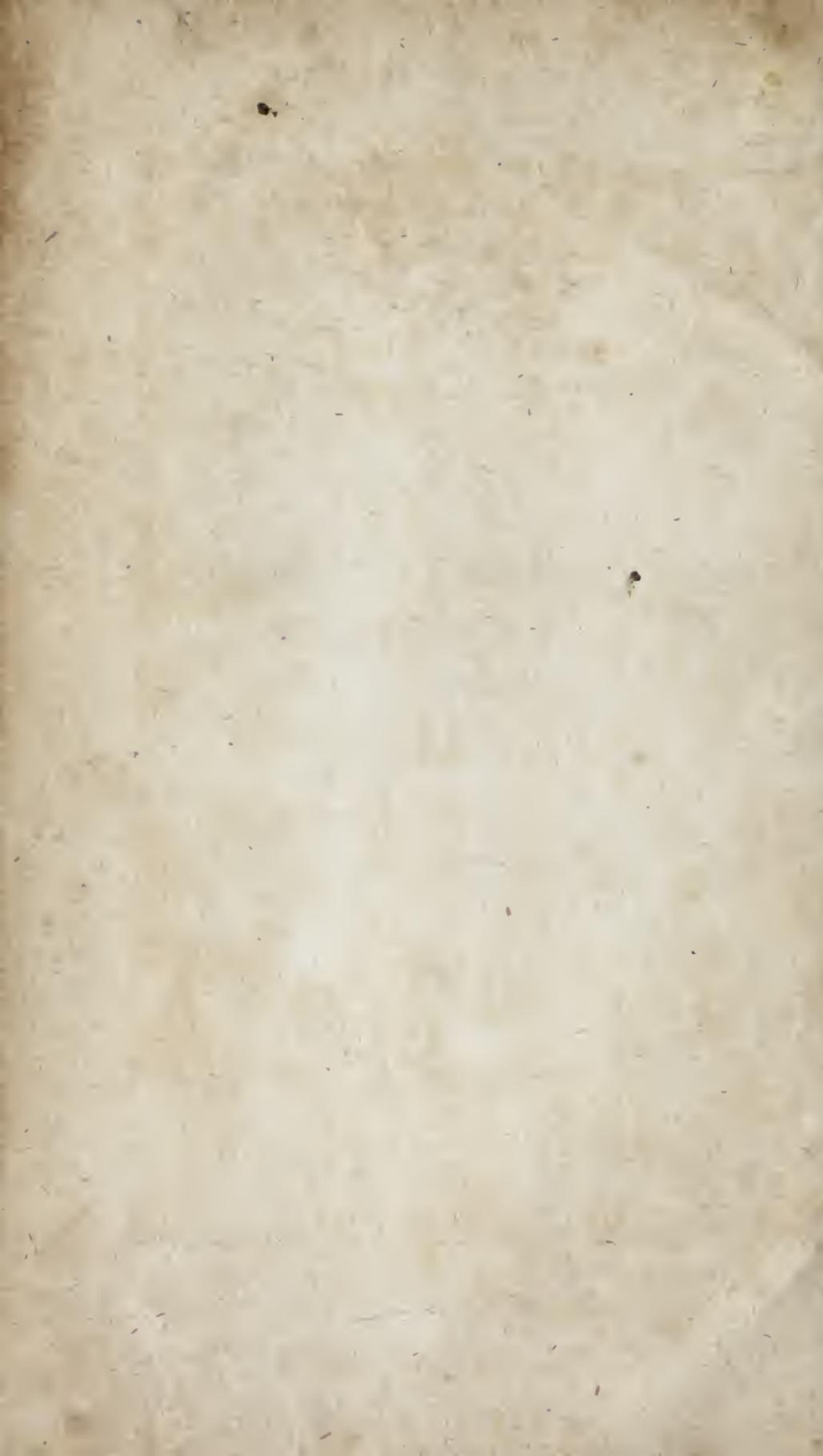


John Claudius Loudon.

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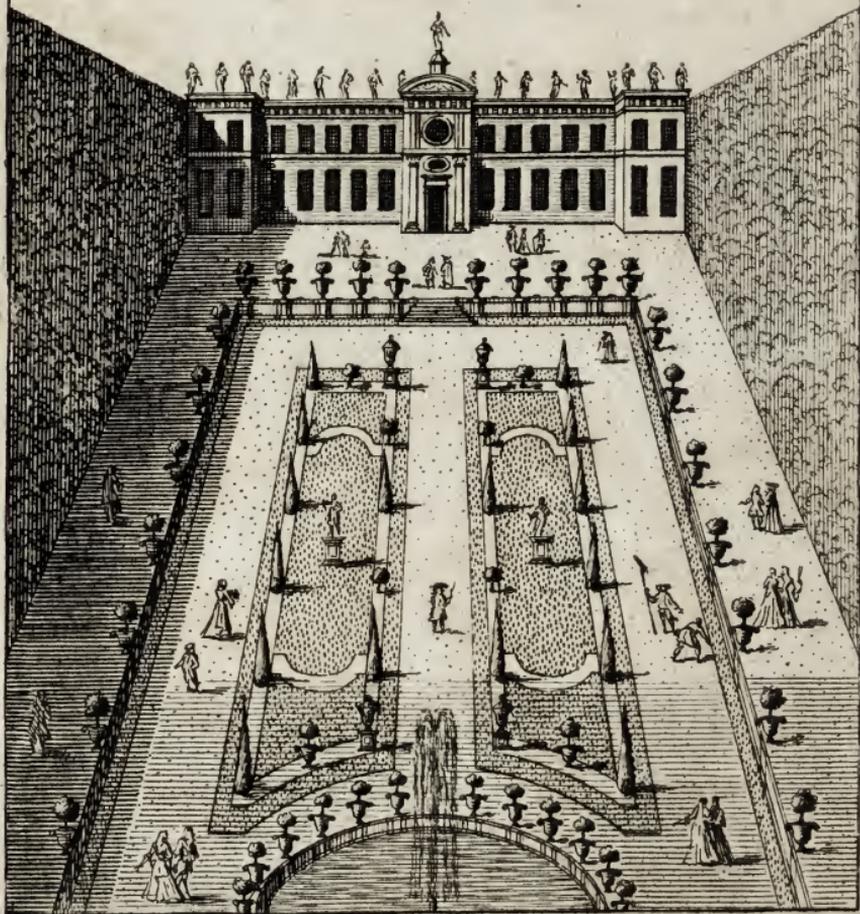
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*The Nobleman Gentle
man & Gardeners Recreation
in 3 vol. by S.S.*



*Printed for D. Browne, B. Barker, C. King,
W. Meers, & R. Goslin*

Rev.^d Sir John Thoroton

Ichnographia Rustica :

OR, THE

Nobleman, Gentleman, and Gardener's

RECREATION.

CONTAINING

DIRECTIONS for the general Distribution of a Country Seat, into Rural and Extensive Gardens, Parks, Paddocks, &c.

And a General

System of AGRICULTURE,

ILLUSTRATED.

With great Variety of COPPER-PLATES, done by the best Hands, from the AUTHOR's Drawings.

Rev.^d Sir John Thoroton

VOL. I.

By *STEPHEN SWITZER*, Gardener,
Several Years Servant to Mr. London and Mr. Wise.

— *Inceptumq; una decurre laborem :*
O decus! O fama! merito pars maxima nostra,
Mecenas pelagoq; volans da vela petenti. Virg. Georg. 2.

LONDON, Printed for *D. Browne* without Temple-Bar, *B. Barker* and *C. King* in Westminster-Hall, *W. Mears* without Temple-Bar, and *R. Gosling* in Fleet street, 1718.

THE HISTORY OF THE

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BY JOHN BURNET

IN TWO VOLUMES

THE SECOND PART OF THE SECOND VOLUME

AND THE END

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To the Most Noble the
Marques of *LINDSEY*,
Lord Great-Chamberlain of
E N G L A N D,

And one of the LORDS of his Ma-
jesty's Most Honourable PRIVY-
COUNCIL, &c.

This TREATISE of
GARDENING

Is humbly Dedicated

By his LORDSHIP'S

Most obedient,

Humble Servant,

Stephen Switzer.

To the Hon. the Lords of the Council

WILLIAM BENTLEY

Author of the

ARTS AND MYSTERY

And of several other Works of the same
Author, published by the same
Printer.

THE HISTORY OF
GARDENING

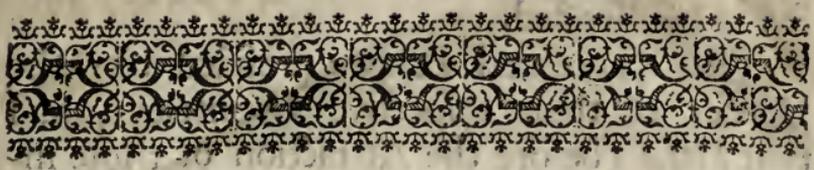
is humbly Dedicated

By his Servant

W. Bentley

Printed by W. Bentley, at the
Printers Office, in Pall Mall

1753



THE
PREFACE.



THAT the Politure and Bignity of *Apollo* (the Patron of Refined Pleasure) was more eligible than the surly Aspects and tragical Attributes of *Mars*, the tempestuous Surges of *Neptune*, or the amazing Thunders of Imperial *Jove*; and (as *Phæbus*) by his benign Beams, took GARD'NING into his Protection more immediately than any of the rest, not excepting the Delightful *Muses*, otherwise the darling Favourites of his Empire.

That *Minerva* shone brighter in her Pacifick and Emolumental Dress, than in her most polish'd Habiliments of War; and the beautiful and chaste *Diana* was eclips'd by the more dazzling Rays of (her own self) in *Cynthia* and *Phæbe*, by whose Monthly Revolution the whole Scene of Nature, and

Vegetation in particular, was by them supposed to be directed.

That *Ceres* and *Pomona* presided o'er the Deities of their respective Countries; and that *Flora* (before the Attraction of those indelible Spots of Prostitution, with which she is since tainted) was more amiable than *Venus* herself; is not rational, but delightful to suppose, from the Benefit and Happiness that accrued to Mankind from those benign Powers, more than many of that numberless train of Deities (many of them the imperious Vassals of Ambition, Cruelty, and Revenge,) and rather ador'd out of Fear than Love by those deluded Heathens.

The Medicinal and Salutary Virtues of Kitchen-Vegetables are so universally known, that all Mankind daily receive bounteous Assistance therefrom; being such as mix themselves with, and qualifie the violent Ferment of the Blood, purifying and sweetning the Chylous Spirits of the Body, &c. But the happy (I had almost said Supernatural) Power of the Vine, and the Ambrosial Juices of Fruits, are such, that all, both Ancient and Modern, seem very ready to confess its Virtue, how Reviving to the drooping Spirits of the fatigued Statesman and Senator, how Quickning to the Studious and Learned, and Refreshing to the laborious Artizan and Mechanick: The sovereign Qualities of this is so great, that all seem willing to join in Wreathing the Temples of that

that cheerful Deity with his beauteous Produce, and in elevating his Statue above the Rabble of those fictitious and bloody *Dæmons*, rather than Deities, common amongst the Antients.

But that Agriculture and Gard'ning, abstracted from the Profits of it, was so very solid, durable, and delightful an Employ, plac'd above the most refined Pleasures of Antiquity (not inferior to the Seraphick Entertainments of Musick and Poetry) ancient History undeniably proves; and that the ancientest and politeest Heathens form'd the greatest Conceptions, and the most elevated Notions they had of Heaven and a Future State, from the incomparable Beauties of the Garden; the Writings of their Poets and Historians do every-where declare; their *Elyzium* being no other than the happy and regular Distribution, and cheerful Aspect of pleasant Gardens, Meadows, and Fields, and had its Original and Etymological Derivation from the several Roots out of the Oriental Languages, implying the exalted Notions of Joy, Happiness, and Pleasure, and the other unbounded Felicities of Nature, in her greatest Glory, the sublimest Height those adumbrated Minds could at that time possibly amount to.

Of the like Import doubtless was *Paradise*, which properly signifies *Gardens of Pleasure*, the Residence of Angelick and Happy Souls, un sullied with Guilt, and of Duration equal

The PREFACE.

with Time: And tho' the Original Compact between God and Man was after that invalidated and broke, yet we may gather from After-History, how great a Share Gard'ning, and the Pleasures of the Country, had in the Minds and Practice of the most Virtuouſ in all the ſucceſſive Centuries of the World.

The ancient *Attick* and *Roman* Worthies erected magnificent Statues, and decreed Annual Honours to be paid to their *Rural* and *Hortensial* Deities; and the Great *Auguſtus*, after that long Scene of Miſery, and the diſmal Devaſtation of his Country, thought it a Matter worthy of a Publick Inſcription:

Rediit Cultus in Agris.

And as he worthily eſteemed it, ſo he ordered it to be placed amongſt the greateſt Glories of his Reign.

But that Eternal Honour (*Gard'ning*) has receiv'd from the peculiar Act, the ſole and manual Operation and Contrivance of Omnipotence, in the beautiful Portraiture and harmonious Diſtribution of *Paradiſe*, carries with it ſuch a kind of Divine Revelation, as is ſufficient to ſilence its Enemies (were it poſſibly that ſo innocent an Employ cou'd have any) and to raiſe Idea's far above, and never to be raz'd out of the Minds of that part of Mankind who purſue Pleaſures, and expend their Time and Treaſure in Matters of a leſs refined Nature.

And

The P R E F A C E.

v

And indeed, Gard'ning, and the other Bu-
siness and Pleasures of a Country Life, being
Subjects of so noble and sublime a Taste, be-
yond any one Art (I might say the col-
lective Body of Arts) carries with it its own
Recommendation, were there no Examples
or Precepts of this kind either in Sacred or
Civil Writ.

'Tis in the quiet Enjoyment of Rural De-
lights, the refreshing and odoriferous Breezes
of Garden Air, that That Deluge of Vapours
and those Terrors of Hypochondraism, which
croud and oppress the Head, are dispell'd, and
that divine kind of *Halitus* there drawn, perspi-
ring the Organs of the Body, which regulates
the precipitate Palpitation of the Heart, and
the irregular Pulsation of the whole Machine :
'Tis there Reason, Judgment, and Hands are
so busily employed, as to leave no room for
any vain or trifling Thoughts to interrupt
their sweet Retirement : And 'tis from the
Admiration of these that the Soul is elevated
to unlimited Heights above, and modell'd
and prepar'd for the sweet Reception and
happy Enjoyment of Felicities, the durablest
as well as happiest that Omniscience has
created. And considering to what a pitch
the Practice and Esteem of Gard'ning is with-
in these thirty Years last past arriv'd, it may
not improbably be matter of some Observa-
tion in the Nobility and Gentry of *Great-
Britain*, the Encouragers and Promoters of
it, that so few Books have been originally

The P R E F A C E.

publish'd in their own Native Language, for the Illustration of the present Methods, and making such farther Additions and Improvements, as upon mature Consideration may appear to be necessary.

There seems nothing, certainly, so much wanting to compleat its clear and solid Foundations, as a succinct Collection of the several Rules made use of in our present Practice, so methodically and intelligibly dispos'd, that all Learners may not be to seek at Noon-day, and wander at a time when this Art is in its highest Meridian.

And not only this, but likewise Agriculture (with which Gard'ning is inextricably wove) and also all the Business and Pleasures of a Country Life (scatter'd up and down as they are in loose irregular Papers and Books;) I say, if these were all collected together into Order and Method, 'twould possibly be a Work not unworthy some laborious Pen: And since 'twould make too large a Volume in one, it might be better to divide them into several Parts, into Books of this Size, which would not only make a handsome Sett in the Study, but would likewise be compleat Pocket Companions in the Field, easily pull'd out and read on any Occasion. Towards this I have collated some Materials, but their Publication will entirely depend on the Success this meets with in the World.

But to return nearer to our present Purpose: Whatever helps it may be thought that

that Books of this kind already published may afford, (the greatest part of them being Translations from other Languages, and calculated for Soils and Regions quite different from ours) they have been complain'd of as very deficient; and what Success those Gentlemen have had, after all their Care and Pains in Abridging, &c. they themselves best know.

And perhaps it might have been more easy for them, as well as more instructive to the World, if they had begun *de novo*, if on a *Rasa Tabula*, and an original Basis of their own laying, they had superstructed the pleasing Rules of Gard'ning; for tho' Invention may not be put so much to the Stretch in composing, yet 'tis certain, Labour and Judgment are much more so, by extricating the essential parts of those circumlocutory and confus'd Rules that abound in one, and by making such Remarks as would be of any great Use in the other. The *Theory and Practice of Gard'ning*, lately Translated by Mr. *James of Greenwich*, is esteemed, in its way, the best that has appeared in this or any other Language, and seems to be the best-laid Design, and carried on with the most Judgment; but that being writ in a Country much differing, and very far inferior to this, in respect of the Natural Embellishments of our Gardens, as good Grass, Gravel, &c. makes a great Alteration in point of *Design*. Besides, there are some considerable Defects in that way of Gard'ning, as well as in the

Designs themselves, which I shall take more notice of in due Time and Place.

As for several other Books that have been printed in our own Language, I have neither the Vanity nor Ill-will of censuring or condemning any thing that is contained in them; but rather pay a great deal of Respect to the Memory of their Editors, and shall make use of those Writings where-ever they agree with our present Method: But many of them being writ some Years ago, before Gard'ning was so well known as 'tis now; and others being of so mean a Taste as scarce to bear Reading at all; I can't but after much Thought be of an humble Opinion, that the present Undertaking will be of some Use to the World.

The Reason of this Omission I have been hinting at, I mean the want of more and better Garden Originals, seems to be that great Hurry which those (a) Gentlemen have been always in, to whose Share the chief Practice (as well as Profit) of Gard'ning has fallen; since had their Leisure been equal to their Experience, the World might from them have reasonably expected the compleat-est System of Gard'ning that any Age or Country has produc'd: 'Tis to them we owe many of those valuable Precepts in Gard'ning now in use, and their Memory ought to be transmitted to Posterity with the same Care

(a) *Mr. London and Wife.*

as those of the greatest and most laborious Philosophers and Heroes, who by their Writing and Practice have deserv'd so well of the World.

But since they have not been pleas'd (or indeed, as their Business may not yet have permitted them) to answer the just Expectations of the World (*b*), and such as they have given Hopes of themselves, and which may now probably be farther off than before, by the Loss Gard'ning has sustain'd in the Death of one of the greatest Members of that Undertaking; it will, I hope, excuse the Presumption of this Design, and of any other that may tend to the Recording and Improving this truly Innocent, Noble, and Emolumental Employ.

Every Man is at liberty, or rather he is indispensably oblig'd to make what Advances he can in the Art he is brought up to, and in the Age he lives; and whoever does not this, answers not one End of his Creation, and but little exceeds the Beast that perishes. And in this respect, as no one's Meanness of State can excuse him for his Neglect, so it can be no cause for others in a more flourishing Condition to malign or envy his Labours or Endeavours, much less to use them with that scurvy Treatment that too often attends such Works.

(*b*) *Vid.* Preface to the Retir'd Gard'ner.

The PREFACE.

I must confess, the Undertaking and Well-managing this Matter is a very arduous and difficult Point, not to be attain'd to without Diligence, Application, and tolerable Experience, and a full Resolution of pursuing it with Vigour; since this is an Age abounding with Wit, Learning, and Judgment too penetrating to be any-way imposed on; and that Person who dare assume it without those Qualifications and Resolves, is certainly guilty of an unpardonable Folly.

I hope I shall not be altogether unfit for this Work, by the Happiness I have had in an Education none of the meanest for one of my Profession, and of having a considerable Share in all parts of the greatest Works of this Kingdom, and under the greatest Masters, and even that which some may probably reckon otherwise, I mean some small Revolutions and Meanness of Fortune, as it has sometimes thrown me upon the greatest Slavery, so it has at other times amongst the best Men and Books; by which means, and I hope an allowable Industry and Ambition, and an eager Desire of being acquainted with all parts of this Nation, as well as all the useful parts of Gardening, I have tasted both rough and smooth (as we plainly call it) from the best Business and Books, to the meanest Labours of the Scythe, Spade, and Wheel-barrow.

The Misfortune that most of my Profession are under, in not having been Abroad, is certainly great; that noble Taste with which
Gardens

Gardens in *France* and other Countries abound, is in some measure discoverable from those Plans and Perspectives that are brought over from thence; but this I hope amply to supply in some short time, and to draw the magnificent Idea's of those Nations into a Volume by it self.

In the mean time, I proceed on a kind of Extensive Gard'ning, not yet much us'd with us, to which I suppose those Observations I shall there make will be very proper *Addenda's*, the chief Benefit accruing from thence being in Water-works and Statues, Fruits, &c.

This being premis'd, I proceed to the Book itself: And that I might the better introduce what I had to say in Gard'ning, I have commenc'd my Discourse from its Original, from the Beginning of the World, and the first Date of Time itself, and by a succinct Deduction brought it down to this present Time, a Time very memorable for the Figure Gard'ning makes amongst other Arts and Sciences.

In the Business of Gard'ning, to proceed methodically. I have laid down plainly the Nature of Earth, Water, the Sun and Air, (the Operative, Meteorological Powers of Nature) and the Method by which they conspire together in the Growth of Trees, and the stupendous *Arcana* of Vegetation: This is intermixt with Directions for making Magazines for the Improvement of those two kinds

kinds of Earth in which we generally abound, (*viz.*) Heavy and Light, or Cold and Hot Lands; and also the manner of impregnating Water, and how to assist Nature in the Extremities either of Cold or Heat.

When these things are well known, I have suppos'd the Practice of Raising Trees might be the easier and better attained to: But perhaps it may be thought that Mr. *Evelyn*, in his Philosophical Discourse on Earth, has abundantly provided for this Matter, and consequently there is no occasion of writing more on this Subject.

And indeed it must be own'd, that among all the elaborate Works of that Author, none is more charming or fuller of good Philosophy than that is; but it is withal so nicely drawn, that 'twould be hard for an honest plain Country Planter to extract Rules for the composing of Earths proper for his simple Purpose: So exquisitely fine are his Compositions, fit chiefly for Flowres and choice Exotics, rather than the more Rustical and Plain Ways of Tilling and Improving Country Lands.

I have therefore followed a more simple and plain Method: Having first divided the Earths I would improve, into two Parts, Light and Heavy, and the Materials for Improvement of a very few kinds, such as are proper for these two sorts of Land, and easy to be got at every Husbandman's Door; to which I have added a third Advice, in relation to Earth exhausted and worn out; and thus

thus I have (I hope) fully provided my Reader with Magazines of Earth fit for the Purpose of Raising Trees.

My next, is the Raising Wood and Forest-Trees in Nurseries, or otherwise more promiscuously in Coppices, &c. This likewise has been already handled by Mr. *Evelyn* in his *Sylva*, and Others. But besides that we have now much better Methods of Raising Trees than they had then, at least they are more universally known; (the Rules there deliver'd, being chiefly extracted out of the ancient Writings of *Pliny*, *Columella*, &c.) Neither is his Method so Instructive to a young Country Beginner as could be wish'd; since the Course of his Direction is often broke off by Digressions concerning the Mechanical, and very often the Medicinal Uses of the Plant he is teaching to raise; and has also taught the Propagation of every kind of Tree separately: Whereas one and the same Method raises a great many kinds of Plants; an Oak is rais'd of Mast or Seed, like the Chesnut, Beach, Hornbeam, &c.

On the contrary, I have follow'd and enlarg'd on the Method laid down by *Virgil* in his 2d *Georgick*, who has reduced all that are rais'd by Seed into one Class, and those that are rais'd by Arcuation or Laying into another; which avoids a great deal of Repetition, and makes the raising Trees much more easie and intelligible. I have likewise, as it were, chain'd all my Directions one to another;

another ; so that a Learner leaving off, may have a quick recourse to his Instructions again ; which is not so easie to be done in Voluminous Works : but this is so dispos'd, that the Thread is never broke till he is got quite through the whole Process. In fine, these plain Directions, how compendious soever they may at first sight seem to be, contain the most material Things to be learn'd in that Matter.

And it must be observ'd, whatever Value we put upon the Works of that great Author just mention'd, that his Writings abound rather with the Marks of an excellent Scholar, than an intelligible and practical Gardener. But to proceed :

Having thus provided the Country Gentleman with Directions for Raising of *Wood*, the great Beauty and Security of his *Villa* : I go on, next of all, to speak of *Water* ; by which I mean, not altogether that design'd for Use, but Beauty, and without which the best Country-Seat is very deficient ; wherein I have enlarg'd on the Original of Springs, the manner of bringing them home, and the best way of using them in Fountains, Cascades, and the like.

Then follow *Statues*, one of the noblest Ornaments of our best Gardens and Plantations, which not only make a magnificent Appearance ; but 'tis there also we hieroglyphically read the great Idea's of Valour and Renown, that particularly distinguished those Antients
above

The PREFACE.

xv

above the rest of their fellow-Creatures, and is of continual Use and Amusement to the serious Beholders: 'Tis there, besides the Lineaments and Portraitures of Rational Beings, we read the true Lineaments of Heroism and Virtue, and other Attributes which deify'd those never-dying Hero's.

And that they might the more effectually strike the Imagination, I have endeavour'd to promote their proper Magnitude, Dimensions, and Distribution in the several Quarters, Centres, Lawns, and Recesses of our *Designs*: To all which is added a short Addition on *Grass, Gravel, &c.*

This being a short Abstract of the Contents of this Volume; I shall, for the Satisfaction of my Readers, give some Account of the next I intend to publish, (if Providence permits, and this find Acceptance in the World) which I couch under the general Title of ICHNOGRAPHIA RUSTICA; by which is meant, the general Designing and Distributing of Country-Seats into Gardens, Woods, Parks, Paddocks, &c. which I therefore call *Forest*, or, in a more easie Stile, *Rural Gard'ning*.

I shall not mention the particular Method in which I intend to handle that Subject, but proceed to say something of *Design* in General, and the Reasons that have induc'd me to that way of thinking, which is, in short, from that Magnificence that is easily discoverable from the *French Designs*, which
certainly

The PREFACE.

certainly yet very much excel Ours, notwithstanding those considerable Advantages we have by Nature beyond what they have.

But because Persons differ in their Opinions about *Design*, it may be requisite I should lay down those Rules that are the Standard of my Judgment and Procedure in this Matter; since whoever endeavours to enforce a Belief of those Things he can give no Reason for, imposes on the World, and instead of Instructing, highly Affronts his Reader.

The Precepts of the Cultivating part of Gardening, depend on Observation and Experience; but this of *Designing*, on a noble and correct Judgment and Taste of Things: And where-ever Rules drawn from One's own Knowledge, or the Writings of indubitable Antiquity, are wanting, 'tis then one must have recourse to parallel Cases for the Information, and indeed the Determination of Judgment, to Architecture Civil and Military, to Nature, nay sometimes to Divinity, Morality, Poetry, and the like.

This is the Method I have taken in the pursuit of *Design*; and the Theses I have drawn for my Directions therein, are summ'd up in this Rustick Verse,

*Utile qui dulci miscens, ingentia Rura,
Simplex Munditiis ornat, punctum hic tulit omne.*

And

And for that no body has yet enlarg'd on this Matter, but every one makes what Judgment he pleases, and thereby leaves *Design* in Confusion, I shall take these three Motto's in their Course, being such as have in other Cases had the Approbation of all Mankind, and may not improperly be applied to this.

Utile dulci is what may not be thought a proper Theme for Princes, whose Riches and Powers are very great; but there seems to be a secret Pleasure in the very Words, and I believe there are few of the greatest Nobility, whose Wealth overflows so much as to have no regard to them: By this is not improbably meant a judicious Mixture and Incorporation of the Pleasures of the Country, with the Profits; this I shall studiously endeavour to follow, and for the present shall only observe, that all my Designs tend that Way: And by mixing the useful and profitable Parts of Gardening with the pleasurable in the Interior Parts of my *Designs*, and Paddocks, obscure Enclosures, &c. in the Outward: My *Designs* are thereby vastly enlarged, and both Profit and Pleasure may be said to be agreeably mix'd together: For I can't but think the Person that barter the first for the sake of the finest Garden in the World, makes a very bad Exchange; but if they can be well thrown one amongst another, it must be very satisfactory. And if under this Head be understood a Frugality in the Management

ment and Performance, this will appear in the Direction that will be found in this Treatise, and in the other much more so.

By *Ingentia Rura* (apply'd to Gard'ning) we may understand that Extensive Way of Gard'ning that I have already hinted at, and shall more fully handle; this the *French* call *La Grand Manier*, and is oppos'd to those crimping, diminutive, and wretched Performances we every-where meet with, so bad, and withal so expensive, that other Parts of a Gentleman's Care is often, by unavoidable Necessity, left undone; the Top of these Designs being in Clipt Plants, Flowers, and other trifling Decorations (which I shall speak more of by and by) fit only for little Town-Gardens, and not for the expansive Tracts of the Country.

This then consists rightly in large prolated Gardens and Plantations, adorn'd with magnificent Statues and Water-works, full of long extended, shady Walks and Groves; neither does it altogether exclude the Use of private Recesses, and some little retired Cabinets; this seems to be the general Idea of the Plan or Ichnography of a well-contrived Seat; but when we consider the Elevation, it requires that every thing appears tall, stately, and bold, and all of it contrary to that narrow and mean-spiritedness with which Designs generally abound.

It also directs, that all the adjacent Country be laid open to View, and that the Eye should

should not be bounded with high Walls, Woods misplac'd, and several Obstructions that are seen in too many Places, by which the Eye is at it were imprisoned, and the Feet fetter'd in the midst of the extensive Charms of Nature, and the voluminous Tracts of a pleasant Country.

Simplex Munditiis is well known to be a comprehensive as well as compendious Theme; and is, if well understood, of Use in all the Material Actions and Business of human Life; and as it denotes an unaffected Simplicity and Neatness in the Words, Actions, and Dress of a Man or Woman; so in Gardening, and all the whole Cycle of Arts, it signifies a noble Elegance and Decency, a due Proportion and clear Majestick Mien in the several corresponding Parts thereof; and without straining it too hard, may very well demonstrate the beautiful and harmonious Rules of Symmetry and Variety. However, 'tis a well-govern'd pursuit of Nature, whose Rules, tho' often fortuitous, are not the less beauteous, but rather the more admirable. And if this was more followed, if the Beauties of Nature were not corrupted by Art, Gardens would be much more valuable.

But above all, it cashier's those Interlacings of Box-work, and such-like trifling Ornaments, and substitutes the plain but nobler Embellishments of Grass, Gravel, and the like, in which we so much excel other Countries. In short, 'tis the usefullest Mark

The PREFACE.

any *Designer* can steer by, both for Frugality in the Execution, and Nobleness of Gardens when they are actually accomplished.

I can't better take my leave of this imperfect Essay on *Design*, than by Quotations out of those celebrated Authors, the Right Honourable the Earl of Roscommon, in his Translation of *Horace's Art of Poetry*; and Mr. Pope, in his inimitable *Essay on Criticism*. These Authors probably had no Thoughts of applying them to Gard'ning; but from them are deducible some of the best Strokes conceivable for our present Purpose; the first, inculcating the Grounds of true Designs in Poetry, and the Faults generally committed for want of a thorough Understanding and solid Judgment in that Art; contrary to a mean-spirited and trifling manner, common enough in Poetry as well as Gard'ning, says,

*The meanest Workman in th' Æmilian Square
May grave the Nails, and imitate the Hair,
But cannot finish what he has begun.*

What is there more ridiculous than he?

*For one or two good Features in a Face,
Where all the rest are scandalously ill,
Make it but more remarkably deform'd.*

E. of Roscommon.

And the other most excellent Critick:

*First follow Nature, and your Judgment frame
By her just Standard, which is still the same;*

Unerring

*Unerring Nature still divinely bright,
 One clear, unchang'd, and universal Light;
 Life, Force, and Beauty must to all impart
 At once the Source, and End, and Test of Art.
 That Art is best which most resembles her,
 And still presides, yet never does appear.*

And in the 13th Page gives us the most inimitable and general Ideas of good *Design*, drawn both from Nature and Art.

In Gard'ns, as Nature, what affects our Hearts The Original is, In Wit.
Is not th' Exactness of peculiar Parts :
'Tis not a Lip or Eye we Beauty call,
But the joint Force and full Result of all.
Thus when we view some well-proportion'd Dome,
(The World's just Wonder, and ev'n thine, O
Rome!)

No single Parts unequally surprize,
All comes united to th' admiring Eyes ;
No monstrous Height, or Breadth, or Length
appear,
The whole at once is bold and regular.

Pope's Essay on Criticism.

But I leave the farther pursuit of this to some better Pen: And indeed the Pleasures of Gard'ning in all its Parts are such, that were it possible to dive into and display the utmost Recesses of its Beauty, one would not do it, but leave it amongst the delightful Amuse-

Amusements of Providence, for the continual Entertainment of the Ingenious in this as well as succeeding Generations. Field-room there is enough : Go on and prosper, ye illustrious Lovers of Gard'ning ; Exercise there will be enough, till this and all other Arts shall be swallowed up in the Ruins of this tottering World, and Nature herself shall breathe out her last Gasp ; till you, happy Souls, shall every one have received the Reward of your Virtuous Labour. And this which has been the utmost of your Ambition Here, shall be fully compleated in the more durable and unbounded Felicities of a joyful Hereafter.

But however diverting and noble a Subject Gard'ning is, like all sublunary Affairs, it is not free from several Misfortunes that tire some in Performance, and deterr others from ever meddling with : These Mishaps I shall next trace from their Original Source, and endeavour to give such general Advice as will help to reform them.

And the first is, the too great Haste we often observe Gentlemen to be in ; and sometimes, on a mistaken Notion of their own Judgment, lay hold of the first Opportunity that offers in making their Gardens, without consulting some experienc'd Workman, whose Judgment may be depended on ; and to make the Matter yet worse, there is too often some awkward, ignorant, I might add dishonest Person and Pretender to a great deal of
of

of Knowledge in this Matter at hand, and ready to offer their Advice, tho' never so weak and false.

Of which Persons, amongst others, are some who call themselves *Gardeners*, who having wrought a little while at some or other of the great Works of this Kingdom, immediately put on an Apron, get a Rule and pair of Compasses, with other things belonging to this Work; thus equipt, what Wonders are we not to expect from so profound a Set of *Mathematicians* and *Designers*!

However, by the Help and Recommendation of some as knowing as themselves, they are introduced into a Service with an Assurance of doing mighty Things.

If the Gardens are to make, the first thing they fall on is probably some little Courtyard, or other small Division of the Garden; for by the Largeness of their Scale, and the Narrowness of their Genius, their Sheet of Demy and Heads are both so wonderfully fill'd with the Contrivance of those minute Parts, that 'tis impossible they should lay such a general Scheme, as that the Part now making, may any-way correspond or agree with what may follow after: In short, when their Designs come to their intended Perfection, they are often full of an indigested heap of Absurdities, scarce ever reducible (without a total Revolution) into any tolerable Figure, tho' they happen afterwards

to fall under the Direction of the most Skillful in this Way.

Add to this the Round-about Ways, and consequently Expences, Gentlemen, in this unhappy Method, are put to; for these Persons being shrewd Calculators of Line and Level, have perhaps as much Earth to bring in, or carry out, as, besides the Expences, has no other Effect but to make the Matter yet worse.

By this time the Gentleman may see the Errors into which he is insensibly drawn; but the Misery of it is, 'tis perhaps so late, that he thanks neither his Fortune nor his Friend for making him thus dear and experimentally wise; and the farther pursuit of Gard'ning is entirely laid aside.

