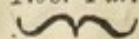
Cover your peeping *Ranunculus's*, &c. And see the Advice in *March* for *Ever-green Seedlings*; especially if long *Snows* and bitter *Winds* be feared; prepare therefore store of *Coverings*.

Now is your best *Season* (the *Weather open*) to plant your fairest *Tulips* in places of *Shelter*, and under *Espaliers*; but let not your *Earth* be too rich: Vide *October*. Transplant ordinary *Jasmine*, &c.

About the middle of this *Month* (or sooner, if *Weather* require) quite enclose your tender *Plants*, and *perennial Green Shrubs*, &c. in your *Conservatory*, excluding all entrance of *Cold*, and especially sharp *Winds*; and if the *Plants* become exceeding dry, and that it do not actually freeze, refresh them sparingly (See *April*) with qualified *Water* (i.e.) mingled with a little *Sheeps* or *Cow-dung*: If the *Season* prove exceeding piercing (which you may know by the freezing of a *Dish* of *Water*, or moistned *Cloth*, set for that purpose in your *Green-house*) kindle some *Charcoals*, and when they have done smoaking, put them in a *Hole* sunk a little into the *Floor* about the middle of it;

unless

Nov. Par.



unless your *Green-house* have a *subterranean Stove*, which moderate-ly, and with Judgment *temper'd*, is much to be *preferr'd*: In the mean time I cou'd wish that some *curious Person* would make trial of what we have describ'd at the end of this *Kalendar*, pag. 228. At all other times, when it does not actually *freeze*, or the Weather not *Rainy* or *Misty*, and that the *Air* is warm'd by the *Beams* of a fine *Day*, (and the *Sun* darts full upon the *House*, without the least *Wind* stirring) shew them the *Light* thro' the *Glass Windows*, (for *Light* is half their Nourishment *Philosophically* consider'd;) but inclose them again before the *Sun* be gone off, if it be inclin'd to *Frost*, otherwise keep open-House all Night long.

Note, That when thro' continuance of hard and sharp Weather, *hous'd Trees* grow *tainted* with Mustiness, make *Fire* in your *Stove*, and open all the *Windows* from ten in the Morning till three in the Afternoon: Then closing the *Double-shuts*, (or *Chasses* rather) continue a gentle Heat, renewing the *Fire* at *Night* only.

Note, That you must never give your *Aloes* or *Sedums* one drop of *Water* during the whole *Winter*: And indeed you can hardly be too sparing of *Water* to your *hous'd Plants* (*Orange-Trees* especially;) the not observing of *this*, destroys more *Plants* than all the rudenesses of the *Season*. To know when they want refreshing, consider the *Leaves*; if they *shrivel* and *fold up*, give them *Drink*; if pale and *whitish*, they have already too much; and the defect is at the *Roots*, which are in peril of rotting and require larger *Cases*. Take also this for a Rule, That you are not much to regard the *Surface Mould* alone, which will oftentimes be *Dust*, when the *Earth* about the *Roots* is sufficiently moist; search it therefore, by thrusting down your *Hand*; and as you find it, govern the watering; for in this *Secret* of seasonably refreshing, consists the *Health* and even *Life* of all your *hous'd* Curiosities.

Note, That *Water* made over-rich with *Dung*, and too frequently us'd, is apt to infect the *Orange-Leaves*, and those of other rare *Plants*, with a *black Smut*, which must be *wip'd* off.

If your *Aloes* grow manifestly too dry, expose them a while to the *Air*, when clear, 'twill immediately recover them; but give them not a drop of *Water*, how dry soever their *Pots* be.

House your choicest *Carnations*, or rather set them under a *Pent-house* against a *South-Wall*, so as a *Covering* being thrown over them to preserve them in extremity of *Weather*, they may yet enjoy the freer *Air* at all other times.

Prepare also *Matrasses*, *Boxes*, *Cases*, *Pots*, &c. for *Shelter* to your tender *Plants* and *Seedlings* newly sown, if the weather prove very bitter.

Plant *Roses*, *Althea frutex*, *Lalac*, *Syringas*, *Cytisus*, *Pæonies*, &c. Plant also *Fibrous Roots* specified in the precedent Month.

Sow also *stony Seeds* mention'd in *October*.

Plant all *Forest-Trees* for *Walks*, *Avenues*, and *Groves*.

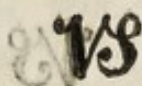
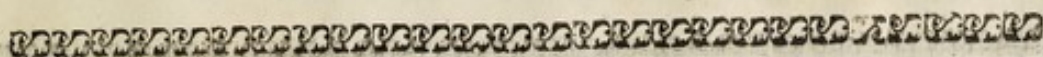
Note, That you may *transplant* not only any *Fruit-Trees*, but remove almost any of the *Foresters*, even in the midst of *Summer*, if taking the *Trees* up with some *Mould* about the *Roots*, you immediately plunge them into *Earth* made into a *Pap* like *Mortar*, keeping it fresh and under *Shade*, and not suffering the *Ground* quite to dry up and harden till *Rain* comes down.

Sweep and *cleanse* your *Garden-walks*, and all other *Places*, from *Autumnal Leaves*, the last time.

Flowers

Flowers in Prime, or yet lasting.

A *Nemonies, Meadow Saffron, Antirrhinum, Stock-Gillyflower, Bellis, Clematis, Pansies, some Carnations, double Violets, Veronica, Spanish and Indian Jasmine, Myrtles, Musk Rose, &c.*



DECEMBER

Hath xxxi Days—long 07^h—40^m
Sun rises 8^h—10^m—Sets 03^h—50^m

To be done

In the Orchard and Olitory Garden.

P *RU*NE and nail *Wall-Fruit*, (which yet you may better defer a Month or two longer) and *Standard-Trees* that are hardy.

You may now plant *Vines*, &c. See *Disc. of Earth*, p. 13, 23.

Also *Stocks* for *grafting*, &c.

Sow, as yet, *Pomace* of *Cider-Pressings* to raise *Nurseries*; and set all sorts of *Kernels*, *Stones*, &c.

Sow for early *Beans* and *Pease*, but take heed of the *Frosts*; therefore surest to defer it till after *Christmas*, unless the *Winter* promise very moderate.

Expect no fresh *Sallet* but from your *Hot-bed*: See how to make it, and to force *Asparagus*, in *M. de la Quintine*, Vol. II. Part VI. Pages 169, 181.

All this Month you may continue to *trench* Ground, and *dung* it, to be ready for *Borders*, or the planting of *Fruit-Trees*, &c. See the Note in *January*.

Either late in this Month, or in *January*, *prune* and cut off all your *Vine-Shoots* to the very *Root*, save one or two of the stoutest, to be left with three or four *Eyes* of young *Wood*. This for the *Vineyard*.

Now feed your weak *Stocks*.

Turn and refresh your *Autumnal Fruit*, lest it taint, and open the *Windows* where it lies, in a clear and serene Day.

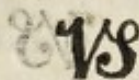
Fruits in Prime, or yet lasting.

APPLES.

Rouffeting, Pippins, Leather-coat, Winter Reed, Chestnut Apple, Apis, Fennel Apple, Greatbelly, the Go-no-further, or Cats-head, with some of the precedent Month.

P E A R S.

The *Squib-Pear*, *Spindle-Pear*, *Doyonere*, *Virgin*, *Gasconne-Bergomot*, *Scarlet-Pear*, *Stoppie-Pear*, *Vergoules*, *Portail*, white, red, and *French Wardens*, (to bake or roast) &c. the *Dead-man's Pear*, excellent, &c.



D E C E M B E R

Hath xxxi Days,——long 07^h—40^m

Sun rises 8^h—10^m——Sets 03^h—50^m

To be done

In the *Parterre* and *Flower-Garden*.

AS in *January*, continue your *Hostility* against *Vermin*. Preserve from too much *Rain* and *Frost*, your choicest *Anemonies*, *Ranunculus's*, *Carnations*, &c.

Be careful now to keep the *Doors* and *Windows* of your *Conservatories* well matted and guarded from the piercing *Air*: For your *Oranges*, &c. are now put to the *Test*. Temper the cold with a few *Charcoal* governed as directed in *November*; but never accustom your *Plants* to it, unless the utmost *Severity* of the *Season* require; therefore if the *Place* be exquisitely close, they will even then hardly require it, &c.

Set *Bayberries*, &c. dropping ripe.