To compleat this Matter, there are likewise several Artizans or Mechanicks that elope their own Province, and by pretending to give *Designs* in Gard'ning, are guilty of a great Crime; Gard'ning being in all its Circumstances the most extensive Art of any, and therefore not so easily to be meddled with as they think.

There are likewise several *Northern* Lads, which whether they have serv'd any time in this Art, or not, very few of us know any thing of; yet by the help of a little Learning, and a great deal of Impudence, they invade these *Southern* Provinces; and the natural Benignity of this Warmer Climate has such a wonderful Influence on them, that one of them knows (or at least pretends to know)

know) more in one Twelve-month, than a laborious, honest *South* Countryman does in seven Years. And indeed, however polite and gallant Persons of the first Rank, whose illustrious Birth and Virtues give them place amongst the greatest of the Quality, and whose Knowledge in those Matters is very good; the meaner sort of that People, by a canting Artifice, assisted with a little Learning, make them an Over-match with their Tongues for any honest, industrious Gardener amongst us, how skilful soever he be: And in short, this Person, among others, is one that helps to compleat what I have been complaining of. These might have been included in my first Division; but I could not but bestow a Paragraph on purpose to paint out the Poison of these audacious Empiricks in this Way.

I wish it possible for me to excuse some others that pretend to *Designing* and Laying out Gardens, which are, by their serving Apprenticeships, better entitled to these Matters: But Gard'ning is known to be very extensive in its Nature; and tho' a Man may probably be a good Kitchen or Flower Gard'ner, he may yet miss of this and other Parts, by either not being furnished with proper Talents, or having had no Advantage of improving himself: These, by undertaking this of *Design*, &c. commit an Error they cannot easily atone for, are very much concern'd in the Charge I am here bringing against Pretenders; but I spare them, for the sake of their being
of

of my own Profession, and only wish them to examine well, before they begin on this difficult Province.

I shall finish this Subject with that serious Advice of *Rapin's*, it being perhaps not in the Hands of all that begin Gard'ning.

*Villa's and Gardens you will best command,
If timely you engage a Master's Hand,
Whose artful Pencil shall on Paper trace
The whole Design, and figure out the Place.
Review the Plan yourself, you may descry
Errors escaping the Designer's Eye.
With Ease reliev'd, while yet to each new Thought
The slightest Touch reforms th' obedient Draught.*

Mr. Gardiner.

It may be thought I have dwelt too long, and been too severe on this Subject; but the Case is so very bad, that I hope to be excus'd, if I have; the Disease seems to be Lethargick, and for want of Caution, and so requires the sharper Medicines for its Prevention and Cure.

And since I have been just speaking of Draughts, I can't but throw in a Caution against the too much depending on them; inasmuch as they may appear very fine, and yet be no-way suitable to the Place. And I will be bold to affirm, that regular fine Schemes have spoiled as many Gardens, as any other Fault, except there be a great deal of Judgment and Consideration with it.

Thus

Thus do we often see many a noble Oak, or sometimes whole Lines of these and other umbragious Trees, fell'd, to humour the regular and delusive Schemes of some Paper Engineers; and such a Medley of Clipt Plants, Embroidery, &c. introduced in their room, that 'tis hard how to think of it, whether with Pity or Disdain. 'Tis also to them owing, that all Eminences or Pits are levelled, tho' at never-so-great an Expence, when with good Management they might prove the greatest Beauties in Gard'ning.

But perhaps, and I know it is very often urged by some Gentlemen, when they first enter upon Gard'ning; We intend (say they) to lay out but a little Money; and our Gardens are not so much for Pleasure as Profit. To which I answer, That in this whole Matter there seems to be the more Reason for Advice; for if the Room be but small, there requires the more Judgment in laying it out well; but if Saving Money is the Case, they may assure themselves it will cost them rather ten times more than any thing else: And even in the least and meanest Design there is some Judgment, Thought, Frugality, and Contrivance. But if any should think I press this because it is my Business, and that they are resolv'd to lay out their Money as they please; I have done, and must only take leave to declare the contrary, and that 'tis nothing but an honest Meaning; and confess 'tis the greatest Grief in the World for me to see Business

ness ill *designed*, and really afterwards worse managed.

I am sure 'tis not Vanity nor Ill-will that makes me thus expose these wrong Methods, having had too great a Share in the Frowns of an ill-natur'd World, to take pleasure in the publishing and triumphing in the Faults and Mistakes of any Part of Mankind, much less Men of my own Profession. And I hope the whole Course of my Life, and the unguarded Openness and Freedom with which I shall deliver my following Undertakings, will make the contrary appear; and tho' it be my Profession, I shall endeavour to acquit myself faithfully, and without Mercenariness or Reserve. But an officious Adviser is one of the unwelcomest Guests that can come to many Persons (what Occasion soever they may have of it;) for which Reason I shall be the shorter to them.

And to Gentlemen of a more lenitive and ingenious Nature, who are pleas'd to pardon the Unworthiness as well as officious Boldness of a well-meaning Man, how contrary soever it may be to any former Mistakes, I hope the foregoing Remarks may be of use; and to make them have the more Effect, I beg leave to add the following Advice.

First then, After the *Design* is well laid and consider'd by the Gentleman, and some honest and experienc'd Workman, that such a Person be chose for a Servant, as is Sober, Ingenious, and Good-natur'd, (I may call him
a Fel-

a Fellow-Companion in this delightful Employ) the more he knows is certainly the better; but of the two, the first is the best Qualification; because if he abounds in the one, a little Experience and good Usage will soon make him capable of the other: but an ignorant, conceited Person is one of the most incorrigible of Mortals; and God knows there are too many of these that strole about with this unhappy Mark; and the greatest Misfortune of all is, the older they grow, the worse they are.

He ought to be one that has some Sense of Religion, Virtue and good Manners; this, if well encouraged, will in time be of great Use to the Master; and from such a Servant he may expect all reasonable Duty. To this End his Stipend ought to be equal to that of the best Servant, and above all, that he be well paid; so that he may have no Reason to take indirect Means to maintain his private Affairs, (free from the Domineering of such haughty, imperious Fellow-Servants as are too often found in great Families.) All these put together, can't but be of excellent Use towards the settling him easily and quietly in his Service, and encouraging him in the pursuit of that which he has an honourable Assurance of long enjoying, in some measure, as well as his Lord and Master.

I have observ'd the contrary Usage to have the contrary Effects; and the tossing of Gardeners about from one Place to another, is the
the

the greatest Blemish that is charg'd upon the Memory of one of our greatest Master-Gardeners; for those Persons, supposing they are to be going away, and to hold their Places by a precarious Tenure, care not what they do: And tho' this holds good in all Cases, yet in Gardening 'tis attended with Consequences more pernicious than in any other Business.

The Author and Abridger of *The Compleat Gardener* wou'd have him not to be too Old, nor too Young. In this, every Gentleman's own Case is his best Director. But this wou'd be hard upon a great part of this Profession, whose Misfortune 'twou'd be to live too long.

That after they have spent the Vigour of their Lives in Service, (and perhaps such as were not profitable enough to lay up much Money in) to be turn'd out to beg in their Old Age, and after a long Scene of Business and Slavery, that has brought them to a more helpless State than any other People, are miserable Thoughts. But the farther prosecution of this I leave to the Management of those pious and charitable Divines, whose Discourses on Subjects of this kind will appear very bright in the History of these Times.

I need say little of other Qualifications, as to *Learning*, &c. it being what is not so generally mistaken as other Things are; but shall only remark on this Head, That too many Gentlemen are very sparing to these
 Servants,

Servants, and think that Fifteen or Twenty Pounds *per Annum* is extraordinary, or too much to give a Gardener; when in truth their very Livery-Servants are as great or a greater Charge; tho' both their Learning and Pains is or ought to be equal to the best Servant in their Families; and what with Books, Mathematical Instruments, and the like, their Rewards ought to be the more. To make a good Ingenious Gardener, as much Learning is required, perhaps, as the Steward, or any other Artizan or Servant which Persons of Quality or Others have attending them: And were this more encouraged, what might not be expected in a Country whose known Character is, —
Inventis addere.

And how much to the Advantage of *Gardening* it might be, if Young Persons, designed for this Employ, were not only instructed in *Mathematical* and *Grammatical*, but also in *Philosophical* Knowledge, I leave to the Determination of the Ingenious in that way.

My next Advice is, To set apart such a portion out of the Revenue as can be conveniently spar'd, and that the same be Weekly applied to the Discharge of the Expence; for that Labourers Unpaid, are of course the most Impertinent, Troublesome Persons that may be; and by their Clamour, Noise and Thievery, occasion a very large Alloy in and Discount from the Pleasures of a Country Life.

Two, Three, or Four Hundred Pounds *per Annum* will do great Things in small Undertakings; and Six, Seven, or Eight Hundred will be sufficient in the greatest of all, in this Manner and Method I am advancing. Besides, the Pleasure of *Gardening* is not in Finishing them in too great Haste; but after a general Scheme is laid, to make Annual Advances, 'till the Whole is compleated. Neither can this be call'd Money altogether expended; because the Kitchen-Garden, Fish-Ponds, &c. about a Seat, are not only a great Ornament, but will make a great Abatement in the Expences of House-keeping.

The last, and which is the Result, or rather the Substance of the former Advices, is, That Gentlemen Consider well before they Begin, and Proceed Leisurely; That the Motives that induce them to these Undertakings be Solid and Virtuous, and not the sudden start of an impetuous Fancy, which too often sinks and vanishes immediately, and leaves a Mark of Infamy and Disgrace on the Undertaker, rather than a Credit and Repute. 'Tis to this, in a great degree, is owing the many Unfinish'd and Confus'd *Designs* to be seen in many Places of these Kingdoms.

Gardening is doubtless in itself very Diverting; but when it has its commencement from Rashness, or any other unwarrantable Temper, and irrational Sally, no wonder if its End be Discontent, and those unhappy Reflexions

flexions on past Things, that are the natural Consequences of the most innocent Pleasures, as well as the most guilty and flagrant Vices now reigning in the World.

But when carried on in a well-regulated Manner, what solid Pleasure is there that is not to be found therein? Its Pursuit is easy, quiet, and such as put neither the Body nor Mind into those violent Agitation or precipitate and imminent Dangers that many other Exercises (in themselves very warrantable) do. The End of this is Health, Peace, and Plenty, and the happy Prospect of Felicities more durable than any thing in these sublunary Regions, and to which this is (next to the Duties of Religion) the surest Path.

'Twas the Encouragement and Practice of these and such-like Virtuons and Emolumental Employs, that in a great measure rais'd the Splendor, and still helps to maintain the Brightness of the Histories of those Ancient and Universal Monarchies of *Persia*, *Greece*, and *Rome*: And the Neglect, that, amongst some other Reasons, portended their fatal and unhappy Dissolutions. And the innumerable Plans, Prospectives, and Historical Account of the magnificent Gardens of *France* and *Italy*, as they draw the Eyes of all *Europe* upon them, so they will hereafter make as compleat a Sett, and appear as glorious as the military *Ichnographies* of those august Nations.

But to return, that I might the better perform my Duty in these Undertakings, and

correct what has been observ'd to be amiss in Gard'ning, I have in that Treatise first set down the Errors that have occur'd to me either in Books or Practice; and from the Methods I have propos'd to my self, and from the Practice of the best in these Matters, I have put in their room such things as I thought would be more proper.

With the same Care I have trac'd the Round-about Ways and Needless Expences which I have observ'd in the Making and Planting of Gardens, in which there is generally twice as much as is necessary, and shall reduce it into such a Method, as that any Person, upon common Consideration, may know if he is well or ill used.

The last, and no less momentous piece of Advice, shall be, to fix such Measures for the Extent of Gardens, as will, I hope, very much reduce the Expence of Keeping as well as Making. And 'tis here to be observ'd, that for want of fixing at first on a general Scheme, and drawing all the Pleasures of the Situation into one Table, Gardens have gradually, insensibly, and at last even necessarily swell'd to a greater Extent than the Owner at first design'd them, so great indeed as to sink under their own Weight, and to be a Burden too heavy for the greatest Estates; by which means they came often to be neglected, and to be rather a Vexation and a Trouble, than any real Pleasure and Satisfaction to the Owner: And this I take to be another great Hindrance

Hindrance and Discount from the true Pleasures of Gardening.

I am very far, by this, from limiting the Extent of Outer Plantations, which, as the Prices now are, and by the Methods hereafter to be delivered, will be no great Charge. These might reach as far as Liberty of Planting will allow, an Employ so diverting that it ought to terminate but with Life itself, and to be plac'd amongst the greatest Diversions of it; all others are subject to Disappointments, but in this, not a Day, Hour, or Minute in the whole Year but what courts our Admiration, or requires our Care. What I have been speaking of is in relation to what may properly be called *Gard'ning*, I mean those Interior Parts, that ought by some means or other to be fenc'd from the Trampling and Croppings of Cattle, and require our more immediate Care in Keeping and Dressing.

And since all agree, that the Pleasures of a Country Life can't possibly be contained within the narrow Limits of the greatest Garden; Woods, Fields, and distant Inclosures should have the Care of the industrious and laborious Planter: Neither would I (as I have already hinted) advise the immuring, or, as it were, the imprisoning by Walls, (however expensive they are in making) too much us'd of late; but where-ever Liberty will allow, would throw my Garden open to all View, to the unbounded Felicities of distant

stant Prospect, and the expansive Volumes of Nature herself.

In the mean time I preserve some private Walks and Cabinets of Retirement, some select Places of Recess for Reading and Contemplation, where the Mind may privately exult and breathe out those Seraphick Thoughts and Strains, by which Man is known and distinguish'd as an Intelligent Being, and elevated above the common Level of Irrational Creatures.

And that I might the better effect my Design, I have promoted, as is already practis'd (tho' not well) in several Places, the sowing of Coppices and Woods, it being much more Rural and Beautiful in Country-Seats than new fine Gard'ning, (too much run into by some) since from this Process, in four or five Years time, one may expect to find Woods or Coppices eight or ten Foot high. Besides, those Exterior Lines are kept by a Scythe fixed into a strong Handle or a long Pole, as there is occasion to use it, without the Expence and tinkling Noise of Sheers in Clipping.

And I have pursu'd this Method yet farther, by Directions in this Book for a more speedy Raising Woods, than I have any-where seen; and in the other, the manner of cutting Gardens and Interior Plantations out of the inside; and laying the Exterior Parts ranging and corresponding with them in such a manner, as that they may appear as a part,
and

and add to the Beauty and Magnificence of the Garden in the View, tho' not in the Expence of Keeping ; since I would never advise above twenty Acres of Ground in the innermost parts of the largest Gardens, let the Exterior be what they will, to appear, if possible, two or three hundred. The manner that I have taken in doing this, will, I dare assure my self, appear pleasing, if not surprizing, to most that have not been so great Drudges to Thoughts of this kind as I have been.

This Method I have propos'd, well manag'd, will, I hope, very much abridge the Expence of Making and Keeping Gardens, and will yet add very much to their Magnificence, when, for the Enlargement of their View, all the neighbouring Fields, Paddocks, &c. shall make an additional Beauty to the Garden, and by an easy, unaffected manner of Fencing, shall appear to be a part of it, and look as if the adjacent Country were all a Garden.

It may probably be supposed, by this PREFACE, that I am setting up new Schemes in Gard'ning, which may, 'till the Prints come out, cause divers Reflections, as the Readers are dispos'd to think ; but, on the contrary, I can affirm, that 'tis much the same as has been us'd already in some parts of this Kingdom, tho' I hope to make considerable Improvements ; and for Antiquity, 'tis above 2500 Years, since it appears to be of the same kind as the Gardens of *Epicurus* in the Su-

burbs of *Athens* ; a Person (if *Pliny* speaks right) that first us'd this Extensive way of Gard'ning, and of bringing the Pleasures and Produce of the Woods and Fields under the general Title of *Hortus*, of which I shall say more by and by.

This may likewise be suppos'd was and is the manner of Gard'ning amongst the *Chinese*, who, as an ingenious Author of our own Country observes, ridicule the *Europeans* on account of that Mathematical Exactness and crimping Stiffness that appears in our Way of Gard'ning. And the *Designs* that tend the Way I am speaking are certainly the most valuable ; such is that incomparable Wood of my Lord *Carlisle's* at *Castle-howard*, the Wood at *New-Park* belonging to the Right Honourable the Earl of *Rocheſter*, the Woods at *Casbiobury*, the *Design* of *Buſby-Park*, &c.

The *Romans* had doubtless the same Extensive kind of Gardens ; and till of late Years it has not been the Custom to immure and wall them in, except in such Places where the Owner is circumscrib'd and bounded in by contentious Neighbours ; this being, besides the Expence, a great Confinement, and bereaves One of the greatest Pleasures of a Garden, I mean *Prospect*.

Nor would I be understood to condemn all Enclosed and Flower-Gardens, since they are absolutely necessary in Cities, Towns, and other bounded Places, where the Owner is hemm'd in on each Side : But what I am speaking

speaking of, is in large Country-Seats, where the Owner has 2, 3, or 400 Acres of Land, more or less, in Pasture, Park, or other Lands, 'tis here suppos'd that the Extent furnishes him with Business enough in planting and improving of his Estate, and more, than to spend his Time in the more trifling and fading Beauties of Flowers; whilst, on the other hand, he could not possibly employ himself in the narrow Limits of a City-Garden, without such little busy Employments.

Besides, Gentlemens Affairs commonly dividing their Time between the Town and Country, they spending the latter part of the Winter, and the Spring, and sometimes longer in Town, and the rest of their Time in the Country: The first answers by the Beauty of Flowers in the Spring, which is over by the latter end of *May*; whilst in the latter part of the Year the nobler Diversions of the Country take place, at which time, in truth, the Beauty of Flowers is gone, and Borders are like Graves, and rather a Blemish than a Beauty to our finest Gardens.

In the aforesaid Cases then this Extensive Way of *Design* will be of Use: The manner of doing which, will, I hope, appear delightful, besides the Cheapness in Performance will (I doubt not) but be very agreeable to the frugal Planter.

And for the latter, I mean Town-Gardens, compos'd of Flowers, Greens, and choice Exoticks, 'tis hop'd some future Time will

give an Opportunity of humbly publishing more Thoughts to the World on that Subject, and reducing that into a correcter Method than has yet appear'd. But when *Town-Gardens* are mention'd, 'tis not thereby meant Gardens in or very near *London*, but those that are four, five, six, or seven Miles out of Town, whither the Fatigues of the Court and Senate often force the illustrious Patriots of their Country to retreat, and breathe the sweet and fragrant Air of Gardens; and these are generally too much pent up.

By which means *Gardening* may be suppos'd to be divided into two kinds, *viz.* City, and Country; the first for Flowers, &c. and the last, Woods, Coppices, Groves, and the busie and laborious Employ of Agriculture, with which *Gardening* is unavoidably as well as pleasantly mix'd.

I am apprehensive this will meet with different Acceptation in the World, as it suits with the Humours or Interests of many of my own Profession, who (amongst other Reasons too long here to name) not being willing to take so much Pains themselves, or being, perhaps, naturally averse to such Publications, 'tis no wonder if they malign both the Work and its Author. But as on the one hand, I have tasted too severely of the Lashes of Fortune, to take any great Satisfaction in any thing but doing my Duty; so, on the other, I am prepar'd to contemn
any

any Ill Usage I may possibly receive on this account, being very sure that I have not any-way betray'd a Trust that is incumbent on Persons of all Professions; and that tho' there is a Frugality propos'd in the Making and Planting Gardens, yet the Gardener and and Nursery-man will find their Account as much in the Extent, as they did before in the elaborate Exactness and Expensive way of Making Gardens.

And 'tis the happiness of present Authors, to write in an Age wherein Virtue and honest Industry are very much countenanc'd and encourag'd, and Persons of too great Sagacity to be any-ways impos'd on, Persons who see through the Artifices of Designing People, so much indeed, that I should have had no occasion to mention this, but that those I suppos'd to be concerned have too much Power, and are too much us'd to things of this kind, to escape this Notice; and they will, without doubt, soon apply it to themselves.

However, if after all the Care taken of giving any reasonable Offence, it should be my misfortune to meet with any Ill Usage, 'tis what was long since the fate of one of the greatest Gardeners, as well as Poets, I mean *Virgil*, in whose company I shall (were I but worthy) be content to suffer; and shall give the same Answer as that learned and ingenious Author did, when he was told how basely he had been treated, (as follows:)

An,

The PREFACE.

An, inquit, Hesiodi sententiæ non ministri, ubi ait, Architectum Architecto invidere, & Poëtam Poëtæ? De malis, inquit, Græcus ille intellexit, nam boni eruditiores amant: sed magna cum mea Laude & Gloria vindictam in manu habeo: Majore enim cura virtuti intendam, atque quo elegantior ego fiam, eo vehementius invidia rumpeter.

And a little farther :

Nam qui contendit, & an contentionis finis utilis sit non novit, stultis illum innumerandum sapientes putant.

Ruzus

Which I leave them to English, and to make such Use of as is most proper.

Without doubt, the Circumstances of an Author, how immaterial soever, will by these Wits be immediately brought on the Stage. And indeed, it would be too idle and impertinent for me, or any One in such a Case, to recriminate on Fortune or Ill Usage, much less on Persons and Things; for which reason I shall submit to the Ill-will of some, and the Mistake of a great many in this Affair.

To what is already said, there seems to be little occasion to add more of the Usefulness of this Subject, or to vindicate the Reasonableness and Advantage it may be to so Polite
and

and Ingenious a Nobility and Gentry as at present *Great-Britain* abounds with.

The Performance itself is what's of more Concern, and for which, I am now too sure, I ought to Apologize. I must confess my self at present, upon some accounts, somewhat unequal to the Management of so weighty and useful a Province: But the favourable Reception of this, will, I hope, dispell those Clouds that may any-ways hinder my next Performance, as well as purchase that Courage that all young Authors want.

In general; I ought to address the Nobility and Gentry, especially that Noble and Useful *Society* Incorporated for the Advancement of Natural Knowledge, as *Tibullus* did *Apollo*, (*Eleg. 5. Lib. 2.*) Let me quote him in his own Words, without any other Versification:

*Phœbe, fave, novus ingreditur tua Tempa
sacerdos.*

But more particularly; The Gentlemen *des Belles Lettres*, (collected as they are out of the several Classes and Degrees amongst Mankind) who will, I dare hope, see some reasonable Cause of Excusing the Deficiency of this Work, when I assure them, That the Nobleness of the Subject, rather than any opinion of my own Performance, insensibly carry'd me into Lengths in which I could hope for little Success: But this being an

Introduction

Introduction to one of the Noblest as well as Usefullest Subjects in the World, it seem'd absolutely requisite I shou'd begin with something of this nature.

True it is, that *that* Author's Works are most acceptable, who undertakes it rather out of *Choice* than *Necessity*.

*Some judge of Authors Names, not Works ;
and then*

*Nor praise nor damn the Writings, but the
Men,*

are the Lines of one of our greatest Judges of modern Criticism. Yet as this was not altogether my Case, it being done, the greatest part of it, *Nobilis Otii*, (as the Poet phrases it) during the Leisure I enjoy'd in a very Indulgent as well as Noble Family ; I hope there is nothing so culpable in it, as the putting it together, which I must own was done in some Haste.

But what's most afflicting, is, that it was not begun sooner. If the great *Roman* Emperor (whose continual Care of his People in general, might be thought to be a sufficient Discharge of his Duty) lamented the loss of one Day, wherein he did not some particular Act of Service and Good : How much more ought a great part of Mankind, (who have no such Charge, and can do nothing that is of Use in the Age they live in, but by such ways as these) and my self
in

in particular, how unworthy soever I may seem to be, that we have lost so many Years!

'Tis therefore Time (tho' I hope not too late) for every Person, in these Cases, to repair to their Posts, and to make the best Use possible of those Talents Providence has intrusted them with; seeing daily and dismal Experience, as well as the Authority of the Wisest of Kings in Sacred Writ, assures us, that as to this material Part of us, *There is no Work, nor Device, nor Knowledge, nor Wisdom in the Grave whither we are going.* Ecclef. ix.
10.

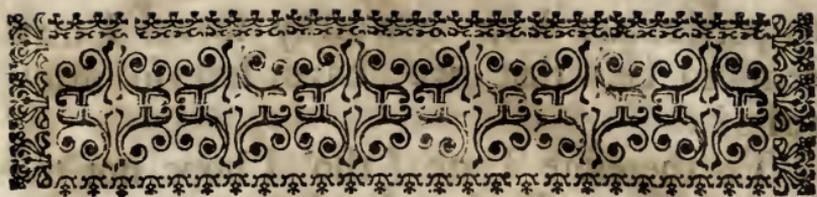
Therefore I shall endeavour to acquit my self with the Temper and Satisfaction of an Honest Man, at least, in the Words of the aforesaid Ingenious Gentleman:

[view,

*Content, if hence th' Unlearn'd their Wants may
The Learn'd reflect on what before they knew,
Careless of Censure, nor too fond of Fame;
Still pleas'd to Praise, yet not afraid to Blame:
Averse alike to Flatter or Offend;
Nor free from Faults, nor yet too vain to Mend.*

Mr. Pope.





THE
CONTENTS.

CHAP. I.

THE History of Gardening, from its Original: With Memoirs of the greatest Virtuoso's, both Ancient and Modern, Page 1

CHAP. II.

An Essay concerning Earth; and the Improvement of Land design'd to raise Forest-Trees in, p. 98

CHAP. III.

An Essay concerning Water, Rain, Snow, &c. and their Efficacy in Vegetation, p. 114

CHAP. IV.

An Essay concerning the Power of the Sun, and his Effect in Vegetation, p. 133

CHAP.

The CONTENTS.

CHAP. V.

An Essay concerning the Power of the Air, and its Effect in Vegetation, p. 144

CHAP. VI.

An Essay concerning the Effect of those Co-efficient Powers in the work of Vegetation, p. 153

CHAP. VII.

Directions for Raising Forest-Trees.

- Sect. 1. *The Introduction,* p. 191
- Sect. 2. *Of the Spontaneous Production of Trees,* p. 204
- Sect. 3. *Of the Method of Raising Trees by Seed,* p. 206
- Sect. 4. *Of Raising Trees from the Exuberances of the Mother-Roots,* p. 219
- Sect. 5. *Of the Raising Trees by Artificial Methods of Avulsion, Arcuation, &c.* p. 221
- Sect. 6. *Of Raising Trees by Layers,* p. 224
- Sect. 7. *Of Raising Trees by Cuttings and Sets,* p. 228
- Sect. 8. *The Summary of all that has been deliver'd concerning Raising Trees,* p. 230
- Sect. 9. *Directions for Planting in Open Nurseries,* p. 231
- Sect. 10. *Directions for Pruning and Dressing of Forest-Trees in Open Nurseries,* p. 234
- Sect. 11. *Of Planting Trees in the Open Park,* p. 239
- Sect. 12. *Directions for the several sorts of Soil*
on

The CONTENTS.

- on which Trees thrive best,* p. 248
Sect. 13. *Tabular Directions for every Soil,*
p. 255
Sect. 14. *General Aphorisms or Maxims of
Planting, drawn from the foregoing Chap-
ters,* p. 258

CH A P. VIII.

- Directions for Raising Woods and Coppices,*
p. 264
Addenda, p. 271

CH A P. IX.

- Of Springs, their Original, and the Method of
bringing them home, for the Use and Beauty
of Gardens,* p. 288

CH A P. X.

- Of Statues, and other Ornaments of Decorations
of noble Gardens,* p. 310

CH A P. XI.

- Of Grass and Gravel, the natural Embellish-
ments of our English Gardens,* p. 319

CH A P. XII.

- The General Conclusion of this Book,* p. 325





T H E
 H I S T O R Y
 O F
 G A R D ' N I N G , & C .

C H A P . I .



IT does not, at first sight, seem *Introdu-*
 necessary to write an *Introdu-*
 ction to a History which is *ction.*
 but an Introduction itself: But
 considering that it is the first
 that has appear'd in this kind, it may not be
 improper to give a short Account of its Uses
 to the World.

'Tis certain, there is no kind of History so
 eagerly catch'd at, as the valiant Atchieve-
 ments, Heroick Examples and Lives of
 Great Soldiers, and the solemn Debates and
 Councils of Learned Statesmen and Senators:
 Yet the Lives of those that have been emi-
 B nent

ment for their Proficiency in other Parts of Learning and Business, are or ought to be read with a peculiar Delight.

In the first we meet with great Examples, which 'tis possible but for few to reach; and Schemes of Government, which Persons of a lower Sphere may never be likely to have any Share in; whereas in this there is a general Entertainment to every busy and intelligent Person; and an Imitation of the Practices of those great Virtuoso's, is in some measure or other in the Power of every Rank or Degree of Mankind: In their Writings we read the intricate and amazing Laws of Eternal Providence presiding over these sublunary Regions, far more entertaining than all the Volumes of *Zeno* the Law-giver, or *Plutarch* the Historian.

So that the History as well as the Practice of Gardening may not be an unwelcome Subject; and we are assured the *Romans* (whose Judgment these modern Ages are deservedly fond of copying) had as great a value for the Memoirs of Men of Wit, Literature, or any other private Accomplishments, as they had for the greatest Politicians and Captains.

Pliny, no doubt, made as great a Figure in the Quality of a Philosopher and Gard'ner, as he did at the Head of the *Roman* Legions; and the *Natural History* he has left, is of as much Value as that of all the *Germanick* Wars.

'Tis certain, one is too often, instead of true Heroism, the unwarrantable Sallies of Ambition, Cruelty, and Bloodshed; whilst the other is an innocent Amusement, and a Companion for Humility, Moderation, and other commendable Virtues.

Since then the earliest and best Accounts we have of Gard'ning are collected from (a) Holy Writ, there is no room left to doubt of its Antiquity, as being very near coeval with the World, and Beginning of Time itself.

That God Almighty was not only the First Author and Founder, but also the Regulator and Planter of *Gardens* and *Gard'ning*, is no less evident from the (b) Text, which saith, *The Lord God planted a Garden Eastward in Eden, and there he put the Man whom he had form'd.* Pater Omnipotens.

And if (as (c) some think) that the *Iconography* or Plan of this Garden, or, to speak more plainly, the Garden itself, was the Work of the Third Day; it may from thence be suppos'd, that Gardens were before Gardeners, (and therefore the immediate Work of God) and that Horoscopy had not been used.

That it commences its Date but a few Adam, Hours after the Formation of the World, and before the Accounts receiv'd of any other Art, is evident from the latter end of the aforementioned Chapter (d), where that Operati-

(a) Gen. 1. (b) Gen. 2. 8. (c) Sir T. Brown's *Gardens of Cyrus*. (d) Gen. 2. 22, &c.

on is recorded of taking the Rib from *Adam*, wherewith the Woman was made; yet tho' from this, Chirurgery may plead high, yet the very Current of the Scripture determines in favour of Gard'ning.

What was the Mathematical Distribution, or how Geographically situated Paradise was, is something uncertain, tho' some affirm it to be (e) near the Mountains of *Armenia*, where the Ark rested after the Universal Deluge, where Gard'ning probably took its second Rise. Others pretend it to be elevated above the common Level of the Earth, and to have been a Pattern to the so-much-celebrated Gardens of *Babylon*.

The Advances Gard'ning made, from *Adam's* Expulsion to the General Deluge, is dubious, there being little left of it, only that he was a (f) Tiller of the Ground: And tho' some of our Divines have piously believ'd that *Adam* was, upon his sincere Repentance, re-admitted into Paradise; yet since the Scriptures mention no such thing, we may more reasonably conclude that the unalterable Decree of Heaven lay heavy upon him: And 'tis more than probable the Reflexion on his unhappy Lapse might deterr him from any Pursuits of this kind, any more than the Necessaries of Life, which he was, by the direful Command of his Maker, destin'd by the Sweat of his Brow to provide for; nor

(e) Sir T. Brown's Gardens of Cyrus. (f) Gen. 3. 23.

does the Sacred Text mention any otherwise of his Sons.

But as soon as that great Inundation was abated, and *Noah* and the rest of his Family were brought out of the Ark, (g) they began to Colonize themselves; and the same Sacred Text relates, that *Noah began to be an Husbandman, and he planted a Vineyard.*

And doubtless from that Time Gard'ning began to flourish, especially those Parts which serv'd either for the Nourishment or Luxury of their respective Times; and if *Zoroaster* were either *Ham*, *Chus*, or *Mizraim*, they were early Proficients in Gard'ning, and, as *Pliny* relates, left a Treatise of it.

Tho' *Abraham* is recorded to have planted a Grove (h) at *Beer-sheba* for his more particular Worship, yet most of his succeeding Generations, as well as himself, living a Pastoral Life in open Fields and moveable Tents, besides their Sojourn in *Egypt*, and long Journey thro' the Wilderness, Gard'ning was doubtless little known or practis'd by them, till the Time that they were fix'd in the Promis'd Land, and not perhaps till *David*, or rather *Solomon*, was anointed over them, to raise the Puissance and Splendor of that Nation.

Which last being, by Divine Appointment, chosen for the Establishment and Quiet of the *Jews*, and to erect their so-much-desired

(g) Gen. 9. 20.

(h) Gen. 21. 33.

Temple, together with a Royal Palace, it may rationally be supposed (however silent the Historical part of the Scriptures are) that Gard'ning had a great share in his Thoughts, since he is represented for so eminent a Botanick; and this is confirm'd by his own Words on another Occasion, (i) *I made me great Works, I planted me Vineyards, I made me Gardens and Orchards, and I planted Trees in them of all kinds of Fruit; I made me Pools of Water, to water therewith the Wood that bringeth forth Trees.*

From these People, and their unhappy Catastrophe of being carried into strange Countries, Gard'ning might be remov'd likewise. For tho' some attribute the *Horti Pensiles* of Semiramis. *Babylon* to *Semiramis* (k) the third or fourth from *Nimrod*; yet others, with more Probability of Truth, to *Nebuchadonozor* the famous King of *Diodorus*; upon which walking and viewing his great Metropolis, and other distant Regions of his Monarchy, elevated his unbounded, ambitious Soul above his Maker, and, by forgetting he was a Man, incur'd the Stroke of Divine Vengeance, which drove him amongst the Beasts into the contrary Habitations of Deserted Wilderesses and Uncultivated Fields.

Egyptians. The *Egyptians* were certainly very early in Gardening, as may be collected from their

(i) Eccles. 2. 4.

(k) Sir T. Brown's *Gardens of Cyrus*.

Writings; but how judicious, is not certain.

Whether the Gardens of *Adonis* and the *Hesperides* be fabulous or not, or what was the Time they were supposed to be in their Glory, I shall not examine; they were however Subjects for the loftiest Strains in Poetry, a Theme from which they have drawn the beautiful Idea's they had of the Pleasures of Gard'ning.

From the first is deduc'd an additional Name to none of the meanest of *Flora's* (l) Train, and a Royal Stamp to the Name of (m) Gardens themselves.

From the second, the History of those beautiful Ladies, who (together with their Gardens of Golden Apples, were under the Care of a watchful Dragon) perhaps an Intimation, that Innocence, Vertue, and Vestal Honour could be no-where so well preserv'd as there; and that the Beauty of those Abodes would make a sufficient Compensation for the Loss of all other enlarged Pleasures. This *Gar-* Mr. *Rowe* has elegantly describ'd:

The Hesperides.

— — — — — *Near the Tritonian Lake,*
Where, by the watchful Dragon kept of old,
Hesperian Plants grew rich with living Gold;
Long since the Fruit was from the Branches torn,
And now the Gardens their lost Honours mourn.

(l) *Flos Adonidis, the Anemone.* (m) *Horti Adonidis, Gardens of Pleasure.*

Such was, in ancient Time, the Tale receiv'd,
 Such by our good Forefathers were believ'd.
 Nor let Enquirers the Tradition wrong,
 Or dare to question now the sacred Poet's Song.
 Then take it for a Truth, The wealthy Wood
 Here, under Golden Boughs low bending, stood :
 On some large Tree his Folds the Serpent wound ; }
 The fair Hesperian Virgin watch'd around, }
 And join'd'd to guard the rich Forbidden Ground. }
 But Great Alcydes came to end their Care,
 Strip the gay Grove, and left the Branches bare.
 Then back returning, sought the Argive Shore,
 And the bright Spoil to proud Erytheus bore.

Rowe Luc.

Homer.

Hesiod.

It is not material whether *Homer* or *Hesiod* preceded each other ; they were both suppos'd to be near Cotemporaries with *Elias* the Prophet ; and the *Grecians* were not the last in this delightful Employ, but both of them left Marks of the Esteem they had for our Subject ; one, by a Treatise on *Agriculture*, &c. from which *Virgil* is suppos'd to have copied the Marrow of his *Georgicks* ; and the other, by a Description of the Gardens of *Alcinous* (n), which he represents to the View of the Wandering Prince *Ulysses*. Thus English'd by Mr. *Eusden* :

Alcinous.

Close by the Gates a spacious Garden lies,
 From Storms defended, and inclement Skies ;

(n) Homer. Odyss. 7.

Four Acres was th'allotted Space of Ground,
 Fenc'd with a Green Enclosure all around.
 Tall-thriving Trees confess'd the thriving Mold;
 The Red'ning Apple ripens here to Gold.
 Here the Blue Figs with luscious Juice o'erflows;
 With deeper Red the full Pomegranate grows:
 The Branch here bends beneath the weighty Pear,
 And verdant Olives flourish all the Year.
 The balmy Spirit of the Western Gale
 Eternal breaths on Flow'rs untaught to fail;
 Each dropping Pear a following Pear supplies,
 On Apples, Apples; Figs on Figs arise.
 The same mild Season gives the Blooms to blow,
 The Buds to harden, and the Fruit to grow.
 Here, order'd Vines in equal Ranks appear
 With all th'united Labours of the Year.
 Some to unload the fertile Branches run,
 Some dry the black'ning Clusters in the Sun:
 Others to tread the liquid Harvest join;
 The groaning Presses foam with Floods of Wine.
 Here are the Vines in early Flow'rs descry'd,
 Here Grapes discolour'd on the Sunny-side:
 Beds of all various Herbs for ever Green,
 In beauteous Order, terminate the Scene.
 Two plenteous Fountains the whole Prospect crown'd,
 This thro' the Garden leads its Streams the round,
 Visits each Plant, and waters all the Ground;
 While That in Pipes beneath the Palace flows,
 And thence in Current on the Town bestows,
 To various Use the various Streams they bring,
 the People one, and one supplies the King.

But

But to follow the Words of Sir *Thomas Brown*, in his *Gardens of Cyrus* :

“ The *Persian* Gallants who destroy'd the
 “ *Babylonish* Monarchy, maintain'd their Bo-
 “ tanical Bravery, and unto them we owe
 “ the very Name of *Paradise*, wherewith we
 “ meet not in Scripture till the very Time
 “ of *Solomon*, and conceived originally *Per-*
 “ *sian* : The Word for that disputed Garden,
 “ expressing in the *Hebrew* no more than
 “ an Inclos'd Field, which, from the same
 “ Root, is content to derive a *Garden* and a
 “ *Buckler*.

Cyrus.

“ *Cyrus* the Elder, brought up in Woods
 “ and Mountains, when Time and Power en-
 “ abled, pursu'd the Dictates of his Edu-
 “ cation, and brought the Treasures of the
 “ Field into Rule and Circumscription; so
 “ nobly beautifying the Hanging-Gardens of
 “ *Babylon*, that he was by some thought the
 “ Author thereof.

Ahasuerus,
 Artaxerxes
 Longi-
 manus.

“ *Ahasuerus*, (whom many conceive to
 “ have been *Artaxerxes Longimanus*) in the
 “ Country and City of *Flowers*, and in
 “ an Open Garden, Entertain'd his Prince
 “ and People, whilst his Royal Bride Treated
 “ the Ladies in the Palace.

“ But if (as others think) King *Ahasuerus*
 “ was *Artaxerxes Memnon*, that found a Life
 “ and Reign equal to his great Memory, our
 “ magnify'd *Cyrus* was his Second Brother,
 “ who gave the Occasion to that memorable
 “ Work, and almost miraculous Retrait of

“ *Xeno-*

“ *Xenophon*, a Person of high Spirit and
 “ Honour, naturally a King, tho’ fatally
 “ prevented by the harmless Chance of Post-
 “ geniture; not only a Lord of Gardens, but
 “ a manual Planter thereof, disposing his
 “ Trees, like his Armies, in regular Ordinati-
 “ on: So that while Old *Laertes* has found a King Laer-
tes.
 “ Name in *Homer* for pruning of Hedges,
 “ and clearing away Thorns and Briars;
 “ while King *Attalus* lives in his poisonous
 “ Plantations of Aconite and Henbane, &c.
 “ while many of the Antients do poorly
 “ live in the single Names of Vegetables;
 “ all Stories agree that *Cyrus* was the first
 “ splendid and regular Planter.” Thus far
 this Authour, whose elaborate and ingenious
 Pen has not a little added to the Noble-
 ness of our Subject.

The Gardens of *Epicurus* were, without
 doubt, the most famous of any in the *Gre-
cian* Empire. He was born, as may be col-
 lected out of (o) *Laertius*, in the 109th
 Olympiad (and so not much before *Aristotle*,
 and consequently *Alexander*, *Aristotle*’s Pu-
 pil:) The Place of his Birth is somewhat
 disputed; *Constantinus Porphyrogeneta*, and
 Others, that he was born at *Samos*; and (p)
Strabo, that he was born at *Lampsacene*.
 Whether these different Opinions might pro-
 ceed from his living some part of his young-

(o) *Diogenes Laertius* *Vitis Dog. & Philosophorum*, lib. 10.

(p) *Strabo*, lib. 10.

er Years in both those Places, is uncertain ; for *Epicurus* indeed was an *Athenian* as (q) *Laertius*, (r) *Suidas*, and infinite other Writers affirm.

But be the Place of his Nativity as it will, he purchas'd a very pleasant Garden in *Athens* for Fourſcore *Minæ*, (every *Mina* being with us Three Pounds two Shillings and ſix Pence, which make Two hundred and fifty Pounds, a good Sum, doubtleſs, in thoſe Times) where he lived with his Friends and Diſciples, and taught Philoſophy. And (s) *Pliny* writes, that he was the firſt that brought into *Athens* the Cuſtom of having, under the Name of *Hortus*, a Garden, the Delights of Fields and Country Manſions within the City itſelf, or rather Suburbs of the City ; whereas until his Time 'twas not the Faſhon to have thoſe kind of Manſions (*Rura*) in Towns, and probably they might have no other Gardens but in their Balconies, as the Hanging-Gardens were.

And indeed, all that I can collect from the Life of *Cyrus* (already mention'd) is, that his Regular and Quincuncial Plantations were no other than Walks, Plattoons, and Avenues, or perhaps the Columnial Diſpoſition of the Pillars that ſupported

(q) *Laertius*, lib. 6. (r) *Suidas* in voce *Epicuri*. (s) *Jam* quidem *Hortorum* nomine in ipſa urbe delicias, *Argas*, *Villaſq;* poſſident ; primus hoc inſtituit *Epicurus* otii magiſter uſque ad eum, moris non fuerat in oppidis habitari *rura*. *Plin.* lib. 19. cap. 4.

the Hanging-Gardens we have been speaking of.

But to proceed: "Hence we may conjecture (says Mr. Stanley, in the Life of Epicurus) that this was the Place which (t) Pausanias reports to have been called, even in his Time, the Gardens of Philosophy; adding, that there was in it a Statue made by Alcemenes, one of the greatest Curiosities in Athens (as may be gather'd from (u) Lucian) and that the Temple of Venus did join to it.

This Garden is often mentioned (says the same Author) in the Plural Number by (x) Cicero, (y) Juvenal, and Others, and sometimes diminutively Hortulus, as Virgil; and this gave name to his Sect of Philosophers; as well as it signified a Garden: For Sextus Empiricus call'd the Epicureans the Philosophers of the Garden, (as the Stoicks the Philosophers of the Stoa or Cloister;) and Apollodorus being in his Time the Master of the Garden, was (as Laertius affirms) call'd the Garden King.

Besides this City-Garden he had at Athens, with Houses belonging to it, and joining upon the City, Epicurus had an House in Melite a Town in the Cecropian Tribe, as Suidas affirms, inhabited by Philæus, one of his Ancestors; thither he sometimes retir'd

(t) Pausanias in Attic.

(u) Lucian in Imag.

(x) Cicero ad Attic.

(y) Juvenal. Sat. 4.

with his Disciples, and doubtless implanted and made him Gardens there likewise.

I shall pass by several Circumstances of his Life, and also his Writings, as they relate not to our present Purpose, and shall only observe, that he was not that Person, which by the Name now common among us, one would take him to be; but, on the contrary, as *Seneca* observes, a sober, virtuous Person, and a great Lover of Learning; only, in Opposition to the Stoicks (who were his profess'd Enemies) he allow'd the chearful Use and Enjoyment of the Benefits of Life, whilst the Others injoin'd a great deal of Abstinence and Severity.

He bestowed his Garden on *Hermachus*, and died in the 2d Year of the 127th Olympiad; he is reported by *Laertius* to have went into a warm Bath, and drinking off a Glass of Wine, exhorted his Friends to be mindful of his Doctrine; upon which that Author has this Epigram:

*Farewell, and bear my Doctrine in your Minds,
Said dying Epicurus to his Friends.*

*Into a warm Bath going, Wine he quast,
And then from Pluto took a colder Draft.*

Stanly's Lives of the Philosophers.

Pliny, in his Catalogue of the Grecian Writers, from whom he extracted part of his Works, enumerates no less than Twenty, and amongst them one *Pisistratus* a noble Athenian,

Athenian, (and call'd by him a King;) this Great Person is, in other Histories, said, by his Eloquence, to have charm'd that State into a Resignation of their Liberties to his entire Subjection, and to have ruled them with all imaginable Justice and Clemency; tho' Others call him a Tyrant: This wise State (the Glory of the World) have in all their Writings left the most affectionate Marks of Esteem they had for our present Subject.

Theophrastus, another of the *Grecian Philo-* Theophrastus.
sophers, ought not to be left out of this Catalogue of Garden-Virtuoso's; he was born at *Ere-*
stus a Sea-Town of *Lesbos*, near *Sigrium*, now call'd *Metyline*; the Time of his flourishing is suppos'd to be about 440 Years from the building of *Rome*, and, as *Salmasius* observes, 390 Years before the Time that *Pliny* wrote his *Natural History*. His Life is writ by *Diogenes Laertius*, and from him copied by *Heinsius* in the *Dutch* Edition of his Works, Printed in *Greek* and *Latin* at *Leyden*, and Dedicated to the States of *Holland*: What he wrote relating to Gard'ning, was chiefly of *Botany*; and indeed, it may be suppos'd to be the Ground-work and Foundation of all that has been writ since on that Subject. He succeeded *Aristotle*, and liv'd in his Garden; and we may guess at the great Veneration he had for Gard'ning, by the Care he took in his Will (as cited by the forementioned *Laertius*) of bequeathing it to his particular Friends to Study in, and for the Re-
pose

pose of his own Bones; he gave particular Orders therein for repairing the Walks, and for a Continuation of *Pompilus*, whom we may suppose to be his Gard'ner, for whom and *Hippias* he had before made a good Provision; and at last, the Manumission and Enfranchisement of the rest of his Slaves or Under-Officers, after a Time then limited, provided they behav'd themselves Well.

Laertius says he lived to be Eighty-five Years of Age. (a) As he lay on his Death-bed, he blam'd Nature for giving Harts and Crows so long Life, that could do no good thereby; and to Men, who do most good, so short; whereas, if Man had been allowed longer Time, his Life might have been adorn'd with the Perfection of Arts and Learning. But to return to the History of Gard'ning.

This appearing to be the State of Gard'ning amongst the *Grecians*, I shall finish this part of my History with that memorable Account given of *Abdolonymus*, as we have it from *Quintus Curtius*.

He is represented (by that eminent Historian and Rhetorician) as a Person, tho' of a Royal Off-spring, yet by some sort of Chance, and by a rigid kind of (b) Honesty, very Poor; and therefore no doubt subject to those violent Concussions and

(a) Cicero Tusculum, lib. 4. (b) *Causa ei paupertatis, sicut plerique, Honestas erat, &c.* Quint. lib. 4.

Perturbations that too much disquiet and disturb the Mind in that State.

Yet is this Royal Person found so virtuously and busily employ'd in the Cultivation of a few Pot-herbs, that neither the Terror of *Alexander's* Arms on the one hand could affright him, nor the Glory of 'em on the other allure him, to take a part in the Contest: And tho' *Asia* was at that time in a Flame, he pursued the Pleasures of his little Spot undisturbed and free from Care, which Lesson one would think he had learnt of the Divine *Virgil*: (c)

*Happy the Man, who, studying Nature's Laws,
Thro' known Effects can trace the secret Cause;
His Mind possessing in a quiet State,
Fearless of Fortune, and resign'd to Fate;
And happy too is he who decks the Bow'rs
Of Sylvans, and adores the Rural Pow'rs;
Whose Mind unmov'd, the Bribes of Courts can see,
Their glittering Baits, and purple Slavery;
Nor hopes the People's Praise, nor fears the Frown;
Nor, when contending Parties tear the Crown,
Will set up one, or pull another down.
Without Concern he hears, but hears from far,
Of Tumults, and Descents, and distant War:
Nor with a superstitious Fear is aw'd,
For what befalls at Home, or what Abroad,*

(c) Felix qui potuit rerum cognoscere Causas, &c. *Virg. Georg. 2.*

*Nor envies he the Rich their happy Store,
Nor his own Peace disturbs with Pity for the Poor.
He feeds on Fruits which of their own accord
The willing Ground and laden Trees afford:
From his lov'd Home no Lucre can him draw,
The Senate's mad Decrees he never saw,
Nor heard at bawling Barrs corrupted Law.*

Dryden's *Translat. of Virgil. Geor. 2.*

And how awkwardly he receiv'd the Royal Vestments from *Alexander's* Officers, is pathetically describ'd in that History: It shall suffice to add here, that when *Alexander* had beheld his Royal Countenance with Surprize, he ask'd him, *How he could possibly bear so inglorious and mean a State of Life?* To which, *Would to God,* says he, *I could bear these Regal Ornaments with the same Equality of Mind these Hands have supply'd my Necessities; and tho' I have had no Superfluity, I have suffer'd no Want.* [A pregnant Instance how subservient the Pleasures of a Garden are towards a virtuous Life, ev'n tho' under the most despicable and meanest Circumstances thereof.] But thus far this noble Pattern of Resignation.

Roman
Empire.

The *Grecian* Empire being translated to *Rome*, no doubt Gard'ning as well as Architecture followed several of the *Roman* Kings, (d) as *Pliny* relates, having a great Veneration for Gard'ning, Agriculture, &c. For

(d) Romani quidem Reges ipsi coluere. *Plin. lib. 19. cap. 4.*

if the *Latin* Word *coluere* be render'd for Dressing and Tilling, which it signifies as well as Honouring, Respecting, or Esteeming, 'tis more than probable that they were manual Tillers and Dressers of their Gardens and Villa's; and this seems to be very much confirm'd by the emphatical Interposition of the Word *ipsi*: And thus I suppose the *English* Editions of *Pliny* translate it, for I have not lately seen any of them.

*Their Kings
actual Wor-
kers in
Gardens.*

These ancient *Romans*, as (e) *Delecampius* in his Annotations on *Pliny* has it, liv'd together in Gardens; which does in no-wise seem improbable, considering the Temperature of that Climate; and the same Editor observes, that they esteem'd it the nearest Resemblance to Heaven that could possibly be found on Earth, if not Heaven itself: Thus *Aeneas* is represented by (q) *Virgil* (an Author very little tainted with the Heathen Superstition) after he had pass'd the *Stygian Lake*, and pressing on towards the happy Abodes of his reverend Father *Anchises*, in Company with the *Sybil*:

*The Com-
mon People
inhabited
in their
Gardens.*

————— They took their Way
Where long-extended Plains of Pleasure lay;
The verdant Fields with those of Heav'n may vie,
With Æther kind, and with a purple Sky.

*The Descrip-
tion of their
Elysium.*

(e) *Delecampius* on *Pliny*, lib. 19. cap. 4.
(q) *Devenere locos lætos & amœna Vireta,
Fortunatorum nemorum sedesque beatas,
Largior hic campos Æther & lumine vestit
Purpureo.*

Virg. Æneid. 6. v. 637.

And when they had arriv'd something nearer the blifsful Place of his Habitation (f) upon a solicitous Enquiry where it was seated :

*To this the sacred Poet thus reply'd,
In no fix'd Place the happy Souls abide ;
In Groves we live, and lie on mossie Beds,
By Chrystal Streams that murmur thro' the Meads.*

Dryden.

In fine, I can't but observe thro' the whole Course of Poetry, how extensive they have carried their Thoughts, not content with the small and diminutive Scenes of Flowers, Greens, &c. but still carrying and prolating them to distant Woods and Meadows.

But to confirm the Value those ancient Thraseas. Heathens had for Gard'ning, &c. (g) *Thraseas*, as the same Editor of *Pliny* affirms from *Tacitus*, was found labouring hard in his Garden, when one of the *Quæstors* was sent to him about Business of great Moment.

Tarquinius Superbus. Even the proud (h) *Tarquinius*, one of the last of the *Roman Kings*, (at least of that Name) is reported by *Livy* to have given Audience (if I may give it so tender a Title)

(f) *Atque huic responsum paucis ita reddidit heros,
Nulli certa domus : lucis habitamus opacis
Riparumque toros & prata recentia rivis,
Inolimus.* ————— *Virg. Æneid. 6. v. 672.*

(g) *Vid. Delecampius's Notes on Pliny, lib. 14. prædic.*

(h) *Capite Papaverum baculo dicitur decussisse, Liv. lib. 1. fol. 13.*

to his Son *Tarquinius Sextus's* Ambaffador ; and there walking in his fuperb, furly Humour, he is particularly describ'd as ftriking the Heads of his Poppy-flowers with his Cane or Staff ; which fhews that Pleasure-Gardens were in ufe among the *Romans*, and not altogether thofe for Ufe, which fome Books of Gard'ning have fome time fince feem'd to intimate. —

History indeed is very filent in this Point, (of which (i) *Pliny* complains) the fame *Livy* mentioning only feveral Gardens, which, by his way of expreffing, one would interpret no other than Kitchen-Gardens ; he adds, that they lay adjoining to a Hill without the City, which Hill had its Name from thence *Collis Hortulorum*, or the Hill of Gardens. Collis Hortulorum. Here, fays one of their (k) Authors, was the Cirque or the Shew-place of their Strumpet *Flora*, who made the People of Rome Heir to thofe Goods ſhe had gotten by prostituting herſelf to the Gentlemen of Rome, leaving alfo a The Fable of Flora. certain Sum of Money to procure a Celebration of her Birth-day ; which, becaufe of her Infamy, the People ſhaming to do, they feign'd her to be the Goddess of Flowers. But to return from this Digreffion, to which I have been infenfibly carried.

The Silence of thofe Historians can't determine againſt this, ſince we may obferve the Historians of theſe Times are altogether as

(i) *Plin.* lib. 14. (k) *Barthol. Latomus* in *Varri* Orac. 7.

*Libra
summa
metat*

omissive in this, as they were then ; and indeed it is hard to collect out of any of our *English* Records any thing of Moment concerning Gard'ning.

Yet I have seen some Maps of ancient *Rome*, which have giv'n some Marks of Gard'ning, amongst which was that of *Martial*, and some others I do not at present remember.

Agriculture without doubt flourish'd mightily in this Monarchical State, since (l) *Pliny* leaves a large Catalogue of Authors, from which he transcrib'd his Works (m) *Quintus Cincinnatus* was by the Republick of *Rome* (afterwards establish'd) chose from the Plough-Tail to be one of the Governours and Consuls of that Democratical State : How great his Valour and Atchievements were, the Historians of those Times make particular Observations.

Quintus
Cincinnati-
rus Consul
of Rome.

But when that sick'ning and divided Scheme of Government was reduc'd to the entire Obedience and Subjection of *Julius* and *Augustus Cæsar*, by the Overthrow of the *Pompeian* Faction, the Arts began to flourish, and no doubt but Gard'ning amongst the rest.

Julius and
Augustus
Cæsar.

Virgil.

Virgil, amongst the Poets, has left us the greatest Taste that they had at that time of Gard'ning ; recommending, as to the Design-

(l) *Plin. lib. 1.* (m) *Quintus Cincinnatus, spes una Imperii Populi Romani, quatuor jugerum colens agrum, à Legatis ad Dictaturam vocatur ; inventus seu fossam fodiens, bipalo innixus, ceu cum araret, operi certe, id quod constat aperti inrentus. Liv. lib. 3. cap. 26.*

ing Part, the (n) Quadrate and Quincuncial Form of ranging Trees, in that incomparable piece of Work the 2d *Georgick*, of which, as well as in his Life, I shall take occasion to say as much as the Room I propose to myself in this History will allow.

(o) He was born at *Mantua*, in the Consulship of *Pompeius Magnus* and *Licinius Crassus*; and if any thing be to be attributed to Dreams, that of his Mother's being deliver'd of a Laurel Branch, might not improbably portend the great Proficiency he was to make in Hortensial and Rural Studies.

Not to mention that part of his History that brought him into the Court and intimate Favour of the great *Augustus* (as being foreign to the present Purpose) he is related to have liv'd near the Gardens of his dear Friend *Mecenas*, where doubtless he made several curious Observations in Gard'ning.

But the Occasion of expatiating his Genius so much in the writing his *Georgicks*, was suppos'd to be from the Desolation that *Italy* was brought to by the continual successive Wars that were between the *Cæsars* and the *Pompeys*, by which means the Ground was uncultivated and unstock'd; and there is little reason to hope that *Gard'ning* had not a share in this common Calamity, which ended in so great a Famine, that *Augustus* hardly e-

(n) Virg. Geo. 2. (o) Vid. Virg. Vir. Ruzo Societar. Jesu, ad usum Delphini.

scap'd being ston'd, being suppos'd by the Populace to be the Occasion of it.

That Prince therefore set himself to work, by all imaginable Methods, to retrieve the Miseries of his Country, by Improvement in Agriculture, and the like; in which *Virgil* was not a little assisting. It was thought by some, that he had begun them long before, and that they were finish'd in his Travels round *Italy*, or at *Mantua*; it being observ'd that his Precepts agreed rather with the *Mantuan* than *Roman* Soil.

But however that be, he has in a few Words excell'd all that ever wrote before, or indeed since him; and considering the Nature of Poetry, how much it forces an Author out of the direct Road of delivering Precepts, he is very intelligible; Brevity was (if it may be so called) his only Fault: How great his Labour must have been, is obvious to any that considers the Strength, I may say the eternal Duration of his Works.

The Substance of his 2d *Georgick*, which chiefly relates to *Gard'ning* (the Theme of the ensuing Subject) is, first, Directions for the Raising of Trees, by the several Methods then in use; then a Description of their Variety, and Rules for the Management of each of them in particular; he points out the Soils in which they thrive best, and takes occasion to run out into that of *Italy*; after which he gives Directions for the discovering the Nature of every Soil; prescribes Rules for
the

the dressing Vines, Olives, &c. and concludes this *Georgick* with a Panegyrick on the Happiness of a Country Life.

In all which he admirably mixes the *Poet*, *Philosopher*, and *Gard'ner* together. There is indeed some superstitious Tenets of the Antients, relating to the Moon, Winds, &c. but this is excusable in a Poet; and *Pliny*, who wrote a considerable time after him, and in Prose too, had much more of that kind in his Works.

I have said, the Nearness of his Abode to the Gardens of his dear Friend *Mecænas* might be the Occasion of many a useful Observation in *Gard'ning*; and to him he addresses himself in the 2d *Georgick*, after he had gone thro' the Method of Raising Trees, in this manner:

*Mecænas, now thy needful Succour bring,
Oh thou, the Better Part of my Renown,
Inspire thy Poet, and thy Poem crown;
Embark with me, whilst I new Tracts explore,
With flying Sails, and Breezes from the Shore.*

It will be impossible for me, in the little Compass I can allow in the History of *Gard'ning*, to make any farther Comment on his Works; but it must be observ'd, that he seems in his highest Raptures in this *Georgick*, when he goes about to describe the Pleasures of Agriculture and Gard'ning: Thus, after he has run thro' his main Business, he breaks out:

O for-

O fortunatos nimium, bona si sua nôrint,
Agrícolas!

English'd by Mr. Dryden:

O happy, if he knew his State,
The Swain, who, free from Business and Debate,
Receives his easy Food from Nature's Hand,
And just Returns of cultivated Land:
No Palace with a lofty Gate he wants
T' admit the Tides of early Visitants.

And a little after :

But easy Quiet, and a safe Retreat ;
A harmless Life, that knows not how to cheat ;
With Home-bred Plenty the rich Owner bless,
And rural Pleasures crown his Happiness :
Unvex'd with Quarrels, undisturb'd with Noise,
The Country King his peaceful Realm enjoys :
Cool Grotts, and Living Lakes, the flow'ring Pride
Of Meads and Streams that thro' the Valleys glide ;
And shady Groves that easy Sleep invite,
And after toilsome Days, a soft Repose at Night.
Wild Beasts of Nature in his Woods abound,
And Youth of Labour patient plough the Ground,
Inur'd to Hardship, and to homely Fare :
No venerable Age is wanting there
In great Examples to the useful Train ;
Nor are the Gods ador'd with Rites prophane.
From hence Astræa took her Flight, and here
The Prints of her departing Steps appear.

By

By this time one would have thought the Poet was quite out of Breath; but as if divinely inspir'd, he renews his Verse:

*Ye sacred Muses, with whose Beauty fir'd,
My Soul is ravish'd, and my Brain inspir'd.*

But tir'd, after a little farther Flight, seems to be gently sinking his lofty Plumes, and hovering down to his desir'd Abode, concludes:

*But if my heavy Blood restrain the Flight
Of my free Soul, aspiring to the Height
Of Nature, and unclouded Fields of Light;
My next Desire is, void of Care and Strife,
To lead a soft, secure, inglorious Life;
A Country Cottage, near a Crystal Flood,
A winding Valley, and a lofty Wood:
Some God conduct me to the sacred Shades,
Where Bacchanals are sung by Spartan Maids,
Or lift me high to Hemus hilly Crown,
Or in the Plains of Tempe lay me down;
Or lead me to some solitary Place,
And cover my Retreat from human Race.*

Dryden.

I might pursue him yet farther, but must hasten to the farther Prosecution of my History. *Virgil* died at *Brundisium*, and has left the following Epigram, written with his own Hand, thus English'd by Mr. *Dryden*:

I sung

Ifung Flocks, Tillage, Heroes : Mantua gave Me Life, Brundufium Death, Naples a Grave.

It would be a great piece of Injustice to omit *Vitruvius*, the celebrated Architect amongst the *Romans* about this Time, who, in his Treatise on Architecture, has left us excellent Directions relating to Situations: These are quoted by most Authors that treat of *Gard'ning*, at the Beginning of their Books; for which Reason I shall content myself, after I have paid this short, but willing, Tribute to the Memory of this great Architect and Gard'ner, and proceed to

Horace, the next of my List of Garden-Heroes, tho' there remains nothing of his, directly relating to our present Subject, as to Precepts in Gard'ning and Husbandry; yet he was, doubtless, a passionate Admirer, as well as an intelligent Practitioner in these Sciences, his Life being chiefly spent in the Pleasures of the Country. He was born at *Venusius*, a City of *Apulia*, and spent the greatest Part of his Time in his Country Grange, situate between *Sabinum* and *Tiburinum*; from which Places the Virtuoso's of that Time resorted to him: And when he was led by his Affairs at any time to the *Capitol*, his Thoughts were never the less drawn from his Rural Delights, taking all the Opportunities of writing to, and hearing from his delightful *Villa*.

It would take up too much time to enumerate all the Strokes he has left, in his incomparable Poems on the Happiness and Delight of the Country, which he seems to express in Raptures not common; but I shall content myself with giving a short Quotation out of his Letter, directed to his Steward, which livelily expresses his Love of the Country :

*Thou Steward of my Woods and pleasant Plain,
Which when I reach, I am myself again ;
Contemn'd by thee, tho' it hath kept alone
Five ancient Dwellers ; and is often known
To send Five Senators to Baria's Town :
Come, now 'tis time ; let's see which of the two,
I from my Mind, or from my Pastures you,
Can pluck Thorns best, and which is better till'd,
And which is better, Horace or his Field.*

And after he had examin'd the Reasons why he prefer'd (contrary to the Opinion of his Servant) the Country before the City, concludes,

——— *My Neighbours smile
To see me busy in my little Toil :
But you had rather be remov'd to Town ;
That way your Mind and eager Wisbes run.
The City slave, the while the Country love,
And envy thee thy Garden and thy Grove.*

*The Ox the Saddle asks, the Ass the Plough;
Let all (that's best) pursue the Arts they know.*

Creech's Horace, Epist. 14. Lib. 1.

Claudius
the Em-
peror.

Claudius the Emperor, of no great Character as to his Government, is by (p) *Suetonius* recorded to have spent his leisure Hours sometimes in his Gardens; and at other times in the Pleasures of the Field; and (q) *Columella*, when he wrote his Tract *De Re Rustica*, confirms the same, inasmuch as that Prince, whilst he was yet young, was a frequent Auditor of their Rural Lectures, and particularly commanded him to compose an Oration on those delightful Subjects.

Cato, *Varro*, *Columella*, and *Palladius* (as I have said) wrote excellent Rules in Husbandry, which are bound up together, and printed in 1529, with Notes by *Beroaldus* and others.

Cato and
Varro.

Cato and *Varro* are the first; of whose Lives there is little that I have seen extant; as to this point; their Writings were very concise and full, but mix'd, like all the ancient Writers, with too many superstitious Conceits. *Columella* is in that Work plac'd the third; he was born at *Gaditanus*, and writ Twelve Books *de Re Rustica*, and another, by way of *Addenda*, concerning Trees, but that is doubted whether genuine or not.

Columella.

(p) Sueton in Vita Claudii.
Rustica. Lib. 11. cap. 1.

(q) Columella de Re

He liv'd in the Time of *Claudius*, and writ in Obedience to his Command, as may be seen in the 11th *Book, Cap. 1.*

Palladius is the last in that List: Besides Palladius. the other part of his Treatise, he publish'd a *Kalendarium Rusticum* (from which Mr. Evelyn seems to take his Method in his *Kalendarium Hontense*) full of excellent Rules to be performed every Month in the Year; and also Tables of the Increase and Decrease of Time. Those four Authors contain the Substance of the *Roman Practice* in the Field and Garden.

But the finishing Part was left to *Pliny*, Pliny. call'd *Plinius Secundus Novocomensis*; he was an Author in *Vespasian's* Time, as appears by his Preface to that Prince.

He writ his *Natural History* at leisure times, having several great Employments under *Vespasian*, to whom he dedicated it. This History consisted of Thirty seven Books, of which those concerning Gardening, &c. were not the least elaborate and valuable. By his placing the Names of Authors, out of which he collected his Precepts, in the Order he has, it may be suppos'd he was no manual and practical Gardener, but rather a Collater out of other Men's Works: However a great deal is due to that laborious Author; for besides, the many Philosophical Tenets of *Horti* and Agriculture, he reduc'd in his Time the Practice of it, especially in Raising Trees, into a few compendious Rules,

Rules, (r) Brevity being what is most admirable in him.

And 'tis by his Works, and those of *Cato*, *Varro*, *Columella*, and *Palladius*, already mentioned, that the Practice of Gard'ning, &c. has been ever since conducted. *Pliny* is said to have been stifled by the Ashes of Mount *Vesuvius*, as he was advancing too near, to seek into the secret Causes of its violent Eruptions; tho' others insinuate, that he was kill'd by one of his own Servants; concerning which, see *Suetonius in Vita Caii Plinii*, or more at large by his Sister's Son, commonly call'd, *The Younger Pliny*.

Seneca.

Seneca, that most excellent Philosopher (as we have it from *Justus Lipsius*) must not escape the Series of this History; the Grandeur of his Gardens, Granges, and *Villa's*, drew upon him the Hate of many of his Cotemporaries: For tho' the Truth of it was, that his Estates were either left him by his Father, or, that they fell to him by the Royal Munificence of his Princes, rather than by an eager Pursuit after, or any other Acquisition of his own; yet he was calumniated as one given to Extortion, Usury, and what not; and that he had accumulated his Wealth out of the Ruins of his Country, (so much does Envy blast the Reputa-

(r) Arbores aut semine, plantato Radice, aut Propagine, aut Avulsione, aut Surculo, aut insito & coniecto Arboris Trunco. Plin. lib. 17. cap. 10.

tion of the most Virtuous, and those that apply themselves to the most innocent and laudable Recreations.) However this be, he had several Houses and Gardens, where he us'd to spend his leisure time; some of which he himself mentions, viz. at *Nomentanum*, *Albanum*, and *Bianium*, which *Juvenal* terms the Gardens of the wealthy *Seneca*: And tho' his Philosophy seems to be that of the *Stoicks*, yet, in Practice, he led a more affluent Life (especially in this respect,) and came up to that of *Epicurus* himself. Supposing, as it may be judg'd, that he might give a Loose to his Inclinations in this Case; that since Providence had bless'd him with innumerable Riches, he could not better bestow them than in charitably Employing of numerous poor Souls, that, doubtless, abounded in that Empire, as well as they do in this.

It may not be improper to make here a Stand, to take a Retrospect upon our present Subject, and see in what State the Rules of Husbandry and Gardening were in general; then 'tis to be observ'd, that Design was not so well understood as 'tis now, at least we have no Plans, &c. remaining of the exact Figure, Decussation, or Distribution, and the Account of them lives only in Description; on which thus the ingenious *Waller*:

Of the first Paradise there's nothing found;
 Plants set by Heav'n are vanish'd, and the Ground;
 Yet the Description lasts: Who knows the Fate
 Of Lines, that shall this Paradise relate? (f)

And indeed, of all the Gardens heretofore mentioned, we don't find any such Remains; and very little besides the Names, not only of Paradise, but also the Hanging-Gardens of *Babylon*, or the Gardens of *Cyrus*, or of the fabulous ones of *Adonis*, the *Hesperides*, *Alcinous*, or even of the so-much-fam'd Gardens of *Theophrastes* and *Epicurus*.

But for promiscuous Planting, *Cyrus* is reported, even in his Youth, to have planted all the *Lesser Asia*: Certainly a great Undertaking, and worthy so great a King; and had his Ambition stopt here, had not the Thoughts of Universal Empire prompted him farther, he might not have fallen a Victim to Female Rage; and after his great Successes, the Preludes of his dismal Tragedy, submitted his Head to the fatal Stroke of the furious *Amazonian Queen*, with this reproachful Speech, *Satia te sanguine, quem satisti*, such as will ever be a Blot on his Name, as long as any of the Histories of those Time shall be extant. To such a fatal Catastrophe does Ambition very often bring the greatest of her Votaries.