Look to your *Fountain-Pipes*, and cover them with fresh and warm *Littier* out of the *Stable*, a good *Thickness*, lest the *Frosts* crack them; remember it in *Time*, and the *Advice* will save you both *Trouble* and *Charge*.

Flowers in Prime, or yet lasting.

A*Nemonies* some, *Persian* and common *Winter Cyclamen*, *Antirrhinum*, *Black Hellebore*, *Laurus-tinus*, single *Primroses*, *Stock-gillyflo*, *Iris Clusii*, *Snow-flowers* or *Drops*, *Tucca*, &c.

FO R by such a *Kalender* it is that a *Royal Garden* or *Plantation* may be contrived according to my Lord *Verulam's* Design, *pro singulis Anni Mensibus*, for every *Month* of the *Tear*.

But, because it is in this cold *Season* that our *Gardiner* is chiefly diligent about preserving his more tender, rare, exotic, and costly *Shrubs*, *Plants*, and *Flowers*; we have thought fit to add the *Catalogue*, as it is (much after this Sort) collected to our Hands, by the Learned and Industrious Dr. *Sharrock* (though with some *Reformation* and *Improvement*) of all such, as according to their different *Natures*

tures do require more or less Indulgence: And these we have distributed likewise into the three following Classes.

CLASS I.

Being least patient of Cold, and therefore to be first set into the Conservatory, or other ways defended.

A *Cacia Ægyptiaca*, *Aloe American*. *Amaranthus tricolor*, *Aspalathus Cret.* *Balsamum*, *Helichryson*, *Chamelea tricoccus*, *Nasturtium Indicum*, *Indian Narcissus*, *Ornithogalon Arab.* *Ind.* *Phaseol.* *Capsicum Ind.* *Pomum Æthiop.* *Aureum*, *Spinosum*; Summer Sweet Majoran, the two Marums Syriac, &c. *Dactyls*, *Pistacio's*, the great *Indian Fig*, *Lilac flo.* *Alb.* *Lavendula Multif.* *Clus.* *Cistus Ragusæus flo. alb.* *Colutea Odorata*, *Cretica*, *Narcissus Tuberofus*, *Styrax Arbor*, &c.

CLASS II.

Enduring the second Degree of Cold, and accordingly to be secured in the Conservatory.

A *Momum Plinii*, *Carob.* *Chamelea Alpestris*, *Cistus Ledon.* *Clus.* *Citron*, *Vernal Cyclamen*, Summer Purple Cyclamen, *Digitalis*, *Hispan.* *Geranium triste*, *Hedysarum Clypeatum*, *Aspalathus Creticus*, *Spanish Jasmine*, *Virgin.* *Jasmine*, *Suza Iris*, *Jacobæa Marina*, *Alexandrian Laurel*, *Oleanders*, *Limonium elegans*, *Myrtles*, *Oranges*, *Lentiscus*, *Levantine tufted Narcissus*, *Gill. flo.* and choicest *Carnations*, *Phalangium Creticum*, *Asiatic double and single Ranunculus's*, *Narcissus of Japan*, *Cytisus rub.* *Canna Indica*, *Thymus Capitatus*, *Verbena nodi flo.* *Cretica*, &c.

CLASS III.

Which not perishing but in excessive Colds, are therefore to be last set in; or rather protected under Mattraffes, and slighter Coverings, abroad in the Earth, Cases, Boxes, or Pots, &c.

A *Brotonum mas. fem.* Winter *Aconite*, *Adiantum Verum*, *Bellis Hispan.* *Calceolus Mariæ*, *Capparis*, *Cineraria*, *Cneorum Matthioli*, *Cytisus Maranthæ, rub.* *Lunatus*, *Eryngium planum totum ceruleum*, *Fritillaria Mont.* *Genista Hispan. flo. alb.* *Pomegranads*, *Orient. Jacinth*, *Bulbous Iris*, *Laurels*, *Cherry Laurel*, *Lychnis double white*, *Matricaria double flo.* *Olives*, *Pancration*, *Papaver spinosiss.* *Marcot*, *Rosemary*, *Sisynrichium*, *Turpentine-Tree*, *Teucriummas Tithymal.* *Myrtifol.* *Veronica double flo.* *Olives*, single *Violets*, *Lavender*, *Serpentaria trifol.* &c. *Ornithogalon Arab.* white and doub. *Narcissus of Constantinople*, late *Pine-Apples*, *Moly*, *Persian Jasmine*, *Opuntia*, or the smaller *Indian Fig*, *Jucca*, *Seseli Æthiop.* *Agnus Castus*, *Malva Arborefcens*, *Cistus mas.* *Althæa Frutex*, *Sarsaparilla*, *Cupressus*, *Critthum marinum*, &c.