(f) See Waller's Miscellaneous Poems, under the Title of St. James's Park.

And when we come nearer the Times of *Pliny*, as little Account is given, none of the Gardens of *Rome*, or any other part of that Empire, being yet extant in Tables, by which 'tis possible to collect any thing; tho' there are imperfect Sketches of the Gardens of *Cæsar*, *Domitian*, *Mecænas*, *Sergius*, *Galba*, *Salust*, and *Martial* in the ancient Maps of *Rome*, as well as the Histories of those Times.

Columella, indeed, has some plain Wooden Cuts; but they aim at no more than the Mathematical Decussation or Boundary of a Field in general; of which as much may be found in any of our Books of Geometry: And I remember to have seen the Plan of a Garden, in a Translation of one of the *Roman* Architects; but the same was very mean, and such as has been out of use with us some time.

But in the Country adjoining to *Rome*, the Monuments of Agriculture, Planting, and Hortensial Care, were very splendid; such were the *Villa's* of *Quintus Hortensius*, *Piso*, *Marius Cæsar*, and *Pompey*; such was the Retirement of *Servilius*, when *Tiberius Cæsar* afflicted the *Roman* Nobles; and such was the voluntary Exile of *Scipio Africanus*, from the Ingratitude of the *Roman* State; and such, in particular, was the *Tusculum* or *Villa Academica* of the incomparable Orator *Cicero*, (of all which *Pliny* has given some Account in several Chapters of his *Natural History*, and some imperfect Remains are or have been

Quintus
Hortensius.

Piso.

Marius
Cæsar.

Pompey.

Cicero.

of them, even in this newer State of *Rome*.) 'Twas there, according to the Custom of the *Grecian* Orators and Philosophers, that he compos'd his learned Orations; and 'twas from them he drew his Plans; and, perhaps, from that of the great *Epicurus* himself, whose Life has already had a Place in this History.

As for the Philosophical Part, the mistaken and superstitious Opinions of the Antients, and which appear every-where in *Pliny*, are of late very much exploded, or at least little regarded, as is the Descension of the Sap, the alternate Government and Motion of Lunar Aspects, &c.

The Practice, indeed, as to the Tilling, Manuring, and Dressing of Lands, Raising of Trees, &c. was by them much farther advanced than any other Part; and 'tis with a great deal of Pleasure that one reads the Works of *Cato*, *Varro*, *Columella*, *Palladius* and *Pliny*, besides the incomparable *Virgil*; in them is contained as brief a Method as possible, the greatest part of the Rules now in use, and such as have not till this Age been much improved: But this will more appear in the Series of the following History, which I now pursue again.

Several succeeding Emperors are related to have spent their Time in their Gardens: The Discourse between *Hadrian* and *Elius Verus Cæsar* in their Gardens, is something remarkable: The great Love (even to Excess) that

*The Empe-
rors Hadri-
an, Ælius
Verus Cæ-
sar.*

that *Clodius Albinus* had for Fruit, is almost Clodius Albinus. incredible; but the more modest Accounts of him, are, that he understood Husbandry very well, and writ a Book of *Georgicks*. The Emperor *Gadianus* is, by *Julius Capitolinus*, reported to have spent his Time betwixt his Gardens, his Baths, and delightful Groves. Gadianus.

The next I shall mention, is the Great *Dioclesian* the 18th Emperor of *Rome*, (Great Dioclesian. in every thing but in his mistaken Zeal against Christianity) who having reigned 22 Years, and atchiev'd many noble Exploits, together with *Maximianus* resigned the Governmet, for the Pleasure and Satisfaction of a Country Life; and at *Salonia* in the Province of *Dalmatia* spent the residue of his Days in Planting, &c.

And when the Affairs of the Empire again requir'd his Care, he was very hard press'd by *Maximianus*, to no Purpose, to reassume his his Government, then in Disorder. In Answer to which, he desired him to come and see his Gardens, how sweetly they prosper'd, and what a Grace, Shade, and Pleasure his long-extended Walks afforded him; from whence he inferr'd, that he would no more desire any such thing as his return to the painful, troublesome, and fortuitous State of Empire: Of whom *Cowley* thus:

*Methinks I see Great Dioclesian walk
In the Salonian Garden's noble Shade,*

*Which by his own Imperial Hands was made :
I see him Smile (methinks) as he does talk
With the Ambassadors, who came in vain
T'entice him to a Throne again.*

*If I, my Friends (said he) shou'd to you show
All the Delights which in these Gardens grow,
'Tis likelier much that you wou'd with me stay,
Than 'tis that you wou'd carry me away.*

*And, trust me not, my Friends, if ev'ry Day
I walk not here with more Delight,
Than after the most happy Fight
In Triumph to the Capitol I rode,
To thank the Gods, and to be thought
Myself almost a God.* —————

*Cardinal
Ferrara.*

*The Belve-
dere Gar-
dens.*

The Gardens of Cardinal Ferrara at Tivoli have some Time since exercis'd the Pens of our most curious Travellers, (and some of the first ;) as well as those of Belvedere, belonging to the great Pontiff, are next : Besides some others, which, for Brevity, I shall pass over. But the more useful part of my Subject, I mean Agriculture, Planting, &c. have not appear'd with that Lustre as it had formerly done in those Countries ; and the Reasons of it, are drawn from the Despotick Power and Pride of the Roman Church, who are for amassing all that they possibly can into St. Peter's Funds, and leave this wholesome Employ. This the Learned Historians of our own Country have already discuss'd.

To return back : There remains but very little of the State of Gard'ning for a long Time ; and the Imperial Seat being divided, and settled chiefly at *Constantinople*, we may suppose that *Gard'ning* and other Arts followed there, or declin'd in the Metropolis of *Rome*, and was afterwards totally destroyed by that great Inundation of Barbarity which overspread *Italy*, and most of the other civilized Nations of *Europe*, by the *Goths* and *Vandals* : *Rome* in particular felt their Fury, by the Devastation of her glorious Piles of Building ; and, without doubt, *Gardening* and all other Arts had their share in that fatal Deluge of Barbarism.

And altho' *Gard'ning* might in some measure, like the *Phœnix*, arise again out of the Ashes of *Italy* ; yet the Completion of it seem'd for *France*, and the other Northerly *European* Kingdoms of *Great-Britain*, which at present much out-doe *Italy* itself, whose Gardens I shall pass over, having as yet seen nothing in comparison to the Nations just before named.

France then seems to be the first Stage on which *Gard'ning* began to appear in such great Lustre : And therein we shall meet with one of the greatest Characters yet produc'd, I mean the late King *Lewis XIV.* of *France* ; Lewis XIV. of France. which great Person, whether by an innate Love or virtuous Disposition to the Glory and Pleasures of *Gard'ning*, or that by the Encouragement of Arts and Sciences, (and a-

mongst them, of *Gard'ning*) he might allure and dazle the Eyes of *Europe*, and thereby the easier carry on the Scheme of Universal Monarchy he had all along been aiming at, is not my Business, neither do I pretend to determine.

But be that as it will, 'tis certain that *Gard'ning* was by his means brought to the most magnificent Height and Splendour imaginable; and it is hard to judge in which Character he appear'd the greatest, whether in his publick one of a King or a Statesman, or in the private one of an Artizan or Gard'ner.

For tho' his Royal Father had made some small Beginnings, at his little House call'd *Trianon*, near *Versailles*; yet all the Buildings and magnificent Gardens of *Versailles*, *Marli*, and *Fontainebleau* are owing to that mighty Monarch; Works so stupendously great (as is very apparent by all the Draughts we have from thence, as well as by the Reports of almost every body) as became only the Pocket and Ambition of one of the greatest and most aspiring Genius's in the World.

And this Example of their Prince, set all the great Men of the Kingdom to follow him, particularly the Duke of *Orleans* at *St. Clou*, &c. so that *France*, now, may well be call'd, in this respect, the Garden of the World, and which no Nation is likely to equal, but those, the Terror of whose Arms he had often experienc'd.

Duke of
Orleans.

Who

Who it was that particularly Design'd and Laid out the Gardens, &c. belonging to that August Monarch, is not known to me; but I suppose it to be his Architects and Chief Builders, who, both There as well as Here, are extremely well skill'd in those Affairs; and I must confess, 'tis to them I owe a great part of that Knowledge I have in the Designing part of *Gard'ning*; their Taste being, generally speaking, greater than *Gard'ners* are; and only want a concurring part of Culture, to render them the best in this Point.

But to return: Whoever laid out the *French King's Gardens*, there were three Men very eminent for their love of *Gard'ning* and Poetry, which are all that I shall take notice of in this History; I mean *Monfieur de la Quintinye*, *Rapin*, and *Boileau*, which I place under this General Head, as they did all of them, either more or less, by their Writings and Practice, adorn and recommend *Gard'ning* to the World.

John de la Quintinye was born at *Poictiers*. *Monfieur de la Quintinye.* in the Year 1626, and was put to School with the *Jesuits* of that City. As soon as he had finish'd his Course of Philosophy, and taken some Lessons of the Law, he came to *Paris* to be call'd to the Bar; but *Monfieur Tambonneau* hearing of his Merit, procur'd him to travel with his Son into *Italy*; and having a natural Love to *Agriculture* and *Gard'ning*, he set himself at all leisure Times before

before he went, to read *Columella*, *Varro*, *Virgil*, and all the other ancient Authors that had treated on that Subject.

By which means he was prepar'd to make such Observations in his Travels, as were likely afterwards to be of use to him. After his Return, Monsieur *Tambonneau* left the making of his Gardens entirely to him: He was very curious in his Experiments, and thereby corrected several Faults that had crept in, or rather had been *ab origine* in the ancient Philosophy.

To mention the whole Course of his Improvements, would be a Work of itself; but, in short, he argued from Experience, *That the Sap never descended into the Roots, but is only congealed, and its Motion stopt by the Coldness and Frigidity of the Air*; about which, he tells us, he had great War with the Philosophers of his Time.

He found (what was unknown before) *That a Tree transplanted does not take Nourishment, but by the Roots it has struck after its being transplanted, which are as so many Mouths, whereby it attracts the Nutritive Moisture of the Earth, and in no-wise by the small hairy Roots that were remaining to it*: From hence he has taught us, that instead of preserving these old small Roots, (as was heretofore practis'd with great Care) that 'tis better to cut them off, for that they commonly grow dry and moulder, which hurts the Tree instead of helping it.

Indeed,

Indeed, his Directions thro' the whole Business of a Fruit-Tree, is so fully handled in his *Compleat Gard'ner*, translated by Mr. *Evelyn*, and in the Abridgment by Mr. *London and Wise*, that 'twould be superfluous to say any more of this incomparable Person; and the only Exception against his Works, is a Quality very peculiar to the *French Nation*, I mean too much Circumlocution.

To proceed in his Life: The *French King* (as we have it from *Monsieur Perrault*) like several other Great Personages, joining the *peaceable Love of Agriculture* to the *tumultuous Passions of War*, took an extreme Pleasure in hearing him Discourse of his Art; and the late King of *England*, as the same Author has it, gave him a great many Marks of his Esteem, in the two Voyages he made into *England*; and made him a Proposal of a very considerable Pension to retain him in his Service.

In these Voyages he gain'd considerable Friendship with several Lords (some few of whom I shall hereafter mention) with whom he kept Correspondence by Letters till his Death: And these Letters (says *Perrault*) are all printed at *London*; which I have not yet seen.

The King his Master, as I have before hinted, made him Director-General of the Fruit and Kitchen-Gardens of all his Royal Houses; and in this Employ he made considerable Augmentations in the old Fruit-Gardens at
Versailles;

Versailles; the Beautifulnes of the Fruit, and the Excellence of the Pulse and Herbage he made it produce, was such as caus'd the King to make the new Potagery, which appears so very surprizing to all Strangers.

There is an excellent Poem address'd to him by (I think) Monsieur *Perrault*, which I have not seen neither : In fine, he was the Person that refin'd the Business and Pleasure of Kitchen and Fruit-Gardens, to a Pitch beyond what what was ever, till that Time, seen, and more than was thought possible for one Man to be able ever to do : And (till the Succession of two eminent Persons in these Kingdoms, who have very much outstript him) has not had his Fellow in any Century that History gives us Account of.

'Twill be needless here to say much of his Family : He died much lamented by all ingenious Men ; and the King was pleas'd to express his Sorrow to his surviving Widow, saying, *That he was as great a Sufferer by it as she ; and that he despair'd of ever repairing the Loss of him, by any other Person.*

Rapin.

I shall but just mention Monsieur *Rapin*, his incomparable *Latin* Poem being translated by an ingenious and worthily-dignified Clergyman of the Church of *England*, and a great Lover of Gardening, Mr. *Gardiner* Sub-Dean of *Lincoln*. In this Poem is contained the whole Body of Gard'ning, and, by the additional Help of Notes, would be of excellent use to the World.

Monsieur

Monſieur *Boileau* is another who has ho-
noured this Employ both by his Pen and
Practice; ſeveral Parts of his Miſcellaneous
Poems being Glances at it, I ſhall only beg
leave to tranſcribe part of his Epiſtle to his
Gard'ner, which being ſomething Jocoſe, may
may help to alleviate this tireſome Courſe
of Hiſtory. He begins:

*Thou, as Laborious, as thy Maſter Kind,
Who ſeems to bleſs thy Toil, by Heav'n deſign'd;
Thou daily do'ſt thy grateful Task renew,
To guide the Wood-bind, and the ruder Yew, &c.*

And running thro' the Buſineſs and Toil
of his Man *Anthony*, with ſome merry Obſer-
vations on his laborious Innocence, draws
towards a Concluſion, by obſerving, that poſ-
ſibly he had detain'd him too long from his
neceſſary Buſineſs, in this manner:

*'Tis time for me to end; beſides, I ſee
Yon Melons with Impatience wait for thee:
The Flow'rs, methinks, to one another ſay,
Where's Anthony, that he's not here to day?
Is it the Wake, or for ſome new-made Saint,
Do we our Drink ſo long, tho' thirſty, want?
Something's fall'n out, or why has he forgot
To handle, as he's wont, the Watring-pot.*

Mr. Ozell.

His Thoughts on the Happineſs of a Coun-
try Life, addreſs'd to *Lamoignon*, are per-
haps

haps as beautiful as any of the Poets, not excepting *Virgil* and *Horace* themselves. He begins :

*Yes, Yes, Lamoignon, with the Town I'm tir'd,
And hate the Follies that I once admir'd:
I to the Shades, my only Refuge, flie,
And thus present its Landskip to your Eye.*

I can't possibly follow him, without swelling this History beyond its Bulk : Besides, his Poems being in Print, I referr my Reader to them, with a Quotation out of the middle of that Poem ;

*Give me the Shades, the Forests, and the Fields,
And the soft Sweets which Rural Quiet yields ;
Oh, leave me to the fresh, the fragrant Breeze,
And let me here awhile enjoy my Ease :
Let me Pomona's plenteous Blessings crop,
And see rich Autum's ripen'd Burthen drop ;
'Till Bacchus with full Clusters crowns the Year,
And gladdens with his Load the Vintager.*

Mr. Ozell.

More might be said ; but I haste home to *Great-Britain*, after this Search into the Account of Horticulture : And if it be thought I have been too short in those of the modern *Italian* and *Gallick* Virtuoso's in *Gard'ning*, I promise (by the assistance of Providence) to make amends in time to come.

And

And as for *Great-Britain* and *Ireland*, why Great-Britain. may we not think that the ancient *Druids*, The Druids. and since them the Inhabitants of these Islands, were always Lovers of Planting, &c. at least such as were for the more immediate Use of the Laboratory and Kitchin, and also of Forest-Work, since the Oak is known by all to have been sacred to them?

'Tis not improbable to suppose that the *Romans*, upon their Conquest of these Islands, introduc'd (amongst other Arts) that of Husbandry and Gardening to a great Perfection; seeing it was always a Maxim of Policy amongst them, to amuse the People they conquer'd, by this means; and not only so, but for this Reason (as well as upon the Account of the Terror of their Arms) the Unconquer'd very often admir'd and submitted to their Government; of which Specimens may be seen in most of the *Roman Histories*, but especially in *Julius Caesar's Commentaries*, where the Reasons made use for their Submission to the *Roman Yoke* (as some call'd it) was the Politeness and Bravery of their People, in Peace as well as War: And that the successive Governments of *Great-Britain* encouraged the Planting and Preserving of Wood, Husbandry, and the like, the Laws by them made is a sufficient Demonstration.

Also, when we come nearer to the History of these Times, and peruse the Writings of the Botanicks, we shall find the same sorts of
Trees,

Trees, and several kinds of Flowers, have been cultivated a hundred Years ago, as now, tho' perhaps not in so great abundance.

Queen Elizabeth.

About the Reign of Queen *Elizabeth* of immortal Memory, we may suppose some of the Old Avenues and Walks adjoining to Noblemens Houses, were planted; and of that Date seems to be the Old Walks at *Hatfield* (and at several other Places,) planted, no doubt, by that great Minister of State the Lord Treasurer *Burleigh*.

Lord Treasurer Burleigh.

King James I.

What was particularly done by her Royal Successor King *James* I. is not certain; but that That Ingenious Prince (the Glory of all Crown'd Heads, for Learning) should miss this, amongst other his refined Amusements and Speculations, wou'd be irrational to suppose.

Lord Verulam.

And (to strengthen this Supposition) it must be observ'd, that in the Reign of this Learned Prince, flourish'd some of the greatest Philosophers, and some of them great Lovers of Gard'ning, (*viz.*) the Right Honourable the Lord *Verulam*, Sir *Henry Wootton*, Sir *Hugh Plat*, &c. The Writings of this Noble and Ingenious Lord are extant still amongst us; and Gard'ning may be remark'd to have a great share in his Thoughts.

Sir Henry Wootton.

And by the Account given by Sir *Henry Wootton*, Gard'ning had as early an Original in *England* as any-where; the same worthy Person intimating, that a Garden of my Lord *Verulam's*, as I remember, (for I have not lately

lately seen that (a) Book) was one of the best he had seen either at Home or Abroad; and the polite Writings of that Gentleman (who had spent most part of his Time in *Italy*, being Ambassador at *Venice* some Years) are sure Pledges of the Knowledge he had in that Matter: The Love to Architecture, and other of the Liberal Sciences, the Elements he drew out of *Vitruvius*, (of whom mention is already made) seem to convince us of the Truth of both his Observation and Judgment: And indeed, this worthy Person appears to be one of the first that had any Thoughts of that Rule, Proportion, and Design which has since took place in *Gardening*.

It was about this Time that Sir *Hugh Plat* Sir Hugh Plat. writ his Treatise (as one may judge from the Style) under the Title of *The Garden of Eden*, wherein is found many nice Experiments in Gardening; but, like those of my Lord *Verulam's*, and all the Antients, full of the old Philosophical Tenets, now exploded; none of the Authors of those Times having that noble Relish and Gust of Gardening (nor of the true Depths of Philosophy) that has of late shone so bright in these *European* Countries.

In the most fatal and unhappy Reign of King *Charles I.* King Charles I. it is too much to be fear'd there were less Advances made in Gard'ning,

(a) *Sir Henry Wootton's Elements of Architecture.*

and other parts of Natural Philosophy, than before; the Divine, Philosopher, and all Ranks laying aside their Books, and taking a share in those intestine Troubles; and in the Usurpation of the pretended Protector, it was more the Custom to cut down, than to plant and repair Plantations: Nor could it otherwise be expected in that dismal Interval, since both the Laws of Nature and Government too were in continual Convulsions; and under the sacred Name of Religion, all the Depradations and Waste imaginable committed.

Milton. But altho' Things were in this terrible Combustion, we must not omit the famous Mr. *John Milton* one of *Cromwell's* Secretaries, who, by his excellent and never-to-be-parallel'd Poem of *Paradise Lost*, has particularly distinguish'd *Gard'ning*, by taking that for his Theme; and shews, that tho' his Eyes depriv'd him of the benefit of Seeing, yet his Mind was wonderfully mov'd with the Philosophy, Innocence, and Beauty of this Employ; his Books, tho' mix'd with other Subjects, being a kind of Philosophical Body of *Gard'ning*, as well as Divinity. What more beautiful than that where he describes our Primogenial Parents in their untainted State of Innocence; a lively Representation of a Vertuous Couple in the sweet Enjoyment of their Garden! *Book 4. line 299.*

*For Softness She, and sweet attractive Grace;
He for God only, She for God in him.*

And a little after :

*Under a Tuft of Shade, that on a Green
Stood whisp'ring soft, by a fresh Fountain side,
They sate them down; and after no more Toil
Of their sweet Gard'ning Labour than suffic'd
To recommend Cool Zephyre, and made Ease
More Easie, wholsome Thirst and Appetite
More grateful, to their Supper-Fruits they sell,
Nectarine Fruits, which the compliant Boughs
Yielded them side-long, as they sate recline
On the soft Downy Bank damask'd with Flow'rs;
The sav'ry Pulp they chew; and in the Rind,
Still as they thirsted, scoop the brimming Stream.*

These delicious Fruits, as they lull'd them
to Repose, so they fill'd them with the most
Exalted Thoughts; and thus we find them
(as our ingenious Author describes) fill'd
with Adoration, for the innumerable Benefits
of their Maker, in their Evening Hymn :

*Thus at their shady Lodge both stood,
Both turn'd, and under open Sky ador'd
The God that made both Sky, Air, Earth, and
[Heaven,
Which they beheld, the Moon's resplendent
[Globe,
And Starry Pole : Thou also mad'st the Night,
Maker Omnipotent; and Thou the Day,
E 2 Which*

*Which we, in our appointed Work employ'd,
Have finish'd; happy in our mutual Help,
And mutual Love, the Crown of all our Bliss,
Ordain'd by Thee: And this delicious Place,
For us too large, where thy Abundance wants
Partakers, and uncropt, falls to the Ground.*

And line 771, describing their bless'd Repose:

*These, lull'd by Nightingale's, embracing, slept,
And on their naked Limbs the Flow'ry Roof
Shour'd Roses, which the Morn repair'd.
[Sleep on,
Bless'd Pair: And Oh, yet happiest, if ye seek
No happier State, and Know to Know no more.*

Thus sweetly did this great Poet paint the Innocence and Beauty of a Country Life, in the happy Possession of *Paradise* by our First Parents. Happy, thrice happy Man, had his Pen been employ'd on no other Subject.

King
Charles II.

Upon the happy Restitution of the Royal Family, anno 1660. Planting began again to raise its dejected Head; and in this Reign it was, that those preliminary Foundations of Gard'ning were laid, that have since been rais'd to such a stupendous Height.

'Tis certain that Prince, whose Thoughts and Expressions of Things were allowed by all to be Just, did plant the large Semi-circle before the Palace at *Hampton-Court*, &c. in pursuance of some great Design he had form'd
in

in *Gard'ning*, besides what he did at *Windsor*, and in other Places: And Sir *William Temple* relates, that in Honour of his own Country, and contrary to the Boastings of the *French*, and other foreign Ministers, the King, in his mild and ingenious manner of expressing himself, said, *He lik'd those Gardens, or that Country best, which might be enjoy'd the most Hours in the Day, and the most Days in the Year, which he was sure was to be done in England, more than in any Country whatsoever.* A Phrase worthy a King of *Great-Britain*, and a Lover of his Kingdoms.

The Royal Garden in *St. James's Park*, part of which is now in the Possession of the Right Honourable the Lord *Carlton*, and the upper part belonging to *Marlborough-House*, was of that King's Planting; which were, in the Remembrance of most People, the finest Lines of Dwarfs, perhaps, in the Universe. Mr. *London*, of whom I shall say more at the latter end of my History, presuming before Monsieur *de la Quintinye* the famous *French* Gardener, (whose Works are both translated and abridg'd) to challenge all *France* with the like: And if *France*, why not the whole World?

To this Prince is likewise owing the Planting and Repairing the Walks in *St. James's Park*, on which the ingenious Mr. *Waller* writ a Poetical Essay; and having it now in my Hands, I shall transcribe a part of it,

tho' I know Mr. Evelyn has done it before me:

*Near this, my Muse, what most delights her, sees
A living Gallery of aged Trees :
Bold Sons of Earth, that thrust their Arms so high,
As if once more they would invade the Sky.
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.
Here Charles contrives the ord'ring of his States ;
Here he resolves his neighb'ring Princes Fates ;
What Nation shall have Peace, where War be made,
Determin'd is in this Orac'lous Shade.
The World, from India to the Frozen North,
Concern'd in what this Solitude brings forth.*

And running through the adjacent Beauties of Whitehall, &c. finishes his Poem :

*Here, free from Court Compliances, he walks,
And with himself, the best Adviser, talks
How peaceful Olive may his Temple shade,
For mending Laws, and for restoring Trade ;
Or how his Brows may be with Lawrel charg'd,
For Nations conquer'd, and her Bounds enlarg'd.
Of ancient Prudence here he ruminates,
Of rising Kingdoms, and of falling States ;*

What

*What ruling Arts gave great Augustus Fame,
 And how Alcides purchas'd such a Name.
 His Eyes upon his native Palace bent
 Close by, suggest a greater Argument ;
 His Thoughts rise higher when he does reflect
 On what the World may from that Star expect
 Which at his Birth appear'd ; to let us see
 Day, for his sake, could with the Night agree.
 A Prince on whom such diff'rent Lights did smile,
 Born the divided World to reconcile.
 Whatever Heav'n, or high extracted Blood
 Could promise or foretel, he'll make it good,
 Reform these Nations, and improve them more
 Than this fair Park, from what it was before.*

How far the Lustre of Gardens and Planting might have been carried by this Royal Planter, is uncertain ; his Affairs being much unsettled, and several other great Expences, which exhausted his Finances, were certainly a great Obstruction to it.

There does not remain much of what King ^{King} James did, or designed to do : This unhappy ^{James II.} Prince pursuing Measures of another nature, and having quite different Designs in his Head, no less than that of Arbitrary and Despotick Power ; whatever Halcyon Days might seem to shine at the Beginning of his Reign, yet afterwards Planting was at a Stand, and never pursued in so good Earnest as in his Successor ^{King} King ^{William} William's time : And indeed, the Completion of Gard'ning seems to be reserv'd, amongst ^{the III.} many other great Actions and Qualifications

of that Prince, to eternize his Memory, and make him appear to the World as great a *Gard'ner* as he was a *Soldier*. But I return to the Nobility and Gentry in King *Charles* the 1st's and King *James* the 1st's time, and take a View of what they have done herein.

And first, I shall make some Remarks on the Botanick Part of Gard'ning, and therein of the *Physick-Garden* at *Oxford*, &c.

The Pitch to which Botanick Knowledge was, even before this Time, arrived, must not escape our Notice. The laborious Works of *Gerard* and his Commentator *Johnson*, of *Mr. Parkinson* and *Ray*, deserve our utmost Tribute of Thanks; as likewise to *Mr. Rea*, the Author of *Flora*, *Ceres* and *Pomona*, the practical and plain Method in which he has deliver'd his Precepts, are admirable; but all is crown'd in the *Physick-Garden* at *Oxford*, (as it is set down in *The Present State of Great-Britain*.)

“ Among the several noble Structures and
 “ great Conveniences of Learning (says that
 “ Author) wherewith this famous University
 “ is adorned, this of the *Physick-Garden*, plac'd
 “ by the River *Charwel*, claims not the least
 “ Place, founded, built, and the Donation
 “ thereof made to the University, in the
 “ Year 1632, by the munificent Benefaction
 “ of *Henry Danvers* Earl of *Danby*, then li-
 “ ving at his House in *Cornbury*, who pur-
 “ chas'd five Acres of Ground South of
 “ *St. Mary Magdalen's*, and thereon erected
 “ about

“ about the Square thereof most stately Walls
 “ and Gates ; which Walls are 14 Foot
 “ high, of the best squar'd and polish'd
 “ Stone, the like not to be elsewhere seen ;
 “ and one Gate thereof at the Expence
 “ of 5 or 600*l.* on the Front of which
 “ this Inscription is to be seen,

*Gloria Dei optimi Maximi Honori Caroli Regis,
 In Usum Academiae & Reipublicae, 1632.
 Henricus Com' Danby ;*

“ and endowed the same with an annual Re-
 “ venue to Perpetuity, for the Maintenance
 “ and Keeping of the same, and its great va-
 “ riety of Plants, whereof it now contains
 “ many Thousands, for the Use and Honour
 “ of the University ; serving not only for
 “ Ornament and Delight, and the pleasant
 “ Walking and Diversion of the Academical
 “ Students, and of all Strangers and Travel-
 “ lers, but of great Use also, as is easily
 “ found, among all Persons desirous to im-
 “ prove their Botanical Inclinations and
 “ Studies ; and for the pleasant Contempla-
 “ tion and Experience of Vegetative Philoso-
 “ phy, for which here is suppos'd to be as
 “ good Convenience as in any Place in *Europe*
 “ (if not the best) as also for the Service of
 “ all Medicinal Practitioners, supplying the
 “ Physicians and Apothecaries, and who else
 “ shall have occasion for Things of that
 “ Nature, with what is right and true,
 “ fresh

“ fresh and good, for the Service and Life
“ of Man.

This Garden was first made by Mr. *Bobart*, Father to the present Mr. *Jacob Bobart*, to whose Care it is now committed, who being an excellent Scholar as well as a Gard’ner, has carried on that Universal History, begun by the learned Dr. *Morrisan* deceased, and is entitled *Botanick Professor* in that famous University.

The many Gardens and Walks that are in and near this University, add not a little to its Lustre; such are the Walks of *Magdalen-College*, &c. But the Walks that are in the Fields, to which every Student is to pay a Moiety, ought not to be forgot; which put together, may not, improbably, be short of the glorious Academies of *Athens*, *Corinth*, or any other to be found in History. *Cambridge* has likewise attempted the same, but not with so good Success.

The Right Honourable the Earl of *Essex*, and the Lord *Capel*, amongst the Nobles; and *John Evelyn* Esq; and Sir *William Temple*, amongst the Gentlemen; *Cowley* amongst the Poets, and *Rose* amongst the Gard’ners, made up a great part of the Virtuoso’s of that Reign.

I shall begin with *John Evelyn* Esq; one of the greatest Writers we have had in Gardening, as well as in several other Matters; and shall take the rest in their Order, with what Remarks may be made on their Writings or Practice. This

Virtuoso’s
in King
Charles
the II^d’s
Time.

Mr. Eve-
lyn.

This Ingenious and Learned Person, like another *Virgil*, was appointed for the Retrieving the Calamities of *England*, and reanimating the Spirit of his Country-men, for their Planting and Sowing of Woods, as that wherein consisted their Strength and Security, in the Continuance of their Wooden Walls, and those floating Castles that were by Nature designed to secure their Commerce, to visit distant Nations to fetch home their Riches, and in short, to make them (without intestine Divisions) the most formidable Nation in the World. How he has acquitted himself, is very well known at present, his Books being in the Hands of most of the Learned; and 'tis to be hoped they will be continued down to the latest Posterity amongst the most ingenious and useful Writings.

Neither was his Labour less in Matters nearer relating to *Gard'ning*, in his Translations, and in his *Kalendarium Hortense*, (of which, as I have before intimated, he took the Pattern from *Palladius*.) He translated *Quintinye's Compleat Gardener*, with another smaller Tract, from the *French*, was in his time the best Linguist, and to him it is owing that *Gard'ning* can speak proper *English*. His Philosophical Discourse of *Earth*, is accounted amongst the best Writings of the *Royal Society*.

As he begun, so he continued 'till his Death, a great Lover and Observer of *Gardening*;

dening, tho' not at his own Expence; yet in his readiness to give Advice, he merited general Thanks. In short, if he was not the greatest Master in Practice, 'tis to him is due the Theoretical part of Gard'ning. But I need say no more, his own Works, which are publick, are a clearer Demonstration of the Greatness of his Genius, than any Monument I can raise to his Memory.

Sir Wil-
liam Tem-
ple.

Sir *William Temple* being the next in my Account that has honoured Gardening with his Pen, I shall place him here, and leave those two Nobles to bring up the Rear, and compleat this Class of Garden Worthies.

He was the Son of Sir *John Temple*, born at *Sheen*, the Place where he always spent his sweet Hours of Retirement; by the natural Propensity of his Genius toward all useful Knowledge, and particularly Gard'ning, and by his Conversation Abroad with Ministers sent from all the *European* Courts to the General Congress in *Holland*, where he was more than once Ambassador Extraordinary and Plenipotentiary, he hit upon a noble taste of Gard'ning, and was the Author of one of the politest Essays, under the Title of *The Garden of Epicurus*, that has yet appeared: For albeit he might be mistaken in his Opinion concerning the planting Peaches Northward; yet it is undeniably true, that they have Peaches an hundred Miles off *London*, within ten or fifteen Days as soon as they have there; and that 'tis not altogether

gether the Heat of the Sun, but the Clearness of the Soil, that accelerates the Growth of Fruit, to which a Gravelly Bottom is a help : and in all other respects he came up to that pitch as was expected from his ingenious Pen. That he had a great love to Gardening, appears by his own Writings, and several kinds of Fruit brought over by him out of *Holland*, &c. as well as by the Testimony of his Neighbours yet living, the greatest Consolation of his whole Life being, in the lucid Intervals he had from Publick Employments, in his beloved Gardens at *Sheen* ; in which 'tis said, he order'd his Heart to be interred, after his death. His works are generally well known ; but lest by any means Posterity shou'd want better Information, he was one of the Plenipotentiaries for the King of *Great-Britain* at the Peace of *Nimwegen*.

The Plantations of the Right Honourable the Lord *Capel* are still to be seen at *Kew* Lord Capel at Kew. over-against *Brentford* : The greatest advance made by him herein, was the bringing over several sorts of Fruit from *France* ; and this Noble Lord we may suppose to be one that held for many Years a Correspondence with Monsieur *de la Quintinye*, (as has been before observed.) The Earliness in which this Lord appear'd in Gard'ning, merits a very great place in this History, and a better Pen than mine to draw it.

Earl of Essex,
at
Cashio-
bury.

It must not be pass'd by, that *Cashio-bury*, the Seat of the Right Honourable the Earls of *Essex*, was one of the first Places in *England* where the ingenious spirit of Gard'ning made the greatest Figure; for altho' great Additions have been made there within a few Years last past, the main Foundation was laid by that Worthy and Honourable Patriot of his Country, under the more immediate Conduct of Mr. *Cook* his Gardener, yet living; who has likewise oblig'd the World with a Discourse concerning the *Raising of Forest Trees*, &c. which is still extant. I must confess, I never see that truly-delightful Place, without being more than ordinarily ravish'd with its Natural Beauty.

To enumerate what is due to the Ingenious Virtuoso's of this Age, the *Members of the Royal Society*, would fill a Volume much larger than this I am writing; I shall only therefore give a short Account of them, as they are distinguish'd in those Works, and in other Writings of that kind.

To Seignior *Malpighius* an *Italian* we owe the most accurate Anatomization of Plants that have yet appeared. Much is likewise due to the Labours of of Dr. *Grew* on that Subject.

From the Learned and Ingenious Mr. *Boyle* we have received many valuable Experiments in Vegetative Philosophy: To Dr. *Beale*; *That the Fibres of a Tree reach from Top to Bottom, from the Roots up to the extremest*

Parts

Parts of Fruit and Wood-Branches; by which means there is a constant Passage for the Lymphatic Juices, as well as for the Air, which is as necessary in the Vegetable as Animal Life.

From Dr. Woodward; That there abounds Dr. Woodward. in all Water, more or less, Terrestrial or Nitrous Particles, which insensibly ascend the Passages of all Plants, and are sure Helps in their Fructification and Growth. This he has very accurately recorded in the *Transactions* of that Society, drawn from Experiments on all sorts of Water, of which Rain and Pond-Water abounds the most.