For to these might innumerable others be added; but we conceive them sufficient, and more than (we fear) some envious and mercenary Gardiners will thank us for; but they deserve not the Name of that

that *Communicative* and Noble Profession: However, *this*, as a *Specimen* of our *Affection* to the *Publick*; and to gratify divers *Honourable* and industrious *Persons*, whose *Inclination* to this *innocent Toil*, has made them spare no *Treasure* or *Pains* for the *Furniture* of their *Parterres* with *Variety*; the *Miscarriage* whereof being sometimes *universal* to the *Curious*, has made us the more *freely* to impart both what we have *experimentally* learned from our own *Observations*, and from *others* of undoubted *Candor* and *Ingenuity*.



A New Conservatory, or GREEN-HOUSE.

· **T**IS now after many severe *Winters* Observation, both whilst they made use of the ordinary *Iron Stoves*, and other *Inventions*, to moderate the sharp *Air* in the *Green-house* (as they call it) and even since the *Subterranean Caliducts* have been introduced, I often took Notice, that though the most tender and nicer *Plants*, such as commonly are brought in out of the *Air*, for their *Preservation* (during the rigid *Frosts* and piercing *Winds*) did outlive and escape those rigorous *Seasons* for the most part, and some of them make considerable *Advance*, producing and maintaining both *Fruit* and *Flowers*: Yet, that even the hardiest among them, very rarely pass'd their *Confinements*, without *Sickness*, a certain *Languor* *Taint*, discoverable by their *Complexions*: Many of their *Leaves* parch'd about their *Edges*, or falling, dry, and depriv'd of their natural *Verdure*, with other *Symptoms*, which can proceed from no other (so likely) Cause, as their being kept from *Breathing* (as I presume to call it) the pure and genuine *Air*, impregnated with its *nitrous Pabulum*, which is not only the *Nourishment* and *Life* of *Animals*, but of all *Plants* and *Vegetables* whatsoever.

· This, whilst I could not but impute to the *Consumption* of that inspiriting *balsamick* Nouriture, by reason of dry *Heat* emitted from the common *Stoves*, *Pans* of *Charcoal*, and other included *Heaters*, which continually prey'd upon, wasted, and vitiated the *stagnant* and pent-in *Air*, without any due and wholesome *Succession* of a more vital and fresh *Supply*: It came into my *Thoughts*, that there might haply be found out some *Contrivance*, whereby to remedy this *Inconvenience*, with considerable *Improvement*, and no great *Charge* or *Difficulty*; if, instead of that imprison'd and *Effete* *Air*, within the *Green-house*, there might a constant *Stream* of fresh and untainted be let in, and issue out as freely; and that so qualified in its *Intermediate Composition* (which is another *Consideration* I suspend the mentioning at present) as should be very agreeable to the *Nature* and *Constitution* of the several *Plants* that were to pass their *Hybernation* in the *Green-house*.

Sir C^{or}. Wren.
Mr. Hook.

· Communicating these *Thoughts* to some of the *Royal Society* (not only approving, but concurring with the *Proposal*) it produced the following *Scheme*, which I recommend to the *Curious* at *Adventure*; the *Speculation* being, I think, so very rational, (and by some Experiments

• periments on that *Element* demonstrated) the *Practice* so little chargeable, and the Benefit of so great Concernment to our *Gardiner*.

• In describing this, I shall not need to say any thing concerning the necessary Dimensions, or Ornaments of the Structure: Every experienc'd *Gardiner* will consider, that of whatsoever *Length* his *Green-house* be, the *Depth* should not much exceed twelve or thirteen Feet, (though as our *Stove* is, and may be contriv'd, it may be of much greater Capacity) nor the *Height* above ten or eleven at most: That being plac'd at the most advantageous Exposure to the *Sun*; that *Side* be made to open with large and ample Windows or *Chasses*, (for *Light* it self, next to *Air*, is of wonderful Importance) the *Joints*, and *Glazing* accurately fitted, and cemented: And (to the end, that having occasion at any time to go into the House, no crude *Air* rush in) I add, That it were convenient a *Porch* were so made, that the Door of it may shut very close after the *Gardiner*, before he open the *Green-house* Door, which he is to shut again at his going out, before he open the Door of the *Porch* at which he entred from abroad: And this may be contriv'd to a small *Wicket*, at the end of the *Green-house*, without being oblig'd to open any of the larger *Valves* and double Doors without Necessity. This Work of the *Doors*, *Windows*, and *Porch* requiring good season'd Stuff, and a skilful Workman, I pass to the Explanation of the following *Table*.

• At one of the Ends of the *Conservatory* or *Green-house* ('tis not material whether the *East* or *West*) erect on the out-side Wall your *Stove*, be it of *Brick*, or (which I prefer) of *Rygate-Stone*, built Square, of the ordinary Size of a plain single *Furnace*, (such as *Chymists* use in their *Laboratories* for common Operations) consisting of a *Fire-hearth*, and an *Ash-hole* only; which need not take up above two Feet from Out to Out: Let it be yet so built, that the *Fire-grate* stand about three Feet higher than the Floor or *Area* of the House. The *Flue*, *Shaft*, *Fire*, and *Ash-hole* to be without, though joining close to the End-wall, as in *Figure I.* which represents the *Conservatories* Inside, with the *South-side* quite open, and *Stove* abroad in the Air.

FIGURE I.

The Whole Green-house and Furnace in Perspective.

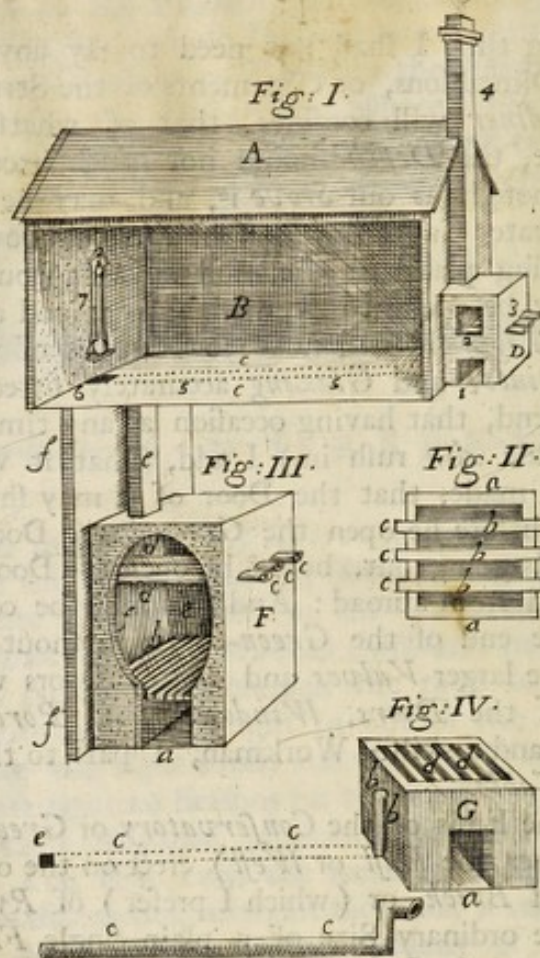
A. The Roof, whether round or flat within.
B. The North blind Wall.
C. The Area, or Floor within.
D. The Space or Passage.
1. The Ash-hole.
2. The Fire-grate.
3. The Partition of external Pipes passing through the Brickwork and Furnace, and projecting both without and within the House.

7 E

Note,

The Funnel or Shaft applied to the Wall without, which carries up both the Smoke of the Fuel, and exhausted Air of the Green-house, through the Wall.

The



Note, That in this Plate or Perspective of the Green-house, Fig. I. D. the Stove-Pipes at 3 are plac'd a little too low and near the Grate; and somewhat too high from it in Fig. III. c c c; easily reform'd in the Structure of the Furnace.

FIGURE I.

The Whole Green-house and Furnace in Perspective.