What Praise is there not due to the very great Labours of Mr. Mortimer, and to Mr. Mortimer, &c. other Rustic Authors that went before him, as Messieurs Hartlib, Blythe, and Plat, Sharrock, Nourse, and innumerable Others; and last of all, to those ingenious Observations lately publish'd by the Reverend Mr. Lawrence, who, amidst the more severer Studies of a Clergyman, for his innocent Amusement, deigns to look into the Garden, to shew the World that in truth it is an Exercise that not only becomes the Greatest, but also the Best of Men; an Employ not unbecoming that sacred Function they are initiated in, but of the greatest Advantage to refresh them, amidst the more solemn Duties of God and Religion.

But when we come to the Ingenious Mr. Ray, Mr. Ray. the admirable Tracts that we have in all parts of Experimental Philosophy, especially in

in Vegetables, are so very full and numerous, that I must pass them over with this general Acknowledgment, inasmuch as they will many of them be found in the ensuing Work; and his *Wonders of the Creation* ought to be read by all.

Doubtless these Gentlemen had the sublimest taste of Gard'ning that ever any had: They were not content with *Fertur*, 'tis reported, (as was my Lord *Bacon*;) but *Experientia docet*, we are taught by Experience so and so: And when they came to make those Inferences, which are or ought to be the Result of every virtuous Man's Labour and Practice, as they studied it on purpose to demonstrate the Being of a God infinitely Wise, Powerful, and Good; so they always concluded their Speculations in this or the like Phrase, *O Lord, how manifold are thy Works! in wisdom hast thou made them all: the earth is full of thy riches.*

Psal. civ.
24.

And altho' Vegetation is in some respects accounted the meanest part of the Creation, yet from thence the poorest Person may argue, *If this Tree or Plant can't be made by the most curious Artist amongst us; how is it possible that Chance, or the fortuitous course of Atoms, should jump together in its Formation, or form the Earth on which it germinates and flourishes?* And from thence will revolve, that *there must be an Almighty Power, that not only made, but also still governs these creeping Vegetables, as well as the*
procereſt

procereſt Cedars in Libanus : And concludes, in the words of the *Pſalmiſt*, *All thy Works ſhall praise thee; O Lord, and thy Saints ſhall bleſs thee : they ſhall ſpeak of thy Kingdom, and talk of thy Power. To make known to the Sons of Men his mighty Acts, and the glorious majeſty of his Kingdom. Thy Kingdom is an everlaſting Kingdom, and thy Dominion endureth throughout all Generations.* Pſal. cxlv.
10, 11,
12, 13.

To return from this beautiful Digreſſion : I can't but recommend to Perſons of my own Profeſſion, the Study of Vegetative Philoſophy ; for their Practice being conſiderably more than any Gentleman's can poſſibly be, what Advances may they not ſoon make ? The only Difficulty is, the Abſtruſeneſs of its Terms ; which I ſhall, ſome time or other, take an Opportunity of Explaining, and of reducing the Opinions of the Antients and Moderns, on the *Arcana* of Vegetation.

But I muſt not paſs over the Character of one of the beſt of Maſters as well as Gardeners, I mean the Right Honourable the Lord *William Ruſſel*, Son to the then Earl of *Bedford*, which I chuſe to place next to the laſt Lord mention'd, on account of their Sufferings in the ſame Cauſe. I ſhall not pretend to touch upon the Matter of their unhappy Fall, that being ſet in a true Light by other Hands ; it ſhall ſuffice me to ſay, as I had it from a near and dear Relation, *That by the Loſs of that zealous Aſſertor of the Liberties*

VOL. I. F of

of his Country, besides those, and the more natural Properties of a tender Husband and and Father, a Character he was very well known to deserve by all that had any Acquaintance of him, the World was deprived of one of the best of Masters and Encouragers of Arts and Sciences (particularly Gard'ning) which that Age produc'd. As for his Works in Gard'ning, they were none of the smallest; for being possess'd of a plentiful Fortune, by the Marriage of his Vertuous Lady, who is still living, he made *Stratton*, about seven Miles from *Winchester*, his Seat; and his Gardens there some of the best that were made at that time, such indeed as have mock'd some that have been since done: But the Untimely Fall of that true Lover of his Country, prevented his farther pursuit of that Matter, in which, I am well inform'd, he designed more. The Gardens at *Southampton-House* in *Bloomsbury-Square* were also of his making, and are as well as any of that Model. I have been more particular in this, on occasion of the Loss I may have sustain'd in so great a Friend, (being brought up in that Place where he us'd to spend his happy Days) whose Memory I beg leave to Admire, and whose Death I, with all true Lovers of their Country's Liberty, do heartily bewail. He was Beheaded the 22d of *July*, Anno 1683.

Gard'ning still advancing to a higher and higher pitch all that Reign, (*viz.* King *Charles* II'd's) there seem'd to be nothing wanting so much as the Recommendation of it by the *Muses*; for which Province *Mr. Cowley* was certainly the fittest: The first he wrote, was Four Books in *Latin* Verse, upon Herbs, Plants, Trees, &c. wherein he followed the Doctrine of the Antients in the specifick Division of their Plants, and all other Things that were necessary for such a Work. These were writ, as Bishop *Sprat* observes in his *Life*, during the Time of the Unhappy Rebellion and Usurpation of *Oliver Cromwell*; for, coming to *England* in Disguise, and that he might the better correspond with the Royal Party here, and send Intelligence of the State of Things, he furnish'd himself with Books; and under pretence of studying Physick, he retir'd into *Kent*, where he compos'd those excellent Lines afore-mention'd. But that which he then made use of as a Vizer, grew afterwards familiar, and so broke through the cloudy Shades of a domestick Exile. His Delight in *Gard'ning*, and the other Diversions of a Country Life, afterwards encreasing with his Liberty, he surpass'd (if possible) the Divine *Virgil* himself. Of the several Themes he chose to display the Liveliness of his Fancy, and the Seraphick Idea's he had of *Gard'ning*, I shall only chuse this which follows:

*Where does the Wisdom and the Pow'r Divine
 In a more bright and sweet Reflexion shine?
 Where do we finer Strokes 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 those his inferior Ways,
 (Tho' not less full of Miracle and Praise)
 Upon the Flow'rs of Heav'n we gaze,
 The Stars of Earth no Wonder in us raise,
 Tho' these perhaps do more than they
 The Life of Mankind sway.*

Ascribed to Cowley to Mr. Evelyn.

He is observed to have writ these Essays towards the latter part of his Life; amongst which, this to Mr. Evelyn is extremely fine, and the whole is allowed to be of the sublimest Taste of any thing that has appear'd on this Subject. He died the 3d of August, Anno Dom. 1667. and is buried in Westminster-Abbey, whose Monument and Books will, I hope, excuse my giving any farther Account of him, and preserve the Memory of this *English Maro* to Euturity.

Mr. Rose. Mr. Rose, of which I am in this last place to speak, was first Gardener to the Lord *Essex* at *Essex-House* in the *Strand*, and afterwards to his Royal Majesty King *Charles II.* at the Royal Garden in *St. James's Park*: He was esteemed

esteemed to be the best of his Profession in those Days, and ought to be remembred, for the Encouragement he gave to a Servant of his, who has since made the greatest Figure that ever yet any Gardener did, I mean Mr. *London*, of whom I shall take occasion to speak more by and by. Mr. *Rose* writ a Treatise of *Vines*, and also something, as I remember, of *Fruit-Trees*, which I have not lately seen. 'Tis true the first has not the desired Effect in *England*, nor so much as he seem'd to assure the World it would: However, he may be well rank'd amongst the great Virtuoso's of that time (now dead) who were all well pleas'd to accept of his Company while living.

In this Century flourish'd Sir *Thomas Brown*, Sir Thomas Brown. who wrote several excellent Tracts, almost in all Hands. The Sepulchral Urns found in *Norfolk*, and the *Gardens of Cyrus*, were some of the first of his Productions. He was bred up at *Winchester-School*; then at *Pembroke-College* in *Oxford*; and afterwards practis'd Physick in *Norwich*. The noble Elegance of his Style has since induc'd many to read his Works (of which that of *Cyrus's Gardens* is some of the brightest) tho' they have had little Inclination to the Practice of Gard'ning itself. There remains nothing, that I have heard, of his putting Gard'ning actually into Practice himself: But some of his last Works being Observations on several Plants mentioned in Scripture, and of Garlands and

Coronary Garden Plants and Flowers, 'tis reasonable to suppose he did; and that the Love he had so early and late discover'd toward it, was compleated in the delightful Practice thereof.

Dr. Henry
Compton,
late Lord-
Bishop of
London.

I had almost forgot to mention a Right Reverend Father, whose Love towards *Gard'ning* ought by no means to be omitted, inasmuch as he may be said to be not only a Father of the Church, but likewise of *Gard'ning*. He was of the Loyal and Noble Family of the *Comptons*, Earls of *Northampton*, whose Characters, in other respects, are recorded by the Historians of other kinds; tho' concerning his Gardens (which took up a great part of his leisure Time) nothing has been yet made publick. He was a great Encourager of Mr. *London*, hereafter to be mentioned, and probably very much assisted him in his great Designs. This Reverend Father was one of the first that encouraged the Importation, Raising; and Increase of Exoticks, in which he was the most curious Man in that Time, or perhaps will be in any Age; and by the Recommendation of Chaplains into foreign Parts, had likewise greater Advantages of improving it than any other Gentleman could. He had above 1000 Species of Exotick Plants in his Stoves and Gardens, in which last place he had endenizon'd a great many that have been formerly thought too tender for this cold Climate. There were few Days in the Year, till towards the latter part of his Life, but he

was

was actually in his Garden ordering and directing the Removal and Replacing of his Trees and Plants. A virtuous and laudable Pattern, and a Person by whom *Gard'ning* has not a little been recommended to the World.

It would be an unpardonable Omission, not to mention those Virtuous and Honourable Persons amongst the Ladies, who have likewise shewn a particular Veneration and Esteem for the Subject we are upon.

To say little of the *Floralia* or Flower-^{Roman} Feasts, observ'd annually on the four last ^{Ladies.} Days of *April*, on account of the ignominious part of that History; tho' 'tis probable the Diversion of those Ladies was more in Honour of Flowers than *Flora* herself: Their Custom was on those Days to bind Chaplets of Flowers on each other's Heads, and to compose and sing Verses suitable to the Occasion; perhaps not much unlike our own Country Milk-Maids, who (instead of Plate, as in *London*) have, in some Countries Westward, Garlands made of Flowers, which seem much properer in this Case. How far, and from whence the original Rise of this was, is uncertain, but perhaps from the ancient *Floralia* of the *Romans*.

But to continue our Antique History: The inextricable Mazes and Forest-work Hangings wrought by the *Phrygian* and *Tyrian* Dames, &c. describe the particular Delight they took in the Woody and Flow'ry

Scenes; and that Flowers were not only in use, but were the Ornaments and Delights of the *Roman Ladies*, is deducible from the Example of *Cleopatra*, who in the midst of that Rage and Confusion she was in, chose them for the Covert of her expiring Tragedy.

And to come nearer Home, besides one of the *Bedford Family* mentioned by *Sir William Temple*, we have since had Ladies of the greatest Quality that have honour'd and admir'd Gard'ning and Planting in a peculiar manner.

Amongst many that might be nam'd, the *Dutchess-Dowager* of *Beaufort* (lately deceas'd) deserves our mention, not only on account of her own Virtues, but also for her near Relation to the *Capels*, that have already had a Place in this History. *Badmington* in *Glostershire* was the Seat where this noble Lady us'd to spend those Moments that many other Ladies devote to the tiresome Pleasures of the Town. What a Progress she made in Exoticks, and how much of her Time she virtuously and busily employ'd in her Garden, is easily observable from the Thousands of those foreign Plants (by her as it were made familiar to this Clime) there regimented together, and kept in a wonderful deal of Health, Order, and Decency, if they are now the same as about eight or nine Years ago, when I had the Happiness, with some others, of seeing them.

Besides,

Besides, her Servants assured us, that excepting the times of her Devotion, at which she was a constant Attendant, *Gard'ning* took up two thirds of her time: The great Favour she held towards Virtuoso's in her own way, I have in several great Instances heard from Messieurs the *Bobarts*, both very eminent in Botanick Amusements.

Of a less exact, but yet to a more useful Account, was the Employ of one of the Countesses of *Lindsey*, of the *Wharton* Family, Countess of Lindsey. who by her Industry has left considerable Monuments of her Care and Pains, very grateful to this and all future Times, for the Umbrage and Safety it affords, in less than 40 Years, to her present Survivors, and the great Advantages it may make to immemorial Posterity. These Plantations are seen at the Seats belonging to this Noble Family in *Lincolnshire*, some of which have been since cut out into Gardens, &c.

This Lady was reputed to be a continual Attendant and Supervisor of her Works, without any regard to the rigid Inclemency of the Winter-season; and not only so, but also in the Measuring and Laying out the Distances of her Rows of Trees, she was actually employed with Rule, Line, &c.

When Men are observ'd to busie themselves in this diverting and useful Employ, 'tis no more than what is from them expected; but when by the Fair and Delicate Sex, it has something in it that looks supernatural, something so much
above

above the trifling Amusements of Ladies, that it is apt to fill the Minds of the Virtuous with Admiration, and may very well retort on the dull, unactive part of Mankind, the Sluggishness of whose Lives denote a sorry, mean, and base-spiritedness of Mind; while these illustrious Heroins shine with unusual Splendor, and by their Actions perpetuate their Memories to the latest Date of Time.

And what thoughtful and rational Being is there whose Reason can be so mightily adumbrated as to neglect this, a Business that carries with it all the Motives imaginable? Yet how much is it forgot, or at least how much more of it might be done, did not a Lethargick kind of Infatuation lie upon the Spirits of a great part of the World?

Neither does the Fame of these Female Virtuoso's end here, since from one of them the World has some Poetical Remains concerning the Beauty, Innocence, and harmless Enjoyment of a Country Life and Business, equal to the highest Raptures either of *Pindar*, *Flaccus*, or *Maro*, I mean the incomparable Mrs. *Catherine Phillips*, in two Essays, one directly under the Title of a *Country Life*; and the other in an Invitation to a Lady, under the borrowed Name of *Rosania*, to come and live with her in the Country; wherein, after a short Introduction, she argues as if her Soul was more than ordinarily affected with that way of Living:

Mrs. Phillips.

For

*For a Retirement from the Noise of Towns,
Is that for which some Kings have left their Crowns;
And Conquerors, whose Lawrels press'd the Brow,
Have chang'd it for a quiet Myrtle-Bough.*

And then, upon an enumeration of the false
Glosses of Worldly Pomp, sums up all :

*Thus all the glitt'ring World is but a Cheat,
Obtruding on our Sense things Gross for Great :
But he that can enquire and undisguise,
Will soon perceive the Sting that hidden lies ;
And find no Joys merit Esteem, but those
Whose Scene lies only at our own dispose.
Man, unconcern'd without himself, may be
His own, both Prospect and Security. [hurld;
Kings may be Slaves themselves, by their own Passions
But who commands himself, commands the World.
A Country Life assists this Study best,
Where no Distractions do the Soul arrest :
There Heav'n and Earth lie open to our View ;
There we search Nature, and its Author too ;
Possess'd with Freedom, and a Real Estate,
Look down on Vice, and Vanity, and Fate :
There (my Rosania) will we, mingling Souls,
Pity the Folly which the World controuls :
And all those Grandeurs which the World does prize,
We either can enjoy, or will despise.*

And now I come to that *Crisis* wherein
Gardening advanc'd to its highest Meridian,
by the Encouragement of King *William III.*
of glorious Memory, and his Royal Consort ;
and

King Wil-
liam III. of
Great-Bri-
tain, and
Q. Mary.

and may be brought, amongst other Things, to help to eternize the Memory of those Great Princes.

The Foundation of great Designs being laid at *Hampton-Court* (as is before observ'd) by their Royal Uncle King *Charles II.* it was thought to be one great Inducement to those Princes to take up their chief Residence there, and *Gard'ning* soon felt the happy Effect of it. The *Great Garden*, that Garden next the River, call'd now the *Privy Garden*, and *Wilderness*, and *Kitchen-Gardens*, were made with great Dispatch; the only Fault was, the *Pleasure-Gardens* being stuffed too thick with *Box*, a Fashion brought over out of *Holland* by the *Dutch* Gardeners, who us'd it to a fault, especially in *England*, where we abound in so good *Grass* and *Gravel*: But upon all other Accounts the Gardens were noble, and Their Majesties Designs yet nobler. Upon the Death of that Illustrious Princess, *Gard'ning* and all other Pleasures were under an eclipse with that Prince; and the beloved *Hampton-Court* lay for some time unregarded: But that Sorrow being dispelled, His Majesty reassumed his farther pursuit of *Gard'ning*, in altering and making a considerable Improvement to the Gardens, and making that great *Terrass* next the *Thames*, the noblest Work of that kind in *Europe*. This was done in the Reign (too short) of a Prince always at War in Defence of the Liberties of *Europe*;
yet

yet in the least Interval of Ease, Gard'ning took up a great part of his Time, in which he was not only a Delighter, but likewise a great Judge; as was likewise that excellent Princess, of whom He and the Nation were too early bereft: This active Princess lost no time, but was either Measuring, Directing, or Ordering her Buildings; but in Gard'ning, especially Exoticks, she was particularly skill'd, and allowed Dr. Pluknet 200 l. per Ann. for his Assistance therein. She was so remarkable in this, that Arch-Bishop Tillotson, in her Funeral Sermon, takes particular notice of it in Words to this Purpose, for I have not lately seen the Sermon it self: O how good, how happy a Life was this, not of vain unprofitable Ease, but of true Honour and Usefulness to her Country! How innocent were her Diversions, such as Building, Gard'ning, and all other Improvements! How does her Life upbraid theirs, that are at the end of it, without doing any Solid or Virtuous Action!

But the Queen being dead, this Loss was followed by another in a few Years, of the Death of the King himself. The Gardens at Kensington were part of them made likewise by that Prince; but the finishing of them was left a Work for the pious and immortal Memory of our late Gracious Queen Anne, of which we shall see more hereafter, and return to the Nobility and Gentry of Great-Britain, who were all this while very busie in Imitation

tion of the Royal Examples of the then King and Queen.

And here it may not be improper to begin with that Nursery and Fund of Gard'ning and Plants, with which the Nation was afterwards stock'd, I mean *Brumpton-Park*, which, from the ingenious Mr. *Evelyn*, we may place above the greatest Works of that kind ever seen or heard of either in Books or Travels.

Brumpton-Park.

This vast Design was begun some Years before the *Revolution*, by four of the Head-Gardeners of *England*, Mr. *London*, Gardener to the aforesaid Bishop of *London*; Mr. *Cook*, Gardener to the Earl of *Essex* at *Cashiobury*; Mr. *Lucre*, Gardener to Queen-Dowager at *Somerset-House*; and Mr. *Field*, Gardener to the Earl of *Bedford*, at the then *Bedford-House* in the *Strand*, and appear'd to all that heard of it a Work worthy of the greatest Encouragement.

One of their first Undertakings was at the Right Honourable the Lord Viscount *Weymouth's*, at *Long-Leat* in *Wiltshire*, where these four Partners abode every one his Month, and in the Intervals attended their own Business; of which the new Nursery before-named was not the least; but some time after Mr. *Lucre* and Mr. *Field* dying, and Mr. *Cook* selling his Share, it was divided into two Shares only, under Mr. *London* and Mr. *Wise*, who were the Persons that have since carried it to its highest pitch, which, some

Lord Weymouth's at Long-Leat.

some Years ago, was, by a Person of Judgment, and no great Friend to that Undertaking, valu'd at between 30 and 40000 *l.* (perhaps as much as all the Nurseries of *France* put together.)

But now let us look, as I have already hinted, amongst the Nobility and Gentry, which at this Time were every-where busied in Making and Adorning their Gardens and Plantations. To enumerate and set down the History of Gard'ning in its several Particulars in this Reign, would require a Volume of itself, but will be for the most part summ'd up in the Person and Character of *George London Esq;* Superintendent of Their Mr. Lon- Majesties Gardens, and Director-General of don. most of the Gardens and Plantations of *Great-Britain.*

I am not well enough inform'd, neither is it material I should go back to the Birth and Education of this eminent *Gard'ner*; his Industry and Natural Parts soon and sufficiently recommended him to the Nobility and Gentry, that he was courted and carest'd by all; so true it is, *That the Gifts of Nature are much more valuable than those of Original Birth and Fortune, or even Learning itself:* And to the eternal Honour of the present Age be it spoken, never was Vertue, laudable Industry, nor Art more encouraged, of which the Person we are here speaking of is an undeniable Instance.

I shall

I shall content my self therefore to find him under the Care and Instruction of Mr. *Rose* (whose Character has been already drawn.) The early and vigorous Appearances he made in Business were soon discover'd by his Master, who spar'd no Pains, nor hinder'd him of any Liberty, whereby he might improve himself. After he had been with him about four or five Years, he sent him (if I am rightly inform'd) into *France*, the greatest Seat of Learning at that time in the World, especially in the Errand he went about. Soon after he returned, he was preferr'd to the Bishop of *London's* Service before-mention'd; and in a few Years more, he (with his Associates) entred on that great Undertaking of *Brumpton-Park*; and upon the *Revolution*, was made Superintendent of all Their Majesties Gardens, for which he had 200 *l.* a Year, and a Page of the Back-Stairs to Queen *Mary*; and it was particularly observed; that he assisted at the *Revolution*, in carrying the then Princess *Anne* to *Nottingham*, from the Fury of the *Papists*.

Mr. *London* and Mr. *Wise* being Joint-Partners, and thus, as it were, both possess'd of the Royal Favour, and the Purfes of the King, Queen, and Nobility, left no Stone unturn'd to carry on their Designs. Soon after the Peace of *Ryswick*, Mr. *London* took another Journey into *France* with the Right Honourable the Earl of *Portland*, who was sent by King *William* Ambassador-Extraordinary

nary on that Occasion; and then it was that he made those Observations on the Fruit-Gardens at *Versailles*, which are publish'd in the *Preface* to their *Abridgment*.

After the Death of the Queen, and not many Years after her, the King, their Royal Successor Queen *Anne* (of pious Memory) committed the Care of her Gardens in chief to Mr. *Wise*, Mr. *London* still pursuing his Business in the Country. It will perhaps be hardly believed, in Time to come, that this one Person actually saw and gave Directions, once or twice a Year, in most of the Noblemens and Gentlemens Gardens in *England*. And since it was common for him to ride 50 or 60 Miles in a Day, he made his Northern Circuit in five or six Weeks, and sometimes less; and his Western in as little Time: As for the South and East, they were but three or four Days Work for him; most times twice a Year visiting all the Country-Seats, conversing with Gentlemen, and forwarding the Business of *Gard'ning* in such a degree as is almost impossible to describe. In the mean time, his Collegue manag'd Matters nearer home with a Dexterity and Care equal to his Character: And in truth, they have deserv'd so much of the World, that 'tis but common Justice to transmit their Memory unto Ages to come.

But to speak more particularly of the Knowledge Mr. *London* was suppos'd to be Master of in this Matter, the little Opportu-

nity he had in laying a foundation of Learning, was, without doubt, a great obstruction to his progress in Vegetative Philosophy, which is involv'd in so many hard Terms; this, nevertheless, he overcame purely by Industry; and what he wanted in one, he abounded with in the other. He was perfectly well skill'd in Fruit, which seem'd to be his Master-piece: As for other parts, as Greens, Trees, Flowers, Exoticks, and the like, he certainly had as much Knowledge as any one Man living: And tho' he might not always come up to the highest pitch of Design, yet that might be attributed to the Haste he was generally in; and it can be no great Blemish to his Character, that he was not the greatest Person in every thing, when 'tis surprizing to find he could possibly know so much; so great a Surprize indeed, that we must hardly ever expect his equal, much less any one that will exceed him. The Planting and Raising of all sorts of Trees, is so much due to this Undertaking, that 'twill be hard for any of Posterity to lay their Hands on a Tree, in any of these Kingdoms, that have not been a part of their Care.

Mr. *London*, by his great Fatigues in Heat and Cold, notwithstanding naturally of a healthy, strong Constitution, was at last seiz'd with an Illness which carry'd him off, after a few Months Languishing. I shall take no farther notice of him, than what relates to my Purpose in *Gard'ning*, in which he has

left a laudable Example to all that shall have the Encouragement to enter, and the Courage and Strength to perform what he did. He died towards *Christmas*, in the Year 1713.

Before I conclude the Historical part of this Work, I must remark something of our late pious Queen, whose love to *Gard'ning* was not a little. Her first Works were the Rooting up the Box, and giving an *English* Model to the Old-made Gardens at *Kensington*; and in 1704 made that New Garden behind the Green-house, which is esteem'd amongst the most valuable Pieces of Work that has been done any-where.

Queen
Anne.

The Place where that beautiful Hollow now is, was a large irregular Gravel-pit, which, according to several Designs given in, was to have been fill'd; but that Mr. *Wise* prevail'd, and has given it that surprizing Model it now appears in. As great a Piece of Work as that whole Ground is, 'twas near all compleated in one Season, viz. between *Michaelmas* and *Lady-Day*; which demonstrates to what a pitch *Gard'ning* is arriv'd within these twenty or thirty Years.

The Box-work at *Hampton-Court* was also pull'd up some time after, and the Gardens laid into that plain but noble manner they now appear in.

Blenheim
Gardens,
begun in
1704.

All the Business done by Mr. *Wise*, of Moment, for any of the Nobility, was for his Grace the Duke of *Marlborough* at *Blenheim*: This stupendous Work (begun and most part finish'd in three Years-time) may be reckon'd amongst the greatest of these two Gentlemens Undertakings.

Sir Rich.
Child's at
Wansted
in Essex.

Sir *Richard Child's* at *Wansted* in *Essex* is the next, and in some respects the the best of the two: This was begun in 1706, a Design worthy of an *English* Baronet, and equal to the greatest *French* Peer; and this was one of Mr. *London's* last Undertakings; and I believe the very last was, that noble Design of the Right Honourable the present Earl of *Carnarvan*, at *Edger* in *Hertfordshire*, before the finishing of which he died: And this I take occasion to mention, that I may at the same time perpetuate one of the most Illustrious and most Noble-spirited Genius's of this Age, who, notwithstanding his familiarity in all other Arts and Sciences, seems to have made Gard'ning, and the august Imbellishments of his Country-Seat, his Darling and Favourite-Employ; and where this Noble Person ought to receive as great Encomiums as ever *Lysander* bestow'd on *Cyrus*, or the *Eastern* Queen on the sacred and wise Botanic and Gard'ner in *Holy Writ*.

The Earl
of Carnar-
van's, at
Edger in
Hertford-
shire.

And shall we not, because not of so late a date, celebrate, at least just mention (tho' it be promiscuously) the Right Honourable

nourable the Earls of *Scarborough, Sunderland, Rochester, and Chesterfield*; the Dukes of *Montague, Bolton, and Kent*; not to omit, and that for many weighty Reasons, the late, and, no less eminent in his love to Gardening and Agriculture, the present Illustrious and most Noble Dukes of *Devonshire*, with many Others, amongst some of the greatest Ornaments of Arts and Sciences, especially Gardening, that History has produc'd, in their several *Chateau's* and Seats of *Stanstead, Althorp, New Park, &c.* in those of *Bowden, Hackwood, and Wrest*, and last of all, in that stupendous Performance of *Chatsworth*; in the Conduct of which, these Great Personages have baffled the Designs and escap'd the Censures of their most inveterate Enemies, as well as they have those that are Enemies to true Religion and Liberty.

Several other Noblemen, Admirers of Gardening, &c.

These, and such-like august Designs as these, which are to be seen in many Places now, denote that Greatness of Mind that reigns in the *English Nobility* and *Gentry*. And it can't but argue a true Gust and Relish of Things they have at present, and what may reasonably be expected from futurity; and indeed, I can't but be of the Opinion, that it is an undeniable Argument of the virtuous as well as polite Disposition of this Age, and that both Religious and Rural Thoughts highly possess and illustrate the Minds of the greatest Nobility.

'Tis certain, no Nation in the World is bless'd with more natural Conveniences than we are: The Atheist has no reason to argue against the Hills, or other Excrescences of the Earth, as a Blemish of the Creation; since 'tis from them we have those Springs that refresh the Valleys, the Beauty of which adds such a Magnificence to our Gardens, and such as few Countries (especially those adjoining to us) enjoy so well as ourselves.

'Tis true, we do not abound so much as they do with Oranges, and some other delicious Fruits, but in their room we have the more durable and serviceable Blessing of Oak, besides fructiferous Trees, proper enough for our Use, and that which abundantly commands them all, I mean our Ships, and the Balance of Trade.

If our Seasons are something more uncertain than they are in other Countries, we have no occasion to repine, since the general Temperature of our Climate makes a sufficient amend; and that Royal Person afore-mention'd has worthily observ'd, *We can longer and better enjoy our Gardens, than they can either in the more Frigid or Torrid Clime.*

King
Charles II.

In fine, The consideration of our Happiness is such, that I cannot but exult with a late Geographer, *O happy and blessed Britain, didst thou but know thy own Happiness! Thy Gardens are like Paradise, thy Valleys like Eden, thy Hills like Lebanon, thy Springs like Shiloh, thy Rivers like Jordan! Abundantly stor'd*
thou

thou art with all the Blessings both of Heaven and Earth.

After mention of some Forest-works done by the Right Honourable the Earl of *Ranelagh* at *Cranborne*, and the Right Honourable the Earl of *Hallifax* at *Bushy-Park*, I shall conclude this History with that truly Ingenious Lover of Architecture and Gard'ning, the Right Honourable the Earl of *Carlisle*, in his Wood at *Castle-howard*, the highest pitch that Natural and Polite Gard'ning can possibly ever arrive to: 'Tis There that Nature is truly imitated, if not excell'd, and from which the Ingenious may draw the best of their Schemes in Natural and Rural Gardening: 'Tis There that she is by a kind of fortuitous Conduct pursued through all her most intricate Mazes, and taught even to exceed her own self in the *Natura-Linear*, and much more Natural and Promiscuous Disposition of all her Beauties.

From this imperfect Survey of the Writings and Practice of the most Eminent and Illustrious Virtuoso's in Horticulture, &c. one may collect how dear the Pleasures of Gard'ning, Planting, and Agriculture were. There is, doubtless, much more of this Subject that has escap'd my narrow Knowledge of History and Letters; and some I have purposely omitted, as fabulous, at least as too much strain'd by Poets, such as the Oracular Grove of *Dodona*, *Delphos*, and the like;

as also the dismal Fate of *Erefichtbon*, or the other uncertain Stories of the *Hamadryades*, to whose peculiar Care the Vegetative Inhabitants of those Nemorous Abodes were committed.

For the Imbellishment of this History, I might have summon'd the Panegyricks of *Xenophon*, *Maximus Tyrius*, of *Plato* and *Cicero*, of *Petrarch*, of *Cato* and *Seneca*, of *Tibullus* and *Politianus*, and also have produc'd the Political Institutions of *Romulus* and *Numa Pompilius*, and of those Laws that confirm'd the Encouragement of Agriculture and Planting by the Emperor *Justinian* and Others, but that I find it already done to my hand by several Rustic Authors. To *Quintus Aricinatus*, I might have added *Manlius Curius Denatus*, who after he had conquer'd *Pyrrhus*, and expell'd him out of *Italy*, had several times triumph'd with Glory and Renown, and had very much enlarg'd the *Roman* Empire by his noble Achievements, return'd with infinite Affection to his former Rural Exercises, and there concluded the residue of his Days with the greatest Tranquillity, Rest, and Satisfaction of Mind. To *Manlius*, might be added *Attilius Catalinus*, who for his singular Virtue, was call'd from the Plough, to be Dictator also; and yet afterwards, for the great love he bore to Agriculture, chose rather to live privately in the Country, and to weary himself with Digging and Ploughing

ing his Land, than to be a Prince of the *Romans*, and possess the highest Place amongst the Senators.

I might have descanted upon the Veneration the Ancient *Egyptians* had for Onions, Leeks, and other Culinary Food, and the Pretences that They, the *Persians*, *Greeks*, and *Romans* have to the Original and Derivation of Agriculture and Gard'ning; but I leave those uncertain Accounts, and draw towards a Conclusion, after some Reflexions on this History, and the Delights of these Retirements.

The Ingenious Author of the *Spectators*, whose *Lucubrations* are so much admir'd in this Age, has painted and described the Beauty and Pleasure of these Rural Delights in the most moving Terms: “ If we suppose (says he) that there are Spirits or Angels that look into the Ways of Men, as it is highly probable there are, both from Reason and Revelation; how different are the Notions they entertain of us, from those we are apt to form of one another? Were they to give us in their Catalogues of such Worthies as are now living, how different would it be from that which our own Species would draw up? We are dazzled with the Splendor of Titles, the Ostentation of Learning, the Noise of Victory: They, on the contrary, see the Philosopher in the Cottage, under the Pressures of what little Minds
“ call

Spectator,
Vol. 8.
Num. 611.

“ call Poverty and Distress: They don't look
 “ for Great Men at the Head of Armies,
 “ or amongst the Poms of a Court; but
 “ often find them out in the Shades and
 “ Solitudes, and in the By-paths of Life:
 “ The Evening's Walk of a Wise Man is
 “ more illustrious in their Sight, than the
 “ March of a General at the Head of
 “ a Hundred thousand Men: A Contem-
 “ plation on God's Works, a voluntary Act
 “ of Justice to our own Detriment, a gene-
 “ rous Concern for the Good of Mankind,
 “ Tears shed in silence for the Misery of
 “ Others, a private Desire of Resentment
 “ broken and subdu'd, in short, an unfeign-
 “ ed Exercise of Humility or any other
 “ Virtue, are such Actions as are Glorious
 “ in their Sight, and denominate Men Great
 “ and Reputable.

Neither can it be suppos'd that these Di-
 vine Thoughts and Actions tend to enervate
 or enfeeble the Mind, or (as it is by the
 same Author express'd) “ to sooth it into
 “ a deep Melancholy, and depress it from
 “ Actions truly Glorious, since (as he adds)
 “ Titles and Honours are the Rewards of
 “ the Virtuous; on the contrary, it cools
 “ the Head, and strengthens the Heart and
 “ Hands of the Valiant, and makes Conduct
 “ and Courage triumph over the irregular
 “ Passions and Actions of Mankind; gives
 “ them so true a relish of Heroism and
 “ Valour, that upon all emergent Occasions
 “ they

“ they have appear'd the most Illustrious
 “ and Heroick Examples of History ; no
 “ laudable Ambition transgresses its Rules,
 “ nor no desperate Attack surmounts its
 “ Courage.

Quintus Cincinnatus, already quoted, is an admirable Instance of Courage and Conduct, who, notwithstanding the Rusticity of his Birth and Education, was call'd to be Dictator, an Employ that the *Romans* never conferr'd on any but on very great Occasions, and lasted no longer than six Months ; and *Cato*, *Cicero*, and *Pliny*, the beloved Heroes of the *Roman* State, shine as remarkably in History for this, as any of their matchless Accomplishments of Eloquence, Zeal and Courage.

Cyrus had not been blameable, had his Ambition been regular, since he is one of the first that violated that sacred Maxim that *Justin* records to have reign'd in those early and halcion Days of the World, and at that Time when, as he observes, the manner was, *rather to defend than enlarge their Territories*.

Neither does the Arms of *Dioclesian* detract from his Innocence ; but those Pleasures are oppos'd to the extravagant Sallies of Ambition, Cruelty, and Revenge which have then and since taken place in the World, to the utter Destruction of the Peace, Quiet, and Safety of Mankind ; it shews that Goodness is much more valuable than Greatness. But to close this, the same Ingenious Author
 adds

adds the Example of *Aglaus*, a very poor, but pious and obscure Person.

Mr. Steele.

“ The Oracle being ask'd by *Gyges* (a
 “ rich King of *Lydia*) Who was the Wisest
 “ Man? Reply'd, *Aglaus*. *Gyges*, who ex-
 “ pected to have heard himself nam'd on this
 “ Occasion, was very much surpriz'd, and
 “ curious to know who this *Aglaus* should
 “ be; and after much enquiry, he was found
 “ to be an obscure Countryman, who employ'd
 “ all his Time in cultivating a Garden and
 “ a few Acres of Land about his House; on
 “ which Subject the admirable and seraphick
 “ *Cowley* has poetiz'd and concluded :

*After long Search and vain Enquiry, past
 In an obscure Arcadian Vale, at last
 Th' Arcadian Life has always shady been,
 Near Sopho's Town (which he but once had seen)
 This Aglaus, who Monarchs Envy drew,
 Whose Happiness the Gods stood Witness to;
 This mighty Aglaus he was lab'ring found
 With his own Hands in his own little Ground.*

*So, Gracious God! (if it may lawful be,
 Amongst those foolish Gods, to mention Thee)
 So let me act on such a private Stage
 The last dull Scene of my declining Age:
 After long Toiles and Voyages in vain,
 This quiet Port let my toss'd Vessel gain
 Of Heav'nly Rest; this Earnest to me lend;
 Let my Life sleep, and learn to love her End.*

And

And the Moral which that Ingenious Author (the *Spectator*) raises from thence, is, “ That we should not be led away by the “ Censures and Applauses of Men, but consider the Figure that every Man will make “ at that Day when *Wisdom shall be justified of her Children*; and nothing pass for Great “ or Illustrious, which is not an Ornament “ to Human Nature.

And as the result of reading History ought to be a Contemplation of the Virtues of the Heroes therein contain'd, and forming such Rules for the Conduct of Man's Life and Practice, some have recommended it as a Moral Virtue, or at least an Incentive to Religion, Morality, Affability, and Good Manners. But this Point having been so well discuss'd by that celebrated Author just quoted, there is little need (were I able) to pursue this Point any farther.

I shall therefore particularly mention it with the Regard it has to the several Circumstances and Degrees of Life that abound in the World; and indeed 'tis so universal, that even the Vitious as well as Virtuouse find a safe Retreat, under the greatest Pressures of their tumultuous Passions.

The Proud *Tarquin* found a Retreat for his Ambition and Grandeur, as well as the Humble *Abdolonymus* a Refuge for his Poverty. The meanest Labourer and the hardest Drudge taste the Sweets of their Labour, tho' it be by the Sweat of their Brows.

'Tis

'Tis here that Love and Innocence, Virtue and Good Manners sport promiscuously with their Contrarities; and the greatest Emperor finds an allowable Gratification of his Ambition, when mix'd with any due Regard to his Maker. 'Twas not the Grandeur of *Nebuchadnezzar's* Gardens, but the vain Exaltation of his Heart, that forc'd him to that unwelcome Exile and terrible Doom mentioned in Scripture.

But for the truly Virtuous, let them describe, if possible, that Ease, Indolence, and Tranquillity of Mind, those pious Thoughts and seraphick Transports that flow from the quiet, easie, uninterrupted Enjoyment they meet with in their Gardens, or other their Country Amusements, in the ascending Gradations of a gay fresh Morning, or the expiring Moments of a cool Summer's Evening.

And within doors, how many sweet and friendly Conversations, how many busie and delightful Minutes this divine Relish, we may suppose our First Parents enjoyed in their State of Innocence, ev'n in the laborious and toilsome part of their Lives, and how terrible their Apprehensions were, upon the News of their Departure from *Paradise*, is excellently describ'd by *Milton*, in his *Paradise Lost*. " We see them (says a late Ingenious Author, in his Comment on that admirable Poem) gradually passing from the Triumph of their Guilt, through Remorse, Fear,

“ Fear, Shame, Contrition and Prayer, to a
 “ perfect and compleat Repentance.

Had they been suffer'd to have remain'd there, 'twould have in some measure alleviated the dismal Thoughts of Mortality, and that uncertain future State to which they were by their Disobedience destin'd. That of *Eve* is of an effeminate nature, as lamenting for the Loss of her Bower, &c.

*Must I then leave thee, Paradise? Thus leave
 Thee, native Soil? those happy Walks & Shades,
 Fit Haunt of Gods, where I had hope to spend
 Quiet, tho' sad, the Respite of that Day
 That must be mortal to us both? O Flowers,
 That never will in other Climate grow!
 My early Visitation, and my last
 At Ev'n, which I bred up with tender Hand
 From the first Op'ning Bud, and gave you Names!
 Who now shall rear you to the Sun, or rank
 Your Tribes? Or Water from the Ambrosial Font?
 Thee, lastly, Nuptial Bow'r, by me adorn'd,
 With what to Sight or Smell was sweet; from thee
 How shall I part! and whither wander down
 Into a lower World to this obscure
 And wild! How shall we breathe in other Air
 Less pure, accustomed to Immortal Fruits!*

That of *Adam* was of a more Manlike Nature, being Reflexions on his Deprivation From the Beatifick Presence of his God; as follows:

This

*This most afflicts me, that departing hence,
 As from his Face, I shall be hid; depriv'd
 His blessed Countenance: Here I could frequent
 With Worship, Place by Place, where he vouchsaf'd
 Presence Divine, and to my Sons relate,
 On this Mount he appear'd; Under this Tree
 Stood visible; Amongst these Pines his Voice
 I heard; Here with him at this Fountain talk'd:
 So many grateful Altars I wou'd rear
 Of grassy Turf, and pile up ev'ry Stone
 Of Lustre from the Brook, in Memory
 Or Monument to Ages, and thereon
 Offer sweet-smelling Gums, & Fruits and Flow'rs.
 In yonder nether World, where shall I seek
 His bright Appearances, or Footsteps trace?
 For tho' I fled him, angry; yet recall'd
 To Life prolong'd, and promis'd Race, I now
 Gladly behold; tho' but his utmost Skirts
 Of Glory, and far off his Steps adore.*

Milton's Paradise Lost.

But if this may be suppos'd to be a higher pitch of Thought than we in this imperfect State can arrive to, let us turn to that Royal (tho' indigent) Example before-nam'd, as we have it from Mr. Cowley:

*Thus his wise Life Abdolonymus spent:
 Th' Ambassadors which the great Emperor sent
 To offer him a Crown, with Wonder found
 The Rev'rend Gard'ner hoeing of his Ground.
 Unwillingly, and slow, and discontent,
 From his lov'd Cottage, to a Throne he went;*

And

*And oft he stopt in his triumphant Way,
And oft look'd back, and oft was heard to say,
Not without Sighs, Alas! I there forsake
A happier Kingdom than I go to take.*

If I had not already touch'd upon it, I might have urg'd farther (from the Example of *Aglauis*, that follows in this Poem) the Happiness of these Employs; but I end, by observing, That those who have no love nor taste for this Subject, may certainly conclude themselves of base, ungenerous Thoughts; I had almost said, they may suspect and dread themselves in danger in other respects that very nearly concern them.

In short, (next to the more immediate Duties of Religion) 'tis in the Innocency of these Employs, thus doing, thus Planting, Dressing, and busying themselves, that all wise and intelligent Persons wou'd be found, when Death, that King of Terrors, shall close their Eyes, and they themselves be obliged to bid an eternal Farewel to these and all other sublunary Pleasures.





AN
 ESSAY
 CONCERNING
 EARTH, &c.

CHAP. II.

*Introdu-
 tion.*

THAT the unhappy Lapse of our First Parents was the Occasion of that permanent Curse entailed on their Posterity, by which they were destin'd to the laborious Tenure and Drudgery of Tilling and Dressing the Ground; and that *Paradise* itself could no longer maintain its Glory and Splendour, than whilst it was under the immediate Care and Direction of Providence; is evident from Holy Writ, and so wants no more Demonstration.

It

It has been therefore the chief and laudable Undertakings of the Wise and Virtuous in all Ages, to endeavour at a Reparation of that Loss, by a studious and laborious Application towards the Redress of those Malignities contain'd within the scope of that dismal Imprecation, *Thorns and Thistles shall it bring forth, &c.* and so to manure, cultivate, dress, and improve it, as best to answer the End of their Labour, a bountiful Encrease and reparative Reward to their former Losses, as well as to their present sedulous and virtuous Employ.

Gen. iii
18.

This then is the Subject of the ensuing *ESSAY*; a Subject, I must confess, dull enough, it being no other than *EARTH*, the *Earth* we every day trample under Foot: But how vile soever it may appear, it is that from which we gather the Refreshment and Support of Nature, without which the Rational and Animal part of the Creation could not possibly subsist; for which reason, we must submit to enquire into its Nature, and assist her in all her Deficiencies.

There are, I doubt not, who will except against the Plainness of these following Directions, and will be ready to say, *We know these things already.*

To which I here answer, That my Intent in Writing, is chiefly for the Instruction of the Unlearned: And as for those that Know already, it may put them in mind of their Business, and confirm them in

their Opinion: And altho' a great many Gardeners love Obscurity, and that their Business and Composts should appear abstruse and extraordinary, when there is no such thing; yet I can't follow their Method, since 'tis certain, even in Flowers, that the most Knowing of them make use of much plainer Mixtures than formerly, so well refined are the Judgments of Men in this Matter.

Earth,
what
meant by
it in this
Essay.

Therefore, when I speak of *Earth*, I don't thereby mean in general that Globe so call'd, much less its Geometrical Circumference or Magnitude; or pretend to adjust the differing Hypothesis of the Philosophers, whether it be Fix'd or Moveable; nor yet of those Magnetical, Mineral, or other Bodies and Qualities of which 'tis compos'd; but only of the Superficies or Surface thereof, on which we daily walk, and from which we gather all that is necessary for the Support and Sustainance of Life.

How few
Kinds are
useful in
Gard'ning.

And as this also is compos'd of almost an innumerable quantity of Species or Kinds of Soil differing from each other in Contexture, Colour, or Site; I have (as I propose, for the Delivery of all that I have to say in *Gard'ning*) reduced them into a few Sorts, let them be of what Colour or Specifick Distinction soever, and they are *Earths* either *Light*, *Sandy*, or *Loose*; or otherwise, *Earths* of *Stiff*, *Clayey*, or *Close* Contexture: Either of these have their respective good Qualities;

ties ; and all of them, when they are in their Extremes, have need of some artful Hand to render them of Use and Benefit in the Production and Growth of Plants.

I know that good Esquire, already mention'd, the King of Gard'ners, has handled this Subject with a great deal of Nicety and Judgment ; but yet after all his elaborate Reasonings, and exact Disposure of these Materials, I can't guess that he has struck home to the main Point, I mean, the bringing them home to their particular Use ; which should be, as it were, laid down at the Place where they ought to be used, in Writing, as in Fact they are or ought to be in the open Garden, and particularly referr'd to in the Manner and for the Use they are to be appropriated to. But this I have mentioned elsewhere.

The Defect of Authors on this Subject.

My Design therefore in this Chapter, is to give some small Account of the two Qualities, or rather Specifick Parts, there is in all *Earths* ; and afterwards, Directions for such Compositions, numbred 1, 2, 3, 4, &c. as may suit the two divided Kinds of *Earth* above-mention'd, (viz.) *Light Land*, or *Heavy*, to be applied, as I shall afterwards direct, in the Raising *Forest Trees*.

Of the two general Qualities in Earth.

For the better understanding of the Specifick Parts of which *Earth* is compos'd, I am to premise, That there are (simply) two Parts ; one, the Body, Bed, or Couch, where- in lies latent and is contain'd the other, I

An Animate and Inanimate Qualities in Earth.

mean those nitrous and prolifick Salts, being the *Spiritus Mundi*, which by the Co-operation of Rain or Water, Sun and Air, sets, or is rather by them set, to hasten forward the great Work of Vegetation, whilst the other Part is only a lifeless, inanimate, dead Lump, probably the Epitome and Resemblance of *Chaos*, before it received the Divine Command of Extension, and that Spiritual *Flatus* that has furnish'd it with the Salifick Gems, which (by other co-operating Powers) work the Effects that will be found in these Essays.

Earth
ought some-
times to be
renewed.

I say, it being understood and establish'd, that the *Earth* itself, simply considered and abstracted from, and, as it very often is, stript of those Heterogeneous Parts, and is only the Bed, Couch, and Recepticle for the other; an Observation will also soon follow from Common Experience, in the quick Dispatch and Growth of Plants in one Ground, and from the slow Process of the same Plants in others, That these nitrous Particles not only abound more or less in all Grounds, but are also extracted from all, tho' more easily from some than others, and consequently that some Methods ought to be taken for renewing the exhausted Vigour of that lifeless, inanimate Lump we commonly understand by the Name of *Earth*; the Improvement of which is so very material, being, by Analogy, the Female Parent of Vegetation; so material, that if that laborious *Roman* Rustick (whose invidious Accusations, before

before his Superiors, tended no less than to make him guilty of Magical Arts) had with the Spade and Knife (worn bright with Use) brought also his Baskets of Compost, they might justly have been arraigned as some of the guiltiest Accomplices in this ironically enormous, tho' rather virtuous and laudable Crime. This is so very precious to the industrious Planter, that I have often thought those Gentlemen which have writ concerning Gard'ning, have not either rightly understood the practical Use of it, or that they have disingenuously concealed it from the World; else they would, as it were, lay it at every Garden-door, before ever they set forward one Step in Gard'ning, of which this is the Vital Principle.

The first Thing therefore to be done in Gardening, is to consider where to get Materials for making large Heaps or Lestals, or, as we now call them, Magazines, (probably in Allusion to those belonging to an Army, and without which indeed the most courageous General may as well fight, as the industrious Botanic plant.) And as those Magazines are to be adapted for the Improvement of the Soil the Gard'ner is to work upon, they ought to be mix'd accordingly, as they are either for *light, sandy, and loose*, or *heavy, clayey, and cloddy* Land; since 'tis certain that *light, loose* Land, requiring a proper Ligation, ought to have Compost of a more heavy Nature, such as the Scouring of deep

Care to be taken in providing Earth for that Purpose.

Ditches, Ponds, &c. So also the other kind of Land requires Compost of a more fiery and sprightly Nature, such as will invade those heavy, lumpy, and indigested Clods, that without such Management very much obstruct the Business of Vegetation.

In what manner to be procured.

Our Business being then to make Compost for a lumpy, heavy Land, let us proceed, in the first place, to fleece off all the upper Turf-Mould we can, which we have already suppos'd to be stiff, and mix it at Discretion in the following Manner, having always a particular Regard to the Natural Soil, I mean in what degree of Stiffness one may rank it. But, generally speaking, these Directions following will serve.

A Magazine of Compost for Cold Clayey Land.

The Magazine of Compost for stiff Land.

Three Load of the Natural Mould, two Load of good rotten Dung, one Load of Sand, if to be had in Plenty, the Sea-kind, or otherwise a Load of Sandy Ground or sharp Sand, two Load of the Top Spit-Turf in Meadows or other kind of rich Turf-Land, and half a Load of Cole-ashes or the Sweeping of Streets, a small Sprinkling of Pidgeon, Sheep, or other hot Dungs.

These several Simples being brought and laid down at the Place or Places where they are to be mix'd, and an open Circle clear'd in the middle, let there be the same number of
Men

Men and Boys set to every Heap as there are unequal Quantities of each ; thus to the Natural Soil three, to the Sand one, and so proportionably to the rest, taking heed that they cast and spread every particular with Care, and not all together in Lumps, as they will do without a continual Supervisal.

The proper Time for this is in *May*, the Weather being then dry, and also a leisure Time for Carts from Husbandry, and other necessary Business, tho' any other Time will do in respect of the Work itself.

About a Month after this Mixture is made, it will do well to turn it over again, and so Monthly repeating it till *Michaelmas* ; and that being as much Precaution as 'tis possible, or at least common for any one to take, one must begin to skreen, separate, and divide the several Kinds we intend to use, in order to be ready upon any occasion required in the Nursery, for which this Process is design'd.

The Skreen being made according to the best manner of Wire or fine Laths ; it must be set higher or lower, according as one sees it for Fineness ; and whatever comes through, ought to be mixed with a quarter part of Melon Earth, and this being near as fine as Flower, is what I call N^o 1.

The Skreen being set more stooping affords a second coarser kind, and this is what I call N^o 2.

The Remainder is N^o 3. which being the roughest, cloddy Earth, Dung, &c. is yet an

The proper Season.

Turning the Earth once a Month.

The manner of Skreening.

Earth, N^o 1.

Earth, N^o 2.

Earth, N^o 3.

an extraordinary Manure to dig in, and improve any barren or poor Land; but if it remain in an Heap all the Year, 'twill be as good when skreen'd the next Year as any of the Kinds above-mentioned.

I shall have occasion hereafter to use some Dung just rotten, or, as we commonly say, that spits like Butter, and this I call N^o 4.

Dung,
N. 4.

Care in
keeping
some
Hous'd.

In most Cases in Gard'ning we commonly take care to keep some of the finest of our Mould in a House, or some other Covering, by which means 'tis always dry and ready for any Use; tho' the turning it out sometimes to get some Rain will benefit it much.

I have done with this Article relating to the preparing Magazines for *Cold Heavy Land*; I shall only add, that the same Procefs ought to be us'd every Year, if you continue Raising young Trees, and your other Compost is expended.

A Magazine of Compost for a Loose, Sandy Ground.

Three Load of the Natural Soil, three Load of Pond Earth, or the Scouring of Ditches, three Load of strong Loamy Earth, and two Load of Dung.

A Maga-
zine of
Compost
for Light
Land.

Method of
skreening
and prepara-
ring it.

The same Method being us'd in Skreening as was us'd before, we have likewise Magazine N^o 1. Magazine N^o 2. and what we call the Skreening Magazine N^o 3. as was before, and the Dung N^o 4.

I think

I think I need not remember my Reader, Consideration as to the Quantity. that the Number of Loads above-mentioned, are simply consider'd as the Proportions of a proper Mixture; but that Quantity ought to be repeated till one has a sufficient Magazine. An hundred Load is a considerable Quantity for a small Garden, tho' I shall advise rather Two hundred, inasmuch as the *Earth* will take no Hurt, but rather improve by lying.

It ought to be remembred to clear this Mould once or twice in a Winter, and once or twice in a Summer; and to take care that To be turn'd three or four times in a Year. the Weeds do not grow too much on it, which they are very apt to do, and will consequently considerably eradicate and exhaust the Salick and Vital part of the Earth.

It may probably be expected I should have added a third and fourth kind of *Earth*; but this I have purposely avoided, since those that consider the Reasons of making these, can't fail of making a third, &c. according as the Nature of their Land requires.

I am not willing to miss this Opportunity of advising the Country Farmer and Grasier Advice to the Farmer. to the preparing of their Dung-heaps after this manner, since the common way of spreading Dung over Land, be it either Arable or Pasture, can by no means answer the End; for all Dungs being of a volatile Nature, the nitrous Parts are the easier exhal'd by the attractive Power of the Sun, and the Dung itself of consequence rendred dry, husky, and of little use.

Farther
Directions.

In the first place then, they ought to carry out all their Dung, and lay it in great Heaps, as usual; and then scour all such Ditches and Ponds, and fleece and pick up all the Dirt, Mould, or other Improvements they can lay hands on; and if it be cold Land, mix as much Chalk, Pidgeon's Dung, Coal-ashes, Sand, or other hot Dungs, or such-like Materials, and carry them into the Field likewise; and at leisure proper times mix and blend them well together: This I dare assure them, will be of much more use than the same Quantity of Dung alone, by which means the Lestal will be considerably encreas'd both in Largeness and Goodness. This, however, I shall more fully handle in some ensuing Subjects, and I shall only observe, that in hot and dry Lands this is much more necessary than in others.

Concerning
renewing
old worn-
out Ground.

Before I quit this Chapter, it will be proper to add something concerning the renewing old, cankry worn-out Ground, commonly attended with another Inconvenience as bad as the former, which is, That it is poisoned with Weeds in such a manner, as one can hardly give it room, but attempt at the carrying it quite away, and beginning entirely *de novo* to fill the Space up with better.

An Objection
on answer'd.

'Tis true, this is not much the Case in the Subject of this Discourse of *Forest-Trees*; but because the Improvement of Ground in general, is what I am at present upon, I shall lay down the best Rules I can: It may by chance

chance happen likewise that there is no great Choice for the Nursery, which we are to direct hereafter, but in such Land; so that we must take up with this or none.

Having therefore prepar'd a large Magazine, according to the last Directions, for that I have always observ'd there is no Land so soon worn-out as Light Sandy Lands, though Clayey Land be much more intractable; yet being of a heavier, closer Texture, the Saline Particles are not so volatile as they are in a more Sandy Ground; for which reason 'tis by some preferr'd before it, especially if dug, or rather trench'd, every Year at *Michaelmas*, and laid in Ridges all the Winter to meliorate; which makes it more than probable that the Sun, which has its attracting as well as diffusive Power, (and this is what Philosophers affirm in Plants, tho' I don't remember to have seen it in this of Earth) may, and without doubt does, exhale this Vital Principle of the Earth, and consequently enervates the Heart of Sandy Land quicker, because 'tis a looser and more arenaceous Body than the other is.

But to return from this long Parenthesis: *Farther Method of Process.* Clear away as much as you possibly can of the Weeds and other Trumpery which have in some measure occasion'd this Poverty in the Soil; begin as you do in common Trenching, by opening a large Trench three if not four Foot wide, and eight or nine Inches deep.

The

*A farther
Method of
Procefs.*

The Trench being open'd, and the Compost ready at hand, fill the bottom of the Trench eight or nine Inches thick of it; then take up the whole Ground in the next Trench that is undug in the Natural Ground, about eight, nine, or ten Inches thick, (as has been before advis'd) this spread handfomly over the Compost that is laid at the bottom of the Trench, picking the Weeds clean out, as also Stones, Roots, and other Incumbrances: Which done, cover that bad Earth over again with the same thickness of Compost, by which means you have three Beds or *Strata's*, two of Dung, with the bad Earth in the middle. And this being done at the latter end of the Year, *viz.* about *Michaelmas*, there let it remain 'till the Spring, at which time you may dig the Ground over, beating, mixing, and working the Compost and the other old Mould together, which by the washings of the Rains and Snows in Winter, is by this time probably very much improv'd.

*Why so lit-
tle said of
Dung.*

It may perhaps be wondred that I have not said any thing of Dung, that being generally esteemed the only Improvement for all Lands; and indeed 'tis what most People are fond of, since if they have Dung enough they think all is well, and the business of Vegetation can't possibly fail of going on, and especially in the repairing of worn-out Ground.

But

But to this I can by no means agree, and esteem it no otherwise than a good Ingredient to mix with Earth and other sorts of Compost, and to be well blended, mix'd, and incorporated with them, which being all consum'd together, makes an excellent Compost, fit to receive the best of Trees, or to repair the worst of Ground; and this I have hinted at just now.

As for the other way, of improving worn-out Land by Dung only, (if I dare borrow the Similitude) 'tis like the seven Years of rank good Corn mentioned in Sacred Writ, which were greedily devoured by the seven thin and blasted, and they possibly never the fuller nor better fed; so these sorts of canker'd Earths, tho' they voraciously and greedily receive the prolifick Salts of the Dung into their analogous, vitiated, and corrupted Stomach and Constitution, do not long retain them, but by a kind of vicious Corrosiveness soon eat or spew out the virtual Qualities of the other; whereas had it been mix'd and incorporated well with uncorrupted Land, that would have been the proper Bed and Couch wherein those Salts would have lodg'd themselves, 'till the other, by Improvement, shou'd as it were leave and forget its own vitiated Nature, and join in concert with the improved Mass. As for the Dung itself, being almost all Nitre, it has little or no Retainder to prevent the Exhalation or Evaporation of those

those prolifick Spirits, were that the Case, and not the other, as before hinted.

*The forego-
ing Maga-
zines to be
used in this
Case.*

If the Land be either *heavy* and *worn-out*, or *light* and *worn-out*, the two Magazines which I have recommended will suit them, from which they may easily form one of a middle quality.

*The reason
why I have
avoided
great num-
bers of
Earths.*

I have (as may be observed in the whole Account of *Earth*, avoided running into many Divisions, since that rather confounds than instructs Men in their Business and Progress; and having brought it Home, and particularly applied it to the designed Spot, I hope 'twill be of considerable Use.

*Where to
collect the
several
Quantities
of Mould.*

If the House is to be new built upon good Turfy Land, 'tis there may be collected very great quantities of Earth; the like of all Grass and Gravel-Walks, which should be fleec'd and laid up; and if this be fresh, good Land, and not very heavy, mixing with a little Dung will make it excellently good; tho' for Forest-Trees, I mean when planted in the open Park, there does not seem to be much occasion, besides the impossibility of getting such quantities of Dung as will make a sufficient Mixture; but for Kitchen-Gardens, and if there be any Flowers and Greens, there ought to be a particular and careful Provision, as well as when we raise young Plants in a Nursery: But this 'tis probable I may at some other time enlarge upon.

I have been the plainer on this, on account of the Use it is to the Country Planter; and

and the nice Speculations of this Earthy Province are so brightly handled by Mr. *Evelyn*, that there is scarce room to say any more on this Subject.

The Reader may perhaps wonder I have not been more particular, since there are many sorts of *Earth*, and much more might be said on this Subject. The Truth of which I confess : But it must be observ'd, that this is only for the common Uses of Raising Forest-Trees ; and that when I come to the nicer parts of Gard'ning, there shall be at the commencement of every such Treatise Directions for the composing of *Earths* suitable thereto.





AN
ESSAY
 CONCERNING
Water, Rain, Snow, &c.

C H A P. III.

Water a
 Coefficient
 in Vegeta-
 tion.

WATER being also another ve-
 ry great Agent, or rather Co-
 efficient in the business of Vege-
 tation, I have found my self oblig'd (in
 pursuance of the Method I have propos'd
 to follow) to give some General Account
 of it.

Rain-Wa-
 ter the
 best.

Rain-Water is certainly the best to be
 preferr'd; and that not only on account
 of the Ease by which we enjoy this Blessing,
 but also on the very inherent Nature of it,
 and the Manner in which it falls down upon
 the Earth; but I shall remark something of
 the

the Original and Generation of Rain, before I launch into its Nature.

And this is generally understood to be the crude Vapours of the Earth, but especially of the Sea, elevated by the attractive Power of the Sun, and wafted by the Winds into the Aerial Regions; by which Sublimation, and the Rarefying and Virtual Qualities of the Sun and Air, the Crudities are expell'd, and these Waters conserv'd in the Celestial Treasuries of the Clouds, till by Providence appointed to descend upon the Earth for the Good of Mankind.

How Rain is gener'd.

In one of the following Chapters relating to the Virtual and attractive Power of the Sun, I shall have occasion to say more of the Generation of Rain; so that I shall be the shorter in this, and only endeavour to give a particular Account how these Clouds are suspended; since by their own Weight and Pressure it may be thought impossible they should observe or be guided by such admirable Laws that Providence has prescribed them.

The Generation of Rain being then from the Vapours of the Sea, and the Humidities of the Land, &c. and being wafted by the Air, by Pulsion or Attraction, as will hereafter be more particularly described; 'twill be very easie to conceive how they are elevated higher and higher, and in what manner they suspend and hang in the Air.

When they are drawn up a considerable height, the Strength of the Air that is under, and which is still greater and greater, and undulating by its Motion this way, that way, and the other, (they rise gradually through the Air;) and this is very plainly demonstrable, from the Paper-Kites that School-Boys use in their Diversions, which being elevated sixteen or eighteen Yards, rise easier, and with greater celerity; and the longer their Line is, still the better; since the higher they advance, the stronger and better they fly. But to these Vapours:

When they arrive into the higher Regions of the Air, the Frigidity thereof soon aggregates and condenses them into Bodies and Clouds, which are blown here and there, but are still suspended, 'till the genial Disposition of the Sun, or the natural Warmth, Humidity, and Rarefaction of the Air releases them from their Imprisonment.

There is a Dispute between the Philosophers, whether *Nubis* or *Nebula* be of the same Disposition? By the first, I understand that general Cloud of Darkness that very often intercepts the Sun from our View; and by the other, those smaller flying Clouds that are discoverable in a Sunshiny Day.

Some of them affirm, that That general Cloud we understand by the Word *Nubis*, is of a heavier, thicker, and closer Disposition, not unlike a large Body compos'd of Flakes
of

of Snow, while the other is only compos'd of Aqueous or Watry Particles; but be it which it will, Clouds are by most Naturalists not improperly call'd the Mother of Rain, Bodies wherein are gendered that useful and refreshing Meteor.

There is some room to dispute whether Of Dews. Dews ever congregate together into those Bodies, but only as they are elevated by the Sun; so when that Power is gone, as is the Case after Sun-set, then they immediately descend; and this is more observable in warm Weather, and in very hot Countries.

From whence *Pliny* (a) remarks, that *Africa* A Remark of Pliny's. is memorable for the great Dews that fall in the middle of the Summer: But in other colder Countries, where Rains are more common, Dews are not. But to quit these Enquiries, which will insensibly draw me beyond my Purpose, I proceed to Rains, &c.

In this lucid and watry Body (be it either The Nature of Water. Rain or Pond-Water) 'tis certain there are two distinct Properties or Species; the one serving for the Dissolution of the Salts of the Earth; and the other a Terrestrial Matter it meets with in its Sublimation, which may not improperly be called Salt or Nitre itself, both which are of excellent Use in the Business I am upon.

And it has been the Observation of some An Observation. Ingenious Persons, that the Fertility of the

(a) Plin. Nat. Hist. lib. 2. cap. 62.

Land in and about *London* is not altogether owing to the Nature of the Soil, and what Improvements they add by spreading Manure over it, but to the Sulphureous Particles that ascend from this great Metropolis into the Air; after which Sublimation and Incorporation with the Aqueous Bodies, there they are stript of their fiery Nature, and descend and fertilize the Lands that lie underneath; and this, say they, seems to be the reason that the Lands Eastward of the City are richer than those Westward, inasmuch as the West Winds being more general in that Position, bear them Eastward, where being wash'd down by the Rain, they fertilize the Earth in a very wonderful manner.

Different Opinions as to the Nature and Use of Water.

There appears to have been some Disputes among Naturalists, from what it is that Plants particularly receive their Nutriment; the Antients seem to opine, that the Earth only was the Matter that constituted all Vegetables as well as Animal Bodies; and that Water, &c. serv'd only for the Conveyance and Distribution of that Matter, in order to the forming and composing of them.

My Lord Bacon's Opinion.

But some of the Moderns have ascribed it (perhaps with too much Haste) all to Water; and my Lord *Bacon* is of the Opinion, (b) *That for the Nourishment of Vegetables, the Water is all in all; and that Earth doth but keep*

(b) *Lord Bacon's Nat. Hist. Cent. 5. S. 411.*

the Plant upright, and save it from the Extremities either of Heat or Cold: And others will have it to be the Principle and Ingredient of all Natural Things, and run into innumerable Arguments to that Purpose. These I shall pass over; and from the correct Experiments of Dr. Woodward, in the Tracts of the Royal Society (c), shall lay down the true Nature of Water; and since his Arguments are almost beyond Dispute, and his Works such as would otherwise lie buried among the Voluminous Works of that Society, I shall here lay them before my Reader.

Anno 1691, (says this Ingenious Author) I chose several Glass Vials, that were all, as near as possible, of the same Shape and Bigness. After I had put what Water I thought fit into every one of them, and taken an Account of the Weight of it, I strain'd and tied over the Orifice of each Vial a piece of Parchment, having an Hole in the middle of it, large enough to admit the Stem of the Plant I designed to set in the Vial, without confining or straightning it so as to impede its Growth. My Intention in this, was to prevent the enclosed Water from evaporating or ascending any other Way than only through the Plant to be set therein. Then I made choice of several Sprigs of Mint, and other Plants, that were, as near as I could possibly judge, alike

The manner of Process in this Experiment.

(c) *Philosoph. Transf. for June 1699. N^o 259.*

fresh, sound, and lively. Having taken the *Weight of each*, I plac'd it in a Vial, ordered as above; and as the *Plant* imbibed and drew off the *Water*, I took care to add more of the same from time to time, keeping an *Account* of the *Weight* of all I added. Each of the *Glasses*, were for better *Distinction*, and the more easie keeping a *Register* of all *Circumstances*, noted with a different Mark or *Letter*, A, B, C, &c. and all set in a Row in the the same *Window*, in such manner that all might partake alike of *Air, Light, and Sun.* Thus they continued from *July* the Twentieth to *October* the Fifth, which was just *Seventy-seven Days.* Then I took them out, weighed the *Water* in each Vial, and the *Plant* likewise, adding to its *Weight* that of all the *Leaves* that had fallen off during the *Time* it stood thus. And lastly, I computed how much each *Plant* had gain'd, and how much *Water* was spent upon it. The *Particulars* are as follow.

Spear-Mint
set in
Spring-
Water.

A. *Common Spear-Mint* set it *Spring-Water.* The *Plant* weighed, when put in *July* 27, just 27 Grains; when taken forth *Octob.* 5. 42 Grains. So that in this Space of 77 Days it had gained in weight 15 Grains.

The whole *Quantity* of *Water* expended, during these 77 Days, amounted to 2558 Grains. Consequently the *Weight* of the *Water* taken up was $170\frac{2}{7}$ times as much as the *Plant* had got in *Weight.*

The Weight of the Plant when first set in Water,	The Wt. of the Pl. when tak'n again out of the Water,	The Wt. gain'd by the Plant during th' 77 Days,	The Wt. of the Water expended upon the Plant,	The Proportion of the Increase of the Plant to the Expence of the Water,
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gr. 27	gr. 42	gr. 15	gr. 2558	As 1 to 170 $\frac{3}{5}$.
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B. *Common Spear-Mint : Rain-Water.* The Spear-Mint set in Rain-Water. Mint weigh'd, when put in, gr. 28 $\frac{1}{2}$; when taken out gr. 45 $\frac{3}{4}$, having gain'd in 77 Days gr. 17 $\frac{1}{2}$.

The Dispendium of the Water gr. 3004, which was 171 $\frac{2}{3}$ times as much as the Plant had received in Weight.

gr. 28 $\frac{1}{2}$	gr. 45 $\frac{3}{4}$	gr. 17 $\frac{1}{2}$	gr. 3004	As 1 to 171 $\frac{2}{3}$.
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C. *Common Spear-Mint : Thames Water.* Spear-Mint in Thames-Water. The Plant when put in gr. 28. when taken forth gr. 54. So that in 77 Days it had gain'd gr. 26.

The Water expended amounted to gr. 2493, which was 95 $\frac{3}{8}$ times as much as the additional Weight of the Mint.

gr. 28	gr. 54	gr. 26	gr. 2493	As 1 to 95 $\frac{3}{8}$.
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D. *Common Solanum, or Night-shade : Spring-water.* The Plant weighed when put in, Night-shade set in Spring-Water. gr. 49;

gr. 49; when taken out 106, having gain'd in 77 Days 57 gr.

The Water expended during the said time was 3708 gr. which was $65\frac{3}{7}$ times as much as the Augment of the Plant.

This Specimen had several Buds upon it, when first set in the Water. These, in some Days, became fair Flowers, which were at length succeeded by Berries.