- A. The *Roof*, whether round or flat within.
- B. The *North blind Wall*.
- C. The *Area*, or Floor within.
- D. The *Stove* or *Furnace*.
- 1. The *Ash-hole*, } The Mouths of both to be fitted with Doors or
- 2. The *Fire-hearth*, } *Plugs*, for the regulating of the Heat.
- 3. The Extremities of certain *Pipes* passing thorough the Brickwork and *Furnace*, and projecting both without and within the House.
- 4. The *Funnel* or Shaft applied to the Wall without, which carries up both the Smoke of the Fuel, and exhausted *Air* of the *Green-house*, thorough the *Air-pipe*, &c.

5. The

5. The *Air Ground-pipe*, laid the whole length of the *Green-house*, in the middle of the *Floor*, a little under the *Ground* or *Pave-ment* thereof; and reaching from end to end.
6. The *Hole*, or *Opening* at the end of the *Ground-pipe*, opposite to the *Stove* end; which *Hole* is to be left open, or govern'd with its *Register*, to attemper the *Air*, which entring by the *Furnace-pipes*, circulates through *This* to the *Grate* of the *Stove*, and blowing the *Fire*, issues out of the *Funnel*.
7. The *Thermometer* hanging over the *Nose* of the *Ground-pipe*, by which to govern the *Heat*.

FIGURE II.

- E. Represents the *Furnace Air-pipes*, and how they are placed to pass through the *Fire* and *Brick-work*, with the *Projecture* of their *Noses*, to take fresh *Air* from without, and carry it into the *House*.
- a. a. The *Frame*, or *Square* of *Brick-work*, on which they lie horizontally to receive the *Heat* of the *Fire*.
- b. b. The *Air-pipes*.
- c c c c c c. The *Noses* of the *Pipes* projecting beyond the *Brickwork* both without and within.

FIGURE III.

- F. Represents the whole *Stove* or *Furnace*.
- a. The *Ash-hole*.
- b. The *Fire-grate*.
- c c c. The *Projection* of the *Air-pipes* which pass thorough the *Furnace*, and *Green-house* *End-wall*, into the *House*.
- d d. The *Air-pipes* to be seen as they pass through the *Furnace*.
- e. The *Funnel* or *Shaft*.
- f f. Part of the *End-wall* of the *Green-house*, thorough which the *Air-pipes* pass, and project their *Noses*.

FIGURE IV.

- G. Represents the *Ash-hearth*.
- a. The *Ash-hole*.
- b b. One of the *Ends* of the *Floor-pipe*, turning up, and inserted into the *Ash-hearth*, within a little of the *Grate*.
- c c. The *Ground* or *Floor-pipe*, communicating with the inserted *Pipe* b b.
- d d. The *Fire-grate*.
- e. The *Register* at the other end of the *Ground-pipe*.

Thus the fresh *Air* entring perpetually thorough the heated *Earthen-Pipes* into the *Conservatory*, and as constantly circulating thorough the *Orifice* of the *Floor-pipe*, will give continual Supply of qualified *Air* and *Nutrition* to the *Plants*, as far as concerns that *Element*; and as they are placed nearer or farther from the *Noses* of the *Stove-pipes*, enjoy the several *Climates* and *Degrees* of *Warmth* which shall be found most natural and agreeable to them.

- The best *Pipes*, and only proper for this purpose, are such as are made of the best *Crucible-Earth*; for should they be of the best *Cast Iron*, a too intense Heat of *Sea-coal* or *Charcoal* Fire would endanger their melting. Let therefore the Fire be rather constant than vehement.
- I doubt not but one single Pipe of competent bore, would be as effectual as three or four, which should not be of above Inch and half bore.
- *Note*, That any sort of Fuel whatsoever may be used safely in this Stove.

I Conclude all with a *Catalogue* of such excellent *Fruit-Trees*, as may direct *Gentlemen* to the Choice of that which is good, and Store sufficient for a moderate Plantation: *Species* and *Curiosities* being otherwise boundless, and without end.

[*Note*, That M, signifies *Mural* or *Wall-Fruit*; S, *Standard*; D, *Dwarf*.]