The Weight of the Plant when first set in Water,	The Wt. of the Pl. when taken out of the Water,	The Wt. gain'd by the Plant during th' 77 Days,	The Wt. of the Water expended upon the Plant,	The Proportion of the Increase of the Plant to the Expence of the Water,
gr. 49	gr. 106	gr. 57	gr. 3708	As 1 to $65\frac{3}{7}$.

gr. 49 gr. 106 gr. 57 gr. 3708 As 1 to $65\frac{3}{7}$.

Lathyris
set in
Spring-
Water.

E. *Lathyris*, seu *Cataputia* Gerb. Spring-Water. It weighed, when put in, gr. 98. when taken forth, gr. 101 $\frac{1}{2}$. The additional Weight for this whole 77 Days being but gr. 3 $\frac{1}{2}$.

The Quantity of Water spent upon it during that time, gr. 2501, which is $714\frac{4}{5}$ times as much as the Plant was augmented.

gr. 98	gr. 101 $\frac{1}{2}$	gr. 3 $\frac{1}{2}$	gr. 2501	As 1 to $714\frac{4}{5}$.
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Several other Plants were tried, that did not thrive in Water, or succeed any better than the

the *Cataputia* foregoing: But 'tis beside my Purpose to give a particular *Account* of *them* here.

F, G. *These two Vials* were fill'd, the former (F) with *Rain*, the other with *Spring-water*, at the same time as those above-mentioned were, and stood as long as they did. But they had neither of them any *Plant*; my Design in these being only to inform myself whether any *Water* *exhaled* out of the *Glasses* otherwise than thro' the *Bodies* of the *Plants*. The *Orifices* of these two *Glasses* were cover'd with *Parchment*, each piece of it being perforated with an *Hole* of the same *Bigness* with those of the *Vials* above. In this I suspended a bit of *Stick* about the *Thickness* of the *Stem* of one of the aforesaid *Plants*, but not reaching down to the *Surface* of the included *Water*. I put them in thus, that the *Water* in *these* might not have more *Scope* to evaporate than that in the other *Vials*. Thus they stood the whole 77 *Days* in the same *Window* with the rest; when, upon *Examination*, I found *none* of the *Water* in these *wasted* or *gone off*, tho' I observ'd both in *these* and the *rest*, especially after *hot Weather*, small *Drops* of *Water*, not unlike *Dew*, adhering to the *Insides* of the *Glasses*, that part of them I mean that was above the *Surface* of the enclosed *Water*.

The *Water* in these two *Glasses* that had *no Plants* in them, at the end of the *Experiment* exhibited

exhibited a *larger* Quantity of *Terrestrial Matter* than *that* in any of *those* that *had* the *Plants* in them *did*. The *Sediment* at the Bottom of the *Vials* was *greater*; and the *Nubecula* diffus'd thro' the Body of the Water *thicker*. And of *that* which was in the *others*, some of it proceeded from certain small *Leaves* that had fallen from that part of the *Stems* of the *Plants* that was within the *Water*, wherein they *rotted* and *dissolved*. The *Terrestrial Matter* in the *Rain-Water* was *finer* than that in the *Spring-Water*.

Anno 1692. The *Glasses* made use of in *this* were of the same sort of those in the *former Experiment*, and cover'd over with *Parchment* in like manner. The *Plants* here were all *Spear-mint*, the most kindly, fresh, sprightly Shoots I could chuse. The *Water* and *Plants* were weigh'd, as above; and the *Vials* set in a line in a *South Window*, where they stood from *June* the 2d to *July* the 28th, which was just 56 Days.

Mint in
Hyde-Park
Conduit-
Water.

H. *Hyde-Park Conduit-Water* alone. The *Mint* weigh'd, when put in, 127 gr. when taken out, 255 gr. The whole Quantity of *Water* expended upon this *Plant* amounted to 14190 gr.

This was all along a very *kindly Plant*, and had run up to above two Foot in *Height*. It had shot but one considerable *Collateral Branch*; but had sent forth many long *Roots*, from which sprung very numerous tho' small
and

and short lesser *Fibres*: These lesser Roots came out of the larger on two opposite sides, for the most part; so that each Root, with its *Fibrillæ*, appear'd not unlike a small *Feather*. To these *Fibrillæ* adher'd pretty much *Terrestrial Matter*. In the Water, which was at last thick and turbid, was a *Green Substance* resembling a fine thin *Conserva*.

The Weight of the Plant when first set in Water,	The Wt. of the Pl. when taken out of the Water,	The Wt. gain'd by the Plant during th ^e 56 Days,	The Wt. of the Wat. expended upon the Plant,	The Proportion of the Increase of the Plant to the expence of the Water,
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gr. 127	gr. 255	gr. 128	gr. 14190	As 1 to 110 $\frac{1}{8}$.
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I. The *same Water* alone. The *Mint* weighed, when put in, 110 gr. when taken out 249. Water expended 13140 gr.

This Plant was as kindly as the former, but had shot no Collateral Branches. Its *Roots*, the *Water*, and the *Green Substance* all as much as in the former.

gr. 110	gr. 249	gr. 139	gr. 13140	As 1 to 94 $\frac{7}{8}$.
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K. *Hyde-Park Conduit-Water*, in which was dissolved an Ounce and half of *Common Garden Earth*. The *Mint* weighed, when put in, 76 gr. when taken out 244 gr. Water expended gr. 10721. Hyde-Park Conduit-Water mixed with Garden Mould.

This

This *Plant*, tho' it had the misfortune to be annoyed with many small *Insects* that happen'd to fix upon it, yet had shot very considerable *Collateral Branches*, and at least as many *Roots* as that in H, or I, which had a *much greater Quantity* of *Terrestrial Matter* adhering to the *Extremities* of them. The same *Green Substance* here, that was in the two preceding.

The Weight of the Plant when first set in Water,	The Wt. of the Pl. when taken again out of the Water,	The Wt. gain'd by the Plant during the 56 Days,	The Wt. of the Water expended upon the Plant,	The Proportion of the Increase of the Plant to the Expence of the Water,
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gr. 76	gr. 244	gr. 168	gr. 10731	As 1 to $63\frac{1}{3}$.
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L. *Hyde-Park Water*, with the same Quantity of *Garden Mould* as in the former. The *Mint* weigh'd, when put in, 92 gr. when taken out 376 gr. The *Water* expended 14950 gr.

This *Plant* was far more *flourishing* than any of the preceding, had several very considerable *Collateral Branches*, and very numerous *Roots*, to which *Terrestrial Matter* adher'd very copiously.

The *Earth* in both these *Glasses* was very sensibly and considerably *wasted*, and less than when first put in. The same sort of *Green Substance* here, as in those above.

The Weight of the Plant when first set in Water,	The Wt. of the Pl. when taken again out of the Water,	The Wt. gain'd by the Pl. during the 56 Days,	The Weight of the Water expended upon the Plant,	The Proportion of the Increase of the Plant to the Expence of the Water,
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gr. 92	gr. 376	gr. 284	gr. 14950	As 1 to $52\frac{1}{2}\frac{3}{4}$.
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M. *Hyde-Park Water*, distill'd off with a gentle Still. The *Mint* weigh'd, when put in, 114 gr. when taken out 155. The Water expended 8803 gr. Hyde-Park Water distill'd.

This Plant was pretty kindly, had two small Collateral Branches, and several Roots, tho' not so many as that in H, or I, but as much Terrestrial Matter adhering to them as those had. The Water was pretty thick, having very numerous small Terrestrial Particles swimming in it, and some Sediment at the bottom of the Glafs. This Glafs had none of the Green Matter above-mentioned in it.

gr. 114	gr. 155	gr. 41	gr. 8803	As 1 to $214\frac{2}{4}$.
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N. The Residue of the Water which remain'd in the Still after that in M was distill'd off. It was very turbid, and as high-colour'd (reddish) as ordinary Beer. The *Mint* weigh'd, when put in, 81 gr. when taken out 175 gr. Water expended 4344

4344 gr. This Plant was very lively, and had sent out six Collateral Branches, and several Roots.

[The Weight of the Plant, the Weight of the Water, and the Proportion of the Increase, (according to the preceding Method) stands thus:]

gr.	gr.	gr.	gr.	
81	175	94	4344	As 1 to
				46 $\frac{3}{4}$.

Hyde-Park
Conduit-
water mix-
ed with
Nitre.

O. Hyde-Park Conduit-water, in which was dissolv'd a Dram of Nitre. The Mint set in this, suddenly began to wither and decay, and died in a few Days; as likewise did two more Sprigs, that were set in it, successively. In another Glass I dissolved an Ounce of good Garden Mould and a Dram of Nitre; and in a third, half an Ounce of Wood-Ashes, and a Dram of Nitre: but the Plants in these succeeded no better than in the former. In other Glasses I dissolved several other sorts of Earths, Clays, Marles, and variety of Manures, &c. I set Mint in distill'd Mint-water, and other Experiments I made of several kinds, in order to get Light and Information what hasten'd or retarded, promoted or impeded Vegetation: But these do not belong to the Head I am now upon.

Hyde-Park
Conduit-
water mix-
ed with
Sand in a
Tube.

P. Hyde-Park Conduit-water. In this I fix'd a Glass-Tube about ten Inches long, the Bore about one sixth of an Inch in Diameter.

meter, fill'd with very fine and white *Sand*, which I kept from falling down out of the *Tube* into the *Vial*, by tying a thin piece of *Silk* over that end of the *Tube* that was downwards. Upon Immersion of the lower end of it into the *Water*, *this* by little and little *ascended* quite to the upper Orifice of the *Tube*. And yet, in all the fifty-six Days which it stood thus, a very inconsiderable quantity of *Water* had gone off, *viz.* scarcely twenty Grains, tho' the *Sand* continued *moist* up to the *Top* 'till the very last. The *Water* had imparted a *Green Tincture* to the *Sand*, quite to the very *Top* of the *Tube*, and in the *Vial* it had precipitated a *Greenish Sediment*, mix'd with *Black*. To the bottom and sides of the *Tube*, as far as 'twas immersed in the *Water*, adher'd pretty much of the *Green Substance* describ'd above. Other-like *Tubes* I fill'd with *Cotton*, *Lint*, *Pith of Elder*, and several other porous *Vegetable Substances*, setting some of them in *clear Water*; others in *Water* ting'd with *Saffron*, *Cochineal*, &c. And several other *Trials* were made, in order to give a *Mechanical Representation* of the *Motion* and *Distribution* of the *Juices* in *Plants*; and of some other *Phanomena* observable in *Vegetation*, which I shall not give the Particulars of here, as being not of Use to my *present Design*.

Q, R, S, &c. Several *Plants* set in *Vials*, order'd in like manner as those above, in *October*, and the following *colder Months*;

these *throve* not *near so much*, nor did the Water ascend in *nigh the Quantity* it did in the *hotter Seasons* in which the before-recited *Trials* were made.

Thus far this Ingenious Author. I now proceed to demonstrate,

*The several
Virtues of
Rain.*

That this Lucid Body of Rain (and other Water) does not only dissolve the Salts that are in the Earth, but likewise (as common Experience shews) cools, and, as it were, balneates and bathes the *Cortex* or Skin of all Plants and Vegetables, and by a kind of Relaxation causes the Sap to press more freely up, and consequently the Tree to grow and shoot the better: And this directs us in the common Practice of that Method of sprinkling our Trees with an Engine, which has this Effect, as well as the washing Caterpillars and other Vermin from the Leaves and Bodies thereof.

*Of Impreg-
nated Wa-
ter.*

The same that is said of Rain, may in some measure be said of Water impregnated with Dungs, and warm'd by the Genial Rays of the Sun, I mean as to its Effects in the Ground in the Dissolution of the Salts, as well as the Salts that descend down with them, but is not indeed to be used in sprinkling, but rather clear warm Water.

The Best.

If one would chuse the first, it ought to be some Pond, the bottom whereof is fill'd with all sorts of Dung; but Pidgeon and Sheep-Dung is very excellent, provided there be not

too much: If to this be added the Washing of Horses, &c. 'tis still the better; but of this one should only take the Top, leaving the Dregs still remaining at the Bottom: And to make this Pond the better, it ought to be plac'd so as the Washing of the Hills may descend down into it.

If the other; let it be an open clear Water, lying just in the Face of the *South* and *East* Suns, which exhilarate and warm it; and if it be at the Foot or Conflux of some Hills, it is still the better, since Rain-water is esteem'd more proper for these Purposes than any other sort of Water. Water for Sprinkling.

Snow may not improperly be rank'd with *Rain*, it being indeed no other than *Rain* congeal'd by the Frigidity of the Air, but is suppos'd to abound with salifick and fertile Particles as much or more than *Rain*; however, 'tis reckon'd more ponderous, and so sinks deeper into the Ground than *Rain*, and therefore of more benefit, in some Cases to Planting, (which will by and by follow) I mean Forest-Trees, than any thing yet mention'd; on which account some are so careful as to lay Heaps of *Snow* round the Foot of their Forest-Trees, especially in hot burning Lands; but this is what can't be expected in great Plantations. Of Snow, its Qualities.

These Meteors, as they are of universal Use to the World, do in many respects require our Thoughts. One of our greatest Poets speaks of them after the pleasing manner following:

Now, like a healing Balm, distilling Rains
 Cement th' Earth's Wounds, and cure the gaping
 [Plains :
 With all their fibrous Mouths the Plants & Trees
 Drink their sweet Juices, & their Thirst appease:
 The rising Sap thrusts forth her tender Bud,
 And crowns with verdant Honours all the Wood.

And such did God Almighty esteem the Benefit of it to us, that he made it one of the Covenants of our Obedience; If (says he, Lev. xxvi. 4.) ye walk in my Statutes, and keep my Commandments, and do them; then I will give you Rain in due season, and the Lands shall yield her increase, and the Trees of the Field shall yield their Fruit, and your Threshing shall be unto the Vintage, and the Vintage shall reach unto the Sowing-time, and ye shall eat your Bread to the full, and dwell in your Land safely.

In short, Where does the divine Goodness of Providence appear more than here? And what is there of all his Works that calls for a more grateful tribute of Thanks? Besides, we are assured, That this Neglect was one thing that drew down the Vengeance of God upon the Jews, as Jeremiah testifieth, ch. v. 24. Neither say they in their hearts, Let us now fear the Lord our God, that giveth Rain, both the former and latter in his season; he reserveth unto us the appointed Weeks of Harvest. To him therefore that gives Rain on the Earth, and sendeth Waters upon the Fields, be everlasting Praise.



A N
E S S A Y

Concerning the POWER of the
S U N, A I R, &c.

C H A P. I V.

THE SUN, (says *Pliny*, lib. i. cap. 5.) *Est Animus & Mens Mundi*, with several other general allusive Terms discovering the wonderful Attributes of this Salutary Planet: And indeed, of all the Powers that co-operate together in Vegetation, this may be worthily affirm'd the Chief, the *Patrens Naturæ*, and the *Primum Mobile* of all Vegetative Motion. *Of the Sun.*

Amongst the variety of Accounts given by Philosophers concerning this Luminary, as its Distance, Magnitude, &c. I shall only chuse to speak of two things, as properly relating

to our present Purpose ; I mean, its Attractive and Diffusive Power, in regard to Man, to Plants and Trees, and the Earth on which they germinate, flourish and grow.

The Attractive Power of the Sun.

As for the Attractive Virtue of the *Sun*, it is no-where more conspicuous and intelligible, than in the Exhalation of those crude and unwholsome Vapours with which the Earth is sometimes infested ; which if suffer'd to remain long, wou'd of course suffocate all that is upon the face of it, and leave it a most miserable Defart : Besides, that by the Sublimation of those crude and noxious Vapours, (as has before been observ'd) and their Rarefaction preliminary to their Descension and Distribution, a second Agent is form'd for the refreshing the Earth ; I mean *Rain*, of which I have already spoke ; an Assistant, which tho' of less account, is of great consequence in Vegetation : To this may be added the Attraction of Plants, which in them creates a kind of Emulation which shall aspire the fastest, and as it were touch the Aereal Region first.

Attraction, what.

But since I am upon Attraction, it may be requisite I should say something of the Word itself, and the Nature and Effects of it ; since *Attraction*, properly so speaking, is a Question that hath been much debated amongst the Philosophers ; and perhaps most of those Effects, which the Antients, not knowing so well the Causes of, did use to attribute to Attraction, may now be very well solv'd by

Pulsion.

Pulsion. Of this *Bernouli*, in his Book *De Gravitate Ætheris*, Printed at *Amsterdam* in 8vo. in the Year 1683, gives a particular Account.

However, the word is still us'd by good Naturalists, and in particular by the Ingenious *Sir Isaac Newton*, in his *Principia*, &c. Tho' in all his Writings he uses it in a Mathematical, rather than a Physical Sence.

But to apply particularly to the Case in hand: When the Surface of the Sea, &c. is divided by the Heat of the Sun, and the Power of the Air, their Ascension through the Atmosphere either through the Rarefaction of the Air by the Sun, (as is the Case in a warm serene Day) by which means those Particles mount, probably, by the attractive Power of the Sun, (in the same manner as the inconceivable Power of the Loadstone attracts Bodies to it self) or otherwise by the Respiration of this Terraqueous Globe, which in this case may be suppos'd to act like the Body Natural; or else that the Air being rarefied by the Beams of the Sun, as above mention'd, does by the Gravitation of its own Body in general, (since Quantity will over-balance Quality) by Pulsion, force those humid Vapours upwards through those Beams or Rays of Light, which are as so many Tubes or Pipes for their easie Passage, Ascension, and Conveyance: Or otherwise, if these Vapours are conveyed by the Undulation of the Air, in a Perpendicular rather

K 4

than

than Radiant manner, through the Rays and Beams of Light, as before mention'd. Be it which it will, I say, the *Sun* is the Prime Agent in this Affair ; and the whole Process is either Attraction, Pulsion, or Respiration, forwarded by its Virtual Power.

That the Rarefaction of Air by Heat, is a great help to Attraction, or Pulsion, is discoverable by Mr. *Savory's* Fire-Engine, where the Heat cannot be said either to force or attract the Water ; but by its Rarefying Quality lightens the Air that is in the Pipe to such a degree, that the *Æquilibrium* is lost, and the Impulse or Pressure of the Air Without, forces the Water to that great Height that is observed in the Operation.

In like manner a common Drinking-Glass, with a little scrip of Paper burning and fuming put into it, turn'd up immediately and put upon a Plate of Water, will, as one wou'd think, suck it up into the Glass ; when indeed 'tis only the Outward Pressure, and the Inward Weakness of the Air to resist, (being purified by Heat) that is the truth of this Experiment : For, on the contrary, if the same Drinking-Glass were to be plung'd into a Bason of Water as high as the very Foot of it, yet the Water that is in the Bason shall not enter into the Glass, 'till the Air, losing its own strength, or rather insinuating and incorporating itself with the Water, loses its own force : So forcible is Air ; which yet the Unthinking part of Mankind scarce ever
spend

pend a thought about, except it blow so vehemently that they can't possibly stand on their Feet, or that their Houses are likely to tumble down upon their Heads. But thus much of what the Antients call *Attraction*, which is in many Cases solv'd by Pulsion, or the Pressure and Elastick Power of the *Air*, rather than by the Attractive Power of the *Sun*.

That the Vapours of the Seas, Rivers, Lakes, and all the Humidities of the Ground, are thus drawn up, there is sufficient Ocular Demonstration: And that *Heat* is an Agent therein, is deducible from the Experiment of one of our greatest Modern Naturalists, (a) who taking a Vessel full of Water four Inches deep, and seven and $\frac{2}{7}$ in diameter, and having warm'd the Water to such a degree as he suppos'd the Air might do it in some of the hottest Months, by weighing, he found that in about two Hour's time there was almost half an Ounce evaporated, altho' there was no appearance of any Reek or Smoke, neither did the Water, upon the dipping in of the Finger, seem warm; from which it may be collected, that in twenty four Hours there would be six Ounces out of that small Superficies of Water.

The *Oxford Society* have carried this Experiment yet farther; for they supposing that

Heat, the Agent in Attraction.

(a) *Mr. Halley, in Philosoph. Transf. Oct. & Sept. 1688.*

a Foot Cubical of Water weighs 76 lb. which Foot containing 1728 Cubick Inches, and divided in the 76 lb. gives $\frac{1}{4}$ an Ounce and $13\frac{1}{3}$ Grains, which is the weight of an Inch Cubick in Water: The Weight therefore of the 233 Grains is $\frac{2\frac{1}{2}\frac{3}{4}}$, or 35 Parts of a Cubick Inch divided by 38. The Area then of a Circle whose Diameter is 7 Inches and upwards, is above 49 Square Inches; by which if you divide the Quantity of Water carry'd off in Vapours $\frac{3}{8}$ Parts of an Inch, the Product is $\frac{3}{8}\frac{5}{2}$, or $\frac{1}{3}\frac{1}{3}$: From whence it appears that there was 53 Parts of an Inch wasted in that Experiment. A plain Proof how great a Quantity may be carried off in greater Dimensions of Water, even enough to supply all Rains, Dews, &c.

The Diffusive Power of the Sun.

But when one comes to speak of the Diffusive Power of the Sun, besides the Light it conveys to these Sublunary Regions, (without which Mankind would grovel and wander in the Dark, and all the Joy and Pleasure of this Life be dull and dismal) how does it by its Genial and Chearful Rays exhilarate the Vegetable part of the Creation, and make Nature itself to smile!

It influences deep Grounds, by warming and chearing the Pores of the Earth, when dilated and sodden by too much Wet; and gladdens it, putting the emulgent Fibre on seeking its Food: The Surface it helps, by dispelling or attracting the Vapours that would otherwise make it noxious, darts it's Beams

Beams on the Roscid, Creeping Vegetable, and its Wings over the top of the exalted Cedar. This, among other Contemplations of the Divine Psalmist, probably drew that Seraphick Exultation, *How wonderful are thy Works, O Lord! in Wisdom hast thou form'd them all; thou hast made Sun and Moon, &c.*

To be more particular: **The Sun** warms and heats the Ground, and by his powerful Influence helps to dissolve the latent Salts, and prepare them for the Inhibition or *The Method of its Operation.* Solution of the Fibres, which, by the same Genial Force are in action to look out their Food, exhales all superfluous Moisture, and by its Vital Heat comforts the dilated Pores thereof. The early Dews, which would otherwise have a dismal Effect in rotting, rather than refreshing the Plant, is by this means diffus'd and press'd into the very Nerves and other analogous Parts of it, (and all Superfluities, as before mentioned) or exhal'd from it; the Boughs, Branches, Leaves, and Fruit have the Benefit of this Influential Power, and by it the Air is qualified, which would otherwise stop the very Course of Nature by its Frigidity; and indeed 'tis hard to find any thing in the whole Cycle of Botanology that has not an immediate Share of this virtual and diffusive Good.

It is plain almost to a Demonstration, that *The Occasion of the Strength of Heat in low Grounds.* the Strength of Heat that is found in Valleys and Low Grounds, proceeds not only from

from the little Quantity of Air that lies therein, but also from the Refraction of the Sun's Rays from neighbouring Hills, which being penn'd up, as it is in some Places, in a perfect Circle, can find no Vent for its Intenfeness, especially if to that be added a Gravelly Bottom, which reflexes the Heat with more Violence still: But this will be more fully spoke to when we come to Fruit, Fruit-Walls, &c.

General Benefits of the Sun.

The Benefits of the Sun is what is daily seen and felt by every Animal and Vegetable, as well as Rational; but whether the Sun has any Assistance as to its own Nature, I have not yet seen plainly demonstrated, tho' I take it to have some Nourishment, or, which is a more proper Expression, has its Vital Flame and Heat maintain'd by the Air, as is Fire; and this may in some measure be discoverable from the alternate Disposition and Aspect of the Sun in a drying Air, when it generally looks red and angry; and in a moist, humid Air, when it looks pale, weak, and watry.

Fed by Air.

But I leave this Scrutiny, and conclude this Chapter with some serious Reflexions on the Wisdom of Providence in this Bright, Influential, and Celestial Planet. This the greatest and best of our Poets have sung amidst their most elevated Strains, while others (vile enough) have been employed in ransacking Hell and the Stews for luxurious Themes.

And

And indeed 'tis admirable that this Planet should, thro' so many Ages of the World, maintain an uninterrupted Course, that in so many Thousands of revolving Years, it should retain the same Light, Heat, and Vigour, and every Morning renew its wonted Alacrity, and dart its cherishing Beams on these dull and gloomy Scenes of Melancholy and Misery, and yet that so few of us rightly consider its Power, or are thankful to Divine Omnipotence for it.

The Great *Roscommon* (not Greater than Good) speaks of it with Divine Transport, and exhorts Mankind to admire it, from the Benefits and Celestial Beams it displays on the World.

*Great Eye of All, whose glorious Ray
Rules the bright Empire of the Day:
O praise his Name, without whose purer Light
Thou had'st been hid in an Abyss of Night.*

Earl of Roscommon.

And *Lucretius*, tho' his Judgment was misled in the Formation of the World in general, yet his Mind was full of the Sun's Beneficence to those Sublunary Regions; and in a general Enumeration of its benign Qualities, goes on, as follows:

Thus

*Thus Motion, Light, and Heat combin'd in one,
Make up the glorious Essence of the Sun;
The Sun, who from above his Vigour yields
To us below, and cherishes our Fields.*

Creech's Lucretius.

Ben. Johnson, amongst the rest of the Poets, celebrates the alternate Appearances of this bright Luminary in very moving Terms:

*So when the Western Hills the Burning Sun
Descends, and leaves his Empire to the Moon,
False Meteors glare, with scatter'd Drops of Light,
With Glow-worms Spangle dress the Gloom of Night.
But as the radiant God remounts his Carr,
The borrow'd Vapours swiftly disappear:
They fly the Force of his Celestial Ray,
Or their pale Fires are lost in Floods of Day.*

Johnson Vict.

But the Seraphick Pen of *Blackmore*, whose Talents have been employed in the Divine Themes of the Creation, and other pious and valuable Works, merits the greatest Praise.

*Behold (says he) th' Indulgent Father of the Day,
Ne'er covetous of Rest; behold the Sun,
His Course diurnal, and his annual Run:
Gay as a Bridegroom, as a Giant strong,
How his unwearied Course he still repeats,
Returns at Morning, and at Eve retreats,
And by the Distribution of his Light,
Now gives to Man the Day, and now the Night.*

Blackmore Creat.

In fine, the Thoughts of this Celestial Good can't but raise the Thoughts of every virtuous Person to say with the Psalmist, *The Day is thine, the Night also is thine; thou hast prepar'd the Light and the Sun; thou hast set all the Borders of the Earth; thou hast made Summer and Winter,* Psalm 74. 17, 18. Worthy is thy Name, O God, of Praise thro' all the successive Ages of the World.





AN
ESSAY

Concerning the POWER of the

AIR, &c.

C H A P. V.

*Introduc-
tion.*

TO omit the Tenets of the Philo-
sophers concerning the Region of the
Air, and its Distance from the Earth,
and other Enquiries of no great Moment in
this Essay, I descend to the Virtual Affluence
it has upon this Lower Habitable part of the
World, and particularly on the Ground,
Plants, &c.

Pacuvius, speaking of the Air, says,

————— *Is omnia format, animat, alit,
serit, sepelit, recepit que in se omnia, omniumque
idem est Pater, &c.*

This

This Account of *Pacuvius* may seem something strange at first, being, as I suppose, founded on the Doctrine of *Epicurus* and *Lucretius*, who argued, that the World was at first form'd or made of Air. But when we examine a little nearer into it, we shall find it so extensive, that nothing in Nature is able to subsist without it.

I shall hereafter be more particular in its The several Benefits of Air. Benefits on Plants and Vegetables, and at present shall observe, that without it, the very Fire that we make use of would expire; not only for that it blows up and kindles Wood and Coals, but also from a Natural Sulphur that feeds and maintains it; so that if one take a Candle and put it into a Vessel out of which the Air is pumpt by a Pneumatick Engine or Air-Pump, it would soon go out: And if, in like manner, a Mouse or any other Animal, it would quickly be thrown into the greatest Convulsions, and soon (in less than three Hours) to Death itself. But the most remarkable, is that of Sound; since a Bell put into one of these Glass-Vessels, may be perceived to shake, but not to ring; but upon the letting of Air in, makes its usual Sound: By which 'tis plain, that Sound is only the Percussion of and occasion'd by Air; of *so great an Use is this Aery Meteor.*

I shall not trouble my Reader with the nice Distinctions of Meteorologists as to the Specifick Properties of Air, nor of its Weight, &c. that being not much to my

Purpose; but shall consider it in respect of Respirative Life, but more particularly as it relates to Vegetables; the Theme I am now upon. And first, as to the Animal Life:

'Tis when the Air is quiet, serene, and warm, that the Body and Mind are in their greatest Ease, Temper, and Lassitude; and when 'tis thick, foggy, cold, or otherwise unwholsome, that the Head and the Organical Parts are disturb'd and oppress'd, and which is more fatal, creates what we commonly call *Colds*, and such a violent Agitation and Ferment in the Blood, which very often forces Nature beyond her Bounds, and terminates even in Death itself. But let us pass to the Vegetable Tribe.

*The Benefit
of Air in
Vegetation.*

The Reverend and Ingenious Mr. *Deerham*, in his Notes on his *Physico-Theology*, confirms from *Borelli* and Mr. *Ray*, that the Air is the principal Cause of the Vegetation of Plants. *Borelli* (says he, *cap. 1. p. 9.*) proves it, in his excellent Book *De Mot. Animal.* Vol. 2. Prop. 181. And in the next Prop. he asserteth, *In plantis quoque peragi aeris respirationem quondam imperfectam, à qua earum vita pendet & conservatur.* And Mr. *Ray*, in the *Philosophical Transactions*, N^o 23. says from Experience, " That Let-
" tuce-Seed being sown upon some Earth in
" the open Air, and some of the same Seed
" at the same time upon other Earth in a
" Glass-Receiver of the Pneumatick Engine,
" afterwards exhausted or clear'd of all Air,
" (as

“ (as the Air-Pump easily effects:) The
 “ Seed that was expos'd to the Air was grown
 “ up an Inch and an half in 8 Days time;
 “ but that in the exhausted Vessel or Re-
 “ ceiver that was clear'd of Air, (as before-
 “ mention'd) grew not at all; but the Air
 “ being afterwards led into the same empty
 “ Receiver, the Seed in the space of one
 “ Week grew up to the height of two or
 “ three Inches.

By which it appears very plain, that Air is a very great Agent in this Work; and that it does not only insinuate itself into the Earth, and amongst the Liquids thereof, and by its own Elastick Quality, and by the Genial Force of the Sun, cause that Ascendant Motion or Fermentation, (call it which you will) but also that there is a Nitrous Aliment that enters the Pores of the Tree or Plant, whereby it is wonderfully nourish'd and encreas'd; and this is demonstrable from what is rais'd in Hot Beds or Stoves, where, notwithstanding that subterranean Heat and other Care, without this their Productions are all very deficient, if not entirely abortive; but this will farther appear in the following Account: And from this we may be assured, that nothing will grow without Air; the same indeed may be said of Water, the Sun, Earth, &c. tho' this seems to be the most material: So wisely has God Almighty dispos'd of these Agents, that the more we consider the Causes and Methods of their Operations,

tions, the more reason we have to be amazed at them. But to proceed :

Thus we see in Vegetation, it mixes and insinuates its Aerial Substance into the Liquid Sap : And as all the Agitations in Nature are caus'd by the contrariety of Parts inhabiting together ; so in this, the Aerial and Liquid Substances, being mix'd, cause this Agitation and Motion, or, more properly, set it all into a Ferment, (be it either in the Roots or in the Stem,) and rises (by the Co-operation of the Sun, which is the third Agent in this Work) up to the top of the Tree, as Milk, or any other Liquid rises by Fire to the top of any Tube, or other kind of Vessel.

And to shew the Predominancy of Air in this Point : As the deprivation of it from a living Creature, is attended with immediate Death ; so, no doubt, were the Experiment made, were a tender Plant or Tree put into a Glass-Vessel, and the Air pump't out, we should see it fall prostrate, tho' perhaps not so soon as Animals, neither would they shew those dreadful Convulsions, nor yet assume their first State so soon again.

On the other hand ; As the unwholsome Concussions of Air oft throw the Body into great Colds, and after that into the most violent Fevers ; so, in Vegetation, it often makes its Process abortive, and attended with the dismal Calamities of Blasts, &c.

This both shews the ill Tendency of Extremes in Aerial Substances, and that without a temperate Air all things are in Confusion; and the truth is, could we spare any of the Agents Providence has appointed in the business of Vegetation, this of Air could be the least; we could certainly better spare the Absence, or at least the immoderate Strength of the Sun, than this: Sure I am, if we were to have no Air, Nature would soon breathe her last.

I would therefore, from what I have been laying down, establish this as a Principle, *That there is in Nature always two Opposite Principles that occasion Agitation, and in this case Fermentation; and in this it is, first, the Sap which is liquid, and, secondly, the Air perspiring through the Pores of the Earth and all Plants, and insinuating itself into the Substance of the Sap, that is the first Cause of this Ferment, especially when agitated by the additional Power of the Sun.* And this indeed is the first Principle or Motion of Growth, in which Air is a very great Coefficient: And if this be well understood, the succeeding Accounts of the Rise and Ascension of Sap in Trees, and, in short, the whole Scheme of Vegetation will easily be accounted for.

*The Cause
of Ferment-
ation.*

But to be more particular in the Operation of Air upon the Earth, and to omit any more Parallels thereon.

*The several
good Effects
of Air.*

Besides the several Virtual Qualities of the Air, in relation to the Bodies both of Man and Beast, and Plants, we shall find it of large Extent in the Creation in general, without whose Animation nothing in Nature can possibly subsist.

*Disperses
the Vapours
of the
Earth.*

I shall first reckon it as it helps to disperse, or, as may be said more properly, to waft away the foggy humid Vapours that arise from the Ground, and would inevitably, without it, stagnate and poison the whole Face of the Earth: But the Air, by the assistance of the Sun, assumes and sublimates these into the Upper Regions; by which Sublimation, and the coercive Power of the Sun and Air, they are rarefied, and made of second Use in Vegetation.

*Causes of
Rain.*

If to this be accounted, that the Cloudy Treasures of Rain are blown up and broke open by this Agent, it will still add to the Matter I have been speaking of: But this I have already handled.

*Searches
into the
Ground.*

But it has a much more imperceptible, and yet no less advantageous Operation within the Earth, by its Subtlety perspiring through the Pores, there assisting in the Rarefaction of the Crudities of the Earth, dispelling all Superfluities of Moisture, and entring into the very Roots and Veins of the Tree, Herb, &c. So that, farther than Philosophers contend for it, (as an Inhabitant of all Vacuities) the Air insensibly assumes the Nature, and mixes itself with the Bodies of Trees themselves; and

and in short, there is no Operation nor Process but what this is actually and vitally assisting, tho' it be of some Distance below these Aerial and Luminous Divisions of the World.

It has also no less Effect upon the Branches, Leaves, and Flowers of Herbs and Trees; there, by the same kind of Subtility, entering and perspiring through the Bark, (and with some) through the very Body of the Tree, by its refreshing Breezes moderating the too intense Beams of the Sun, and cooling and cheering, blowing open and extending all Nature's Off-spring.

*Its Effect
on the
Branches,
Boughs,
Leaves of
Trees, &c.*

But how subservient soever Air be in its benign Quality, it is at some times and upon some accounts very pernicious to the Produce of the Earth, to the Latent Roots and Fibres there, as well as to the Herbacious, Lignous, or Flowry Parts above it, which requires the Gardener's Care and Diligence in assisting Nature in the preventing the first Motion of it, and thereby the dismal Effects that attend it.