A P P L E S.

| | | |
|---------------------------------------|-----------|---------------------------|
| Russet | } Pippin. | Vergoleuse, excellent. |
| Kentish | | Poire a double fleur. |
| S Holland | | Windsor Souvraigne. |
| Golden | | Green-field. |
| Golden Russet | | Boeurie du Roy. |
| Pear-main. | | Ambret. |
| Loane's Pear-main. | | Cheffom. |
| Hervy-Apple. | | Espine d'Yver. |
| S Reinnet flat. | | Petit Muscat. |
| Deux-ans, or John. | | Petit Blanquet. |
| Passe-pome. | | S Blanquet Musque. |
| Pome Apis. | | Orange Bergamot. |
| Cour pendue. | | Petit Rouslet, excellent. |
| Calvile of all forts. | | Cuisse Madame. |
| Golden Mundi, excellent. | | Boudin Musque. |
| July-flower, | | Mouille en Bouche. |
| Queen. | | Brute e bonne. |
| Marigold. | | King Pear. |
| Winter Queening. | | Lewes. |
| Leather-Coat. | | Bezy d'Hery. |
| Chefnut. | | Rouslet de Rhemes. |
| Kirkham. | | Vert longue. |
| Cats-head. | | Cussole. |
| Juniting, red, and white, first ripe. | | Rouslet Campagne. |
| Codlin Kentish, &c. | | Petit Topin. |
| Red-strakes, } Cider. | | Messire Jean. |
| Genet Moyle, } | | Amadot. |
| P E A R S. | | French King. |
| M Bonne Chrestienne } Summer. | | Fargonel. |
| | Winter. | D. St. Andrew. |
| Bergamot ordinary. | | Ambrosia. |
| Bergamot de Buffy. | | Vermilian. |
| | | Lunsac. |
| | | Elia, Rose. |
| | | Calliot. |

Calliot Rosat.
Swans Egg.
Musque Robin.
Golden de Xaintonge.
Poire sans Pepin.
Popering.
Rolling Pear of Lewes.
Madera.

S Hampden's Bergamot.
Norwich.
Worcester.
Arundel.

Lewes Warden, best without
compare.

Dove.
Squib.
Stoppie.

S Deadmans.
Winter Musque.
Chesil.

Catherine, { Red.
King.

Sugar.

Lording.

Red Squash, }
Bosbery, } for Perry.
Watford, }

QUINCES.

Portugal.
Brunswick.
Barbary.

PEACHES and NECTARINS.

M Admirable.

Alberge, Sir H. Capel's.
Alberge, small yellow.
Almond Violet.
Bourdin.
Belle Chevreuse.
Elruge Nectarin, excellent.
Maudlin.
Mignon.
Morella.
Musque Violet.
Murry Nectarin.

Red Roman Nectarin.

Nutmeg, white, red.

Man Peach.

Newington, excellent.

Orleans.

Persique.

Rambullion.

Syon, excellent.

Savoy Mala Cotton, &c.

ABRICOTS.

Musk Abricot.

MBishop of London, Fulham, ex-
cellent.

Orange.

Great Bearer, or Ordinary.

PLUMS.

Perdrigon, { White.
Blue.

Primordial.

S Reine Claud.
& Mirabel.

M White Nutmeg.

Pear-plum, { White.
Black.

Pease-cod.

Prune de l'Isle Vert.

Damasq; Violet. Date.

Catharine.

S Date white.

Damazeene.

Damson, { White.
Black.

Muscle.

Cheffim.

Imperial.

Jane.

Saint Julian.

Queen-Mother.

Morocco.

Bullace, { White.
Black.

FIGS.

M Scio, white.

& Purple.

D Blue.

Yellow.

Dwarf.

CHERRIES.

D Carnation.

Hartlib.

S Duke Flander.

& Kentish.

M Black Cherry of Sir William
Temple.

Black Heart, true.

Black Orleans.

Great Bearer.

Duke.

Luke Ward.

Morocco.

Prince Royal.

Petworth Amber.

Croone,

*Bleeding Heart.**May Cherry.**Begareux, Egriot.**Guynnes.**Cluster.**Cologne.**Darking wild Cherry for Wine,*
excellent.

VINE S.