I shall not here mention Blasts, &c. which do very little harm to Forest-Trees, tho' very much to Fruit, reserving that for another Subject: Neither does the Evil I am going to complain of happen above Ground, but below.

It having been before hinted, that the Air penetrates into the Earth; it may be supposed that a dry, husky, searching Air may be pernicious to the tender Fibres of Trees newly planted; and this I may venture to carry farther than a meer Supposition, and to affirm

that the dry, husky Winds in *March* are hurtful and often-times very fatal to the young Roots of all new-planted Trees, and is so much the more fatal, inasmuch as 'tis what every one is not aware of, tho' it be really, in effect, much worse than Frosty Air that is common in the midst of Winter.

New-planted Trees ought therefore not only to be well stak'd and secur'd from the Winds that shake them above, but also from that dry, parching Quality of the Air below, by covering the Roots very deep with Earth, and treading it close round about, or, as the common Method is, by mulshing with long Dung, watering, and the like, (if they are not covered deep, as I shall by and by direct;) all these excluding the Force, at least the pernicious Force, of that husky Quality in Air: For (say the Ignorant in this Matter) What Occasion can there be of Watering in the Month of *March*, when the Sun is not Hot? And from thence they gather, that 'tis little or no matter whether their Trees are Water'd, or no: But perhaps they may find the ill Effects of this Neglect, when it is too late; since I dare affirm, that there are more Plantations miscarry on account of this Neglect, than by any other Cause whatsoever; of which more in the ensuing Directions.





A N

E S S A Y

Concerning the EFFECT of these

Co-efficient Powers

In the WORK of

VEGETATION.

 C H A P. VI.

THE foregoing Chapters being pre-*The Intro-*
 mis'd, it will be easie from thence, *duction.*
 and from what follows, to judge of
 the whole Procefs of Nature in the Busi-
 nefs of Vegetation. I don't think it neces-
 sary in this Place to run over a Course of
 Anatomization of Plants, that being already
 done

done in two learned Tracts written by Dr. *Grew*, and the great *Malpighius*; so that the old received Maxim, *Homo est Planta Reversa*, and the Articulate Divisions of *Pliny*, of Plants into Nerves, Sinews, &c. will not come within the Limits of this Essay, it being my plain Purpose (however simple it may appear) rather to instruct, than to amuse my Readers with abundance of Particulars.

*Anatomy of
Plants.*

In pursuance of which, I shall only have regard to four or five Parts, (*viz.*) the Roots, Stock, Branches, and Leaves, and the Seat and Principle of Life, from which all Plants do, as it were, receive their Vital Juice and Sustenance, and work the Effects design'd by Nature.

*The Princi-
ple of Life,
how seated.*

This Principle of Life is differently seated, in some 'tis in the Roots only; so that cut them into as many Pieces as reasonable one can, yet do but plant those Pieces in the Ground, and they quickly rise: This is in abundance of Edible Roots and Flowers, and amongst the Woody kinds the Elm, &c.

*Different
Places of
Situation.*

In others it is seated both in the Roots, and all over the Trunk and Branches, as in the *Vimineous* or *Willow* Kinds, which, if cut into a thousand Pieces, 'tis yet impossible, morally speaking, to kill or destroy them, except they are split in the middle, and even hardly then; for take but three or four Inches in length and plant in the Earth, either the Roots or Branches will assuredly root and grow again.

In

In others, 'tis seated entirely in the Body, Branches, or Leaves; and this is the Case of many of our Exoticks, which being of a succulent Nature, and by putting the Trunk or Branches, or the Leaves and Stems, as in the *Ficus's*, *Cereus's*, &c. into the Ground, they immediately strike root, and grow; nay so strong is the Principle of Life in those, that take them and hang them up a considerable Time without any Earth, Water, &c. they'll maintain their Natural Verdure, and, by their succulent Quality, this Principle of Life itself in the most admirable manner.

Other Places.

But, generally speaking, this Principle of Life is seated exactly between the Trunk and the Root, and this we observe to be the Place of its Position in all or most of the Semiferous Tribe; for if we reckon the Oak under that general Title, and cut the Body down near that Place, 'tis odds if ever it shoots again, at least to no great purpose.

Where generally situated.

The Use of this Principle is taken to be for the Concoction of the indigested Salts that ascend through the Roots, 'tis here suppos'd that they assimilate the Nature of the Tree they are helping to form, though perhaps the Root may assist in this Work likewise.

The Use of it in Vegetation.

This being establish'd, we may now learn, that in the Spring, as soon as the Sun begins to warm the Earth, and the Rains melt the latent Salts, the whole Work of Vegetation is set on foot; 'tis then the Emulgent Fibres

The first Process of Nature.

bres seek for Food, which is ready prepared by the Celestial Distillations just mention'd.

Concerning
Subterra-
neous Fires,

There have been some who have ascrib'd much to Subterraneous Fires, as if that was one of the chief Agents in this Work, or at least conspir'd with the Sun, &c. But this seems to be a Notion too far fetch'd; for whoever perceiv'd any Heat to ascend from thence, what Effect it may have on Fossiles or Minerals, I shall not pretend to determine; or in what *Stratum* or Bed its first Cause is fix'd, I have not learn'd; but if deep, it may be reasonably thought to have little Effect above, or such as is visible to the Eye or to Reason.

Deduc'd
from Arti-
ficial ones.

If the Notion be deduc'd from those Artificial Heats and Fires we make in Hot Beds and Stoves, upon a small Examination 'twill appear to be ill grounded: In the first place, it not appearing by any visible Observation, that these Subterraneous Fires have the like Effect in the Ground, as to heat it in any degree adequate to the meanest Fire or Hot Bed we make; if that was the Case, we should have some, though perhaps but imperfect Productions of Plants in the Winter: But this we are not to expect 'till the Genial Rays of the Sun are display'd, and 'tis there that we must undoubtedly fix our Hypothesis. And this would be still more demonstrable (and indeed 'tis easie to conceive the Event) on the one hand, by an Experiment of vaulting or covering a Tree over, that the
Rays

Rays of the Sun can't possibly penetrate thro' upon it; and on the contrary, by an Elevation into a Balcony or other Building far enough from the reach of those Subterraneous Fires, if any such there be: But of this I shall say more hereafter.

Others may argue against the Sun's being the only Agent in this Case, by an Observation drawn from the Snows that melt sooner in low Lands than on the highest Hills, which they attribute to Subterrany Fires; if the Sun be such an Agent as has been all this while describing, why are Snows in the Valleys (say they) melted sooner away, tho' so much more distant from the Sun, than those that fall on high Grounds, and on the tops of Hills? But this is to be attributed to the Height those Hills are, and the nearness of their Tops to the suppos'd Local Situation of the Atmosphere or Region of Cold, where the Sun has less Power than Below; to which may be added, the help that the Springs afford in this Matter, by whose Humidity they are more easily dissolv'd.

'Tis rational to suppose, as I shall elsewhere endeavour to prove, that a great part of the Roots are form'd under Ground during the Winter Season, there being always an Innate Heat in all Lands, (which perhaps some may still attribute to Subterraneous Fires) but I rather take it to be a Natural Vital Quality, or Nitrous Fermentation; since, were the same Mould elevated considerably above the ordinary

*Any Tree
forms its
Roots first.*

ordinary Level of the Ground, out of the reach of any ſuppos'd Subterraneous Fires, 'twould certainly work the ſame Effects, had it a Covering from exceſſive Cold, and the Natural though weak Glances of the Sun in the Hybernial Quarter; neither will it much avail the Doctrine of Sublatent Fires, when it is conſider'd, that Plants grow in the moſt Northernly Regions, as well as our North-Walls here, where the Sun-Beams never come, and conſequently, as ſome may think, the Plants receive no benefit by it; but this is effected, though not immediately in it ſelf, yet by its warming the Air, which diſperſeth it ſelf into all, even the moſt Northernly Climates.

*Farther
Proceſs in
Nature.*

But to return to our firſt Poſition: The Roots, by ſeeking out and aſſuming thoſe Salts, they are immediately, by the Courſe of Nature, and the Attractive Virtue of the Sun, drawn upwards to the Vital Principle; and after Concoction, aſcend ſtill higher into the Stem, and break out firſt in the Buds, the Shelly and tenderſt part of the whole Machine, and they afterwards diſſuſe themſelves into the Leaves, Flowers and Fruits, &c. that lie invelop'd therein, according to their Natural Frame, and the Direction of that Divine and Superior Being which at firſt form'd, and ever ſince wiſely (by theſe his Agents) conducted the whole Courſe of their Operation.

There

There be Those who carry the Matter yet farther, and affirm, That there are three kinds of Sap that ascend from the Root, (differing from each other in Rarefaction and Purity) being the several sorts of which is compos'd the Branches, Leaves, Flowers, and consequent to them the Fruit, that they pass in different Channels: But this, I confess, is not obvious to me.

Of the three several kinds of Sap.

I rather suppose 'tis all of one kind, and that it assumes its proper Office by a hidden Instinct in Nature, just as it enters the Boughs or Branches whereon the Fruit is to be, they being already formed for that Purpose by some casual Sprouts of the last Year; or probably, that it is rarefied by the Passage through the Stem: And what confirms me in the Opinion of the latter, is, that Standard Trees generally bear better and sooner than Dwarfs; and this is very plain in Cherries, to mention no more.

Suppos'd to be but one.

For by the near situation of the Stem to the Root, and the Sap being gross and uncocted, it runs more into Wood and Branches; and by its violent Effusion; renders some of those Trees, whilst young, so rampant and vigorous, that 'tis a hard matter to deal with and keep them in any tolerable Order: Whilst the other, by its long Passage through the Stem, is, by the Virtual Influence and Co-operation of the Sun and Air, robb'd of its Crudities, and thereby the better dispos'd to fructiferous Productions. And I can't

Uncocted Sap, its Effects.

can't but be of the opinion, that the Leaves, Flowers, and Fruits are by Nature involv'd in the Bud, and that the Sap is only a subservient, and not a commanding, self-efficient Agent in this Cause, and that the Passages into the Fruit-Branche are so straight as not receive any more Sap than is perfectly necessary for the Work. But this may be more certainly prov'd by a Microscopical Observation on the Contexture of the Fruit.

The Summary.

More might be said of Fruit; but that not being to my present Purpose, I omit it; but shall sum up together all that has been said in this Essay, (*viz.*) That upon the best Observation that hath been made, none can pretend to have discover'd any Heat or Fumigation to issue either from the Surface or Bowels of the Earth, adequate to the meanest artificial Fire, and that consequently 'tis not subterraneous Fires that are any-ways concerned in Vegetation or the Growth of Plants; but that the Sun is the Principle, and therefore, by way of Analogy, call'd the *Father*, and the *Earth* the *Mother*, while the *Rain* and *Air* are necessary Co-efficients in this surprizing Work.

The Uses of this Essay.

And from this plain Essay, may be gathered the Times and Seasons when Nature wants our Assistance; for 'tis in Gard'ning, doubtless, as in any other case where Persons never execute a Precept willingly, without they know the Reason why, and the immediate Danger, that attend the Neglect.

To apply it particularly to this: *The Gardener* that does not know that if he covers not the Foot of his new-planted Tree very deep, in *March*, or in the Extremity of Winter, he endangers the Loss of it by the piercing Winds, is doubtless not very solicitous about the doing it, let his Commands be what they will. And indeed, this is what is not much consider'd or known amongst too many, to the great Disadvantage of all new-planted Plantations. And with this I shall conclude what I had to say as to the Progress of Roots in the Ground, and the Ascension of Sap in the Growth, Procerity, and Fertility of Trees.

To the Gardener.

What becomes of this Sap in the Winter, and how the Tree is dispos'd for its next Year's Work, shall next be enquir'd into.

Concerning the Descension of Sap into the Roots.

It has been the common, and, without doubt, the erroneous Opinion of the ancient, as well as some modern Philosophers, That at the Termination of the Year, the Sap descends into the Roots, and there lies dormant all the Winter, till the Heat of the Spring draws it up again; while others maintain a Circulation of Sap in Trees, as of the Blood in the Bodies of Animals.

Against the first, it has been observ'd, That taking a Limb or Bough in the depth of Winter, at a time when one wou'd think the Sap was in its grand Repose, and cutting off any part of the Tree, commit it but to the Fire,

Vid. Quintiny's Reflexions, in his Compleat Gardener.

and the Sap will run out at both ends, by the force of the Heat; which plainly demonstrates that the Sap is not gone down into the Roots: Or, supposing that not plain enough, Where, in the Roots, is to be found a Receiver capable to contain the descending Sap, full enough 'tis probable already of the Sap that belongs to themselves?

But perhaps it may be ask'd how this Process is stopt? To which I answer, By the Coldness and Frigidity of the Air; for the Sap in most Trees being a thin Fluid, according to the Course of Nature, by the least Declension of the Sun, is easily assail'd and stopt: And what makes Holly, Yew, and all other Greens the contrary, is the strength of the Viscous and other Glutinous and Gummy Qualities of their Sap, by which they retain their Leaves all the Winter; and if a little shelter'd, will make a small appearance of shooting, tho' not to much purpose: Besides, the Wood is more tough in its Nature; so that the Leaves adhere the firmer, being tied, as it were, by Strings to the Boughs: While the other kinds of Trees are more fragile and brittle, the Sap thin, and consequently the Leaves desidious upon the least approach of Cold in Winter.

*Concerning
the Circulation
of
the Sap in
Trees.*

To the other, I mean Circulation, as in Animals, I am as much to seek, in the parity of Reason, why it should be, as the Method by which 'tis effected. 'Tis certain, the Natural Mechanism of the Body requires Extension,

sion, (under which may be well accounted that small Height to which the tallest of Animals advance) and so consequently the Blood is employ'd about no other service. But a Tree requires an unlimited Procuration; and 'tis reasonable to suppose that Nature employs all her Force to that End.

And as for the Swelling or Extension of *Extension* Trees, it is obvious to proceed from the Effusion of the Sap from the Heart of the Tree through the Pores, which insensibly dilates and swells the whole, by the accumulation of Circle upon Circle, which are the annual Gradations, plain enough to be seen by any one that cuts the Branch, Bough, or Trunk of a Tree a-cross.

And here it is to be observ'd, that the Sun *A particular Observation of the Sun.* has a very great Influence, since the Annual Circles which are on that side next the Sun are much larger than those on the North; and 'tis reported, that a foreign Prince having once lost himself a Hunting in a great Forest, was set right by that Observation.

I hope I have now sufficiently prov'd that *Conclusion* there is no Descension or Circulation in Sap, notwithstanding what has been said by Others on that Subject.

Yet how plain soever it may appear against *An Objection Answer'd.* the Descension of the Sap, I have seen an Instance in *Buckinghamshire*, which helps to confirm that Opinion; which I shall therefore Answer, and then have done: It is of

a *Jessamine* that was grafted with a Strip'd one of the same sort about two or three Foot above the Ground ; and some Years after, the same Stripes did not only appear above, but also in many Branches that were a considerable deal under the grafting place : But this I rather suppose to be by a recoiling or retiring of the Sap, which in this Tree is thinner than in any other : And that it does thus retire or sink towards the Vital Principle, as the Blood in the Body of a frighted Animal retires towards the Heart, is plain ; for that the Tops of this Tree die more than other Trees do, by being left destitute of Sap in the Hybernal Quarters.

And in all the Observations that I have made, I have not seen the like in any other Tree, but in some Strip'd Hollies that were budded close to the Ground ; but this was not plain enough to cast this Opinion, because they were not Strip'd, but Yellow, which may be by some Defect or rather Sport in Nature, and so likewise might the first Example be.

To what has been said already on *Vegetation*, I shall subjoin some of the remaining part of the Observation of that Ingenious Author before mention'd, which has more weight in it than any thing a private Person can say, and will spread those ingenious Thoughts more universally among *Gardeners* which is at present very much wanted ; for which reason, I hope I shall be excus'd of Plagiarism,

Plagiarism, since the Acts of that Society are design'd for Publick Use; his Theme was indeed at first concerning Water, but his Conclusions are of a mix'd nature, and may not improperly be brought under this Head.

In Plants of the same kind, the less they Observ. 1.
are in Bulk, the smaller the Quantity of the Fluid Mass in which they are set is drawn off; the Dispendium of it, where the Mass is of equal Thickness, being pretty nearly proportion'd to the Bulk of the Plant. Thus that in the Glass marked A, p. 120, the which weigh'd only 27 grains, drew off but 2558 grains of the Fluid; and that in B, which weigh'd only 28 $\frac{1}{4}$, took up but 3004 grains; whereas that in H, which weigh'd 127 grains, spent 14190 grains of the Liquid Mass.

The *Water* seems to ascend up the *Vessels* of *Plants* in much the same manner as up a *Filter*; and 'tis no great wonder that a *larger Filter* should draw off *more Water* than a *lesser*; or that a *Plant* that has *more and larger Vessels* should take up a *greater* share of the *Fluid* in which 'tis set, than one that has *fewer and smaller* ones can. Nor do I note *this* as a thing very considerable in itself, but chiefly in regard to what I am about to offer *beneath*; and that it may be seen that in my *other Collations of Things*, I made *due Allowance* for this *Difference*.

Observ. 2.

2. *The much greatest part of the Fluid Mass that is thus drawn off, and conveyed into the Plants, does not settle or abide there, but passes thro' the Pores of them, and exhales up into the Atmosphere.* That the *Water*, in these Experiments, ascended *only* through the *Vessels* of the *Plants*, is certain. The *Glasses F and G*, that had *no Plants* in them, though dispos'd of in like manner as the *rest*, remain'd, at the end of the *Experiment*, as at first, and none of the *Water* was gone off: And that the greatest part of it flies off from the *Plant* into the *Atmosphere* is as certain. The least *Proportion* of the *Water* expended was to the *Augment* of the *Plant*, as 46 or 50 to 1. And in some the *Weight* of the *Water* drawn off was 100, 200, nay, in one above 700 times as much as the *Plant* had received of *Addition*.

This so continual an *Emission* and *Detachment* of *Water*, in so great *Plenty* from the *Parts* of *Plants*, affords us a manifold Reason why *Countries* that *abound* with *Trees* and the *larger Vegetables* especially, should be very obnoxious to *Damps*, great *Humidity* in the *Air*, and more frequent *Rains*, than *others* that are more *open* and *free*. The great *Moisture* in the *Air* was a mighty *Inconvenience* and *Annoyance* to those who first settled in *America*; which at that time was much overgrown with *Woods* and *Groves*: But as *these* were *burnt* and *destroyed*, to make way for *Habitation* and *Culture* of the *Earth*, the *Air*
mended

mended and *cleared up* apace, changing into a Temper much more *dry* and *serene* than before.

Nor does this *Humidity* go off *pure* and *alone*, but usually bears forth with it many *Parts* of the *same Nature* with those whereof the *Plant* through which it passes consists. The *Crasser* indeed are not so easily borne up into the *Atmosphere*, but are usually deposited on the *Surface* of the *Flowers*, *Leaves*, and other *Parts* of the *Plants*. Hence come our *Manna's*, our *Honies*, and other *Gumous Exudations* of *Vegetables*: But the *finer* and *lighter Parts* are with greater Ease sent up into the *Atmosphere*. Thence they are conveyed to our *Organs* of *Smell*, by the *Air* we draw in *Respiration*, and are *pleasant* or *offensive*, *beneficent* or *injurious* to us, according to the *Nature* of the *Plants* from whence they arise. And since *these* owe their *Rise* to the *Water* that ascends out of the *Earth* through the *Bodies* of *Plants*, we cannot but be far to seek for the *Cause* why *they* are more *numerous* in the *Air*, and we find a greater *Quantity* of *Odours* exhaling from *Vegetables* in *warm*, *humid Seasons*, than in any other whatever.

3. *A great Part* of the *Terrestrial Matter* Observ. 3. that is *mix'd* with the *Water*, ascends up into the *Plant*, as well as the *Water*. There was much more *Terrestrial Matter* at the end of the *Experiment*, in the *Water* of the *Glasses* F and G, p. 123, that had *no Plants* in them, than in those that had *Plants*. The *Garden*

Mould diſſolved in the Glaſſes K and L, p. 125, 126, was conſiderably *diminiſh'd* and *carried off*: Nay, the *Terreſtrial* and *Vegetable Matter* was borne up in the *Tubes* filled with *Sand*, *Cotton*, &c. and in that *Quantity* as to be *evident* even to *Senſe*. And the *Bodies* in the *Cavities* of the other *Tubes* that had their lower Ends immerſ'd in Water wherein *Saffron*, *Cochineal*, &c. had been infus'd, were *ting'd* with *Yellow*, *Purple*, &c.

Sea-Plants
take up Mi-
neral Mat-
ter,

If I may be permitted to look Abroad a while, towards our *Shores* and *Parts* within the *Verge* of the *Sea*, theſe will preſent us with a large *Scene* of *Plants*, that, along with the *Vegetable*, take up into them *meer Mineral Matter* alſo in great *Abundance*: Such are our *Sea-Purſlains*, the ſeveral ſorts of *Alga's*, of *Sampires*, and other *Marine Plants*. Theſe contain *Common Sea-Salt*, which is all one with the *Foſſil*, in ſuch *Plenty*, as not only to be plainly diſtinguiſh'd on the *Palate*, but may be drawn forth of them in *conſiderable Quantity*. Nay, there want not *thoſe* who affirm there are *Plants* found that will yield *Nitre* and other *Mineral Salts*; of which indeed I am not ſo far ſatisfied that I can depend on the *Thing*, and therefore give this only as an *Hint* for *Enquiry*.

To go on with the *Vegetable Matter*: How apt and how much diſpoſed this, being ſo very *fine* and *light*, is to *attend Water* in all its *Motions*, and *follow* it into each of its *Receſſes*, is manifeſt, not only from the *Instances* above alledged,

alleged, but many others. *Percolate* it with all the Care imaginable; *filter* it with never so many Filtrations, yet some Terrestrial Matter will remain. 'Tis true, the *Fluid* will be *thinner* every time than other, and more disengag'd of the said Matter, but never wholly *free* and *clear*. I have filtred Water through several wholly *free* and *clear* Sheets of *thick Paper*; and after that, through very *close* fine *Cloth* twelve times *doubled*; nay, I have done this over and over, and yet a considerable Quantity of this *Matter* discover'd itself in the *Water*, after all. Now if it thus pass *Interstices*, that are so very *small* and *fine*, along with the *Water*, 'tis the less strange it should *attend* it in its Passage through the *Ducts* and *Vessels* of *Plants*. 'Tis true, *filtering* and *distilling* of *Water* intercepts and makes it quit some of the *Earthy Matter* it was before impregnated withal; but then *that* which continues with the *Water* after this, is *fine* and *light*, and such consequently as is in a peculiar manner fit for the *Growth* and *Nourishment* of *Vegetables*. And this is the Case of *Rain-Water*. The *Quantity* of *Terrestrial Matter* it bears up into the *Atmosphere* is not great; but that which it does bear up is mainly of that *light* kind of *Vegetable Matter*, and that too perfectly *dissolved*, and reduced to single *Corpuscles*, all *fit* to enter the *Tubules* and *Vessels* of *Plants*. On which account 'tis that *this Water* is so very *fertile* and *prolific*.

The Reason why, in *this Proposition*, I say, only a *great part* of the Terrestrial Matter that is mix'd with the Water ascends up with it into the *Plant*, is, because *all of it* cannot. The *Mineral Matter* is a great deal of it not only *gross* and *ponderous*, but *scabrous* and *inflexible*; and so not dispos'd to enter the *Pores* of the *Roots*: And a great many of the *simple Vegetable Particles*, by degrees, *unite* and form some of them small *Clods* or *Moleculæ*, such as those mentioned in H, K, and L, p. 124, 125, 126, sticking to the *Extremities* of the *Roots* of those *Plants*.

Others of them *intangle* in a *looser manner*, and form the *Nubeculæ* and *green Bodies*, so commonly observed in *stagnant Water*. These, when thus *conjoin'd*, are *too big* to enter the *Pores*, or ascend up the *Vessels* of *Plants*, which *singly* they might have done. They who are conversant in *Agriculture* will easily subscribe to *this*. They are well aware, that, be their *Earth* never so *rich*, so *good*, and so *fit* for the *Production* of *Corn* or other *Vegetables*, little will come of it, unless the *Parts* of it be *separated* and *loose*. 'Tis on this account they bestow the *Pains* they do in *Culture* of it, in *Digging*, *Ploughing*, *Harrowing*, and *Breaking* of the *Clodded Lumps* of *Earth*. 'Tis the same way that *Sea-Salt*, *Nitre*, and other *Salts*, promote *Vegetation*. I am sorry I cannot subscribe to the *Opinion* of those *Learned Gentlemen*, who imagine *Nitre* to be *essential* to *Plants*, and that nothing in the
Vege-

Vegetable Kingdom is transacted without it. By all the *Trials* I have been able to make, the Thing is quite *otherwise*; and when contiguous to the *Plant*, it rather destroys than nourishes it: But this, *Nitre* and *other Salts* certainly do; they *loosen* the *Earth*, and *separate* the *concreted Parts* of it, by that means fitting and disposing them to be *assumed* by the *Water*, and *carried up* into the *Seed* or *Plant* for its *Formation* and *Augment*. There's no Man but must observe how apt all *sorts* of *Salts* are to be wrought upon by *Moisture*; how easily they *liquate* and run with it; and when these are *drawn* off, and have *deserted* the *Lumps* wherewith they were incorporated, *those* must *moulder* immediately, and fall *asunder* of course. The hardest *Stone* we meet with, if it happen, as frequently it does, to have any sort of *Salt* intermix'd with the *Sand* of which it consists, upon being expos'd to an *humid Air*, in a short time dissolves and crumbles all to pieces; and much more will *Clodded Earth* or *Clay*, which is not of near so *compact* and *solid* a *Constitution* as *Stone* is. The *same way* likewise is *Lime* serviceable in *this Affair*. The *Husbandmen* say of it, that it does not *fatten*, but only *mellows* the *Ground*. By which they mean, that it does not contain any thing in itself that is of the *same Nature* with the *Vegetable Mould*, or afford any *Matter* fit for the *Formation* of *Plants*, but meerly *softens* and *relaxes* the *Earth*; by that means

rendering it more capable of *entring* the *Seeds* and *Vegetables* set in it, in order to their *Nourishment*, than otherwise it would have been. The *Properties* of *Lime* are well known, and how apt it is to be put into *Ferment* and *Commotion* by *Water*. Nor can such *Commotion* ever happen when *Lime* is *mix'd* with *Earth*, however *hard* and *clodded* that may be, without *opening* and *loosening* of it.

Observ. 4. 4. *The Plant is more or less nourish'd and augmented, in Proportion as the Water in which it stands contains a greater or smaller quantity of proper Terrestrial Matter in it.* The Truth of this Proposition is so eminently discernible through the *whole Process* of these *Trials*, that I think no doubt can be made of it. The *Mint* in the *Glass C* was of much the same *Bulk* and *Weight* with those in *A* and *B*. But the *Water*, in which that was, being *River-Water*, which was apparently stored more copiously with *Terrestrial Matter* than the *Spring* or *Rain-Water*, wherein they stood, were; it had *thriven* to almost *double the Bulk* that either of them had; and with a *less Expence* of *Water* too. So likewise the *Mint* in *L*, p. 126, in whose *Water* was dissolved a small quantity of good *Garden Mould*, tho' it had the *Disadvantage* (a) to be *less* when first set, than either of the *Mints* in *H*, or *I*, p. 124, 125, whose *Water* was the very same.

(a) Confer. Prop. 1. *supra*.

with this in L, p. 126, but had none of that *Earth* mix'd with it; yet, in a short time the *Plant* not only overtook, but much out-stript those, and at the end of the Experiment was very considerably bigger and heavier than either of them. In like manner, the *Mint* in N, p. 127, tho' less at the beginning than that in M, being set in that thick, turbid, feculent *Water*, that remained behind, after that wherein M, p. 127, was placed, was distill'd off, had in fine more than doubl'd its Original Weight and Bulk, and received above twice the additional Encrease than that in M, which stood in the thinner distill'd *Water*, had done; and, which is not less considerable, had not drawn off half the Quantity of *Water* that that had.

Why, in the beginning of this Article, I limit the Proportion of the Augment of the *Plant* to the Quantity of proper Terrestrial Matter in the *Water*, is, because all, even the *Vegetable Matter*, to say nothing of the *Mineral*, is not proper for the Nourishment of every *Plant*. There may be, and doubtless are, some Parts in different Species of *Plants*, that may be much alike, and so owe their supply to the same common Matter: But 'tis plain all cannot. And there are other Parts so differing, that 'tis no-ways credible they should be form'd all out of the same sort of Corpuscles. So far from it, that there want not good Indications, as we shall see by and by, that every Kind of *Vegetable* requires a peculiar

peculiar and *specifick* Matter for its Formation and Nourishment. Yea, each Part of the same *Vegetable* does so: And there are very many and different *Ingredients* go to the Composition of the same individual *Plant*. If therefore the *Soil*, wherein any *Vegetable* or *Seed* is planted, contains all or most of these *Ingredients*, and those in due quantity, 'twill grow and thrive there: Otherwise 'twill not. If there be not as many sorts of *Corpuscles* as are requisite for the Constitution of the main and more essential Parts of the *Plant*, 'twill not prosper at all. If there be these, and not in sufficient Plenty, 'twill starve, and never arrive to its Natural *Stature*: Or if there be any the less necessary and essential *Corpuscles* wanting, there will be some Failure in the *Plant*: 'Twill be defective in *Taste*, in *Smell*, in *Colour*, or some other way. But tho' a *Tract* of *Land* may happen not to contain Matter proper for the Constitution of some one peculiar kind of *Plant*; yet it may for several others, and those much differing amongst themselves. The *Vegetative Particles* are commix'd and blended in the *Earth*, with all the diversity and variety, as well as all the uncertainty conceivable. I have given some *Intimations* of this elsewhere, (a) and shall not repeat them here; but hope in due time to put them into a much better light than that they there stand in.

(a) *Nat. Hist. Earth*, p. 228, & seq.

It is not possible to imagine how *one, uniform, homogeneous Matter*, having its Principles or Original Parts of all the *same Substance, Constitution, Magnitude, Figure, and Gravity*, should ever constitute *Bodies* so egregiously *unlike*, in all *those respects* as *Vegetables of different Kinds* are; nay, even as the *different Parts* of the *same Vegetable*. That *one* should carry a *Resinous*, another a *Milky*, a third a *Yellow*, a fourth a *Red Juice*, in its *Veins*: One afford a *Fragrant*, another an *Offensive Smell*: One be *Sweet* to the *Taste*, another *Bitter, Acid, Acerb, Austere, &c.* that one should be *Nourishing*, another *Poisonous*; one *Purging*, another *Astringent*: In brief, that there should be that vast *Difference* in them in their several *Constitutions, Makes, Properties, and Effects*, and yet *all* arise from the very *same sort of Matter*; would be very *strange*. And, to note that by and by, this *Argument* makes *equally strong* against *those* who suppose *meer Water* the *Matter* out of which all *Bodies* are *form'd*.

The *Cataputia* in the *Glass E*, p. 122, received but very little *Encrease*, only *Three Grains* and a half all the while it stood, tho' *2501 Grains* of *Water* were spent upon it. I will not say the *Reason* was because *that Water* did not contain in it *Matter* fit and *proper* for the *Nourishment* of that *peculiar and remarkable Plant*: No, it may be the *Water* was not a *proper Medium* for it to grow in; and we know there are
very

very many Plants that will not thrive in it. Too much of that Liquor, in some Plants, may probably hurry the terrestrial Matter thorough their Vessels too fast for them to arrest and lay hold of it. Be that as it will, 'tis most certain there are peculiar Soils that suit particular Plants. In England, Cherries are observ'd to succeed best in Kent, Apples in Herefordshire, Saffron in Cambridgeshire, Woad in two or three of our Midland Counties, and Teazles in Somersetshire. This is an Observation that hath held in all Parts, and indeed in all Ages of the World. The most ancient Writers of Husbandry (a) took notice of it; and are not wanting in their Rules for making choice of Soils suited to the Nature of each kind of Vegetable they thought valuable or worth propagating.

But, which is a farther Proof of what I am here endeavouring to advance, That Soil that is once proper and fit for the Production of some one sort of Vegetable, does not ever continue to be so. No, in tract of Time it loses that Property; but sooner in some Lands, and later in other. This is what all who are conversant in these Things know very well. If Wheat, for Example, be sown upon a Tract of Land that is proper for that Grain, the first Crop will succeed very well, and perhaps the second, and the third, as long as the

(a) Vid. Varronem, Columellam, & reliquos Rei Rusticae Scriptores.

Ground is in *Heart*, (as the *Farmers* speak :) But in a few *Years* 'twill produce no more, if sowed with *that Corn*. Some other *Grain* indeed it may, as *Barley*: And after *this* has been sown so often that the *Land* can bring forth no more of the same; it may afterwards yield good *Oats*, and perhaps *Pease* after them. At length 'twill become *barren*; the *Vegetative Matter* that at first it abounded withal, being educed forth of it by those *successive Crops*, and most of it borne off. Each sort of *Grain* takes forth that *peculiar Matter* that is proper for its own *Nourishment*. First, the *Wheat* draws off *those Particles* that suit the *Body* of *that Plant*; the rest lying all quiet and undisturb'd the while. And when the *Earth* has yielded up all them, *those* that are proper for *Barley*, a different *Grain*, remain still behind, 'till the *successive Crops* of *that Corn* fetch them forth too. And so the *Oats*, and *Pease*, in their turn; 'till, in fine, all is carried off, and the *Earth*, in great measure, drain'd of *that sort of Matter*.

After all which, *that very Tract* of *Land* may be brought to produce another *Series* of the same *Vegetables*; but never 'till 'tis supplied with a new *Fund* of *Matter*, of like sort with *that* it at first contain'd. This *Supply* is made several ways; by the *Ground's lying Fallow* for some time, 'till the *Rain* has pour'd down a *fresh Stock* upon it, or by the *Tiller's Care* in *Manuring* of it. And for farther Evidence that *this Supply* is in reality

of like sort, we need only reflex a-while upon those *Manures* that are found by constant *Experience* best to promote *Vegetation*, and the *Fruitfulness* of the *Earth*. These are chiefly either *parts* of *Vegetables*, or of *Animals*, which indeed either derive their own *Nourishment* immediately from *Vegetable Bodies*, or from *other Animals* that do so. In particular, the *Blood*, *Urine*, and *Excrements* of *Animals*, *Shavings* of *Horns* and of *Hoofs*, *Hair*, *Wooll*, *Feathers*, *Calcin'd Shells*, *Lees* of *Wine*, and of *Beer*, *Ashes* of all sorts of *Vegetable Bodies*, *Leaves*, *Straw*, *Roots*, and *Stubble*, turn'd into the *Earth* by *ploughing* or otherwise, to *rot* and *dissolve* there: These, I say, are our best *Manures*; and being *Vegetable Substances*, when refunded *back* again into the *Earth*, serve for the *Formation* of *other like Bodies*.

Not wholly to confine our *Thoughts* to the *Fields*, let us look a-while into our *Gardens*, where we shall meet with still farther *Confirmations* of the same thing. The *Trees*, *Shrubs*, and *Herbs* cultivated in *these*, after they have *continued* in one *Station* 'till they have derived thence the greater part of the *Matter* fit for their *Augment*, will *decay* and *degenerate*, unless either *fresh Earth*, or some *fit