Amboise.

| | | |
|-------------------|---|----------------------------|
| <i>Frontinac.</i> | { | <i>Grizlin, excellent.</i> |
| | | <i>White, excellent.</i> |
| | | <i>Blue.</i> |

*Burgundian Grape.**Early Blue.*

| | | |
|--------------------|---|--------------------------|
| <i>Muscattell,</i> | { | <i>Black.</i> |
| | | <i>White, excellent.</i> |

*Morillon.**Chaffela.**Cluster-Grape.**Parsley,**Raisin.**Bursarobe.**Burlet.**Corinth.**Large Verjuice, excellent for Sau-*
ces and Salleting.

GOOSEBERRIES.

*Crystal.**Amber Great.**Early Red.*

| | | |
|----------------|---|----------------|
| <i>English</i> | { | <i>Yellow.</i> |
| and | | |

Great

CORINTHS.

| | | |
|---------------|---|------------------------|
| <i>White,</i> | { | <i>English, Dutch.</i> |
| <i>Red,</i> | | |

Black, Medicinal.

RASPIS.

| | | |
|---------------|---|---------------|
| <i>White,</i> | { | <i>Large.</i> |
| <i>Red,</i> | | |

Black, Wild.

MULBERRIES.

*Black or Red.**White Virginia, for the Silk-*
worm.

BERBERRIES.

*Great Berberry.**Berberry without Stones.*

STRAWBERRIES.

*Common Wood.**English Garden.**American or Virginian.**Polonian.**White Coped.**Long Red.**The Green Strawberry.**Scarlet, &c.*

MEDLARS.

*The Great Dutch.**Neopolitan: and**One without Stones.*

SERVICES.

*Wild.**Pear Sorb.**Azerole.*

WALNUTS.

*The Early.**Great Double.**Tender Scull and Hard.**Bird-nut.*

FILBERTS.

| | | |
|---------------|---|-----------------|
| <i>White,</i> | { | <i>Avelans.</i> |
| <i>Red,</i> | | |

*Large Hasel.**Long, Thin, and Great Round*
Nuts.

CORNELIONS.

White, Red, &c.

- Most of which, and innumerable more, dispers'd (for most part)
- after the several *Months* in the foregoing *Kalendar*, were here recited
- for such as will be contented with a *confin'd* and *choice Furniture* for
- their *Plantations*: And such as would not be impos'd upon, will find
- the best *Ware* and *Dealing* at *Brumpton-Park* near *Chelfsey*, culti-
- vated by Mr. *Wife*, and the joint Direction of that excellent Gardiner
- Mr. *London*, worthy of his *Royal Title*.

A LETTER from Sir Dudley Cullum to John Evelyn, Esq; concerning the lately invented Stove for the Preservation of tender Plants and Trees in the Green-house during Winter; formerly publish'd in the Philosophical Transactions, Vol. xviii. Num. 212. Page 191.

S I R,

I Cannot but think my self oblig'd in Gratitude to give you an Account how well your lately invented *Stove* for a *Green-house* succeeds (by the Experiment I have had of it) which certainly has more Perfection than ever yet Art was before Master of. *Sir*, I have pursu'd your Directions in laying my Pipes (made of *Crucible* Earth) not too near the Fire-grate, which is nigh upon, or better, than sixteen Inches; and by making a Trench the whole length of my House, under the Paving (for the Air to issue out and blow the Fire) of a convenient breadth and depth (that is, Eighteen Inches both ways, cover'd with an Arch of Bricks) and at the other End of the Trench, having a square Iron Plate answerable to that of my Paving (which is Eighteen Inches) to take off and put on, with a round Hole at the Corner, of about three Inches diameter, with a Lid to slide open, and shut, upon every End of them, as you may have seen upon some Porridge-Pot Covers; so that by opening any of these Holes, or all of them, more or less, or taking off the whole Plate, I can release such a quantity of Air out of the House to blow the Fire so, as to increase or diminish the Blasts; and as you were pleas'd by Letter to inform me, concerning distributing the Air at its Admission more equally thro' the House, I have inserted my Pipes into a Channel all along the Wall, at the end of the House, with those several Overtures you mention'd. All which, *Sir*, I assure you, prove most admirably well: And by which free and generous Communication of yours, you have most highly oblig'd all the Lovers of this Hortulan Curiosity and Recreation, as well as,

S I R,

Your most Faithful and

Humble Servant,

D. CULLUM.



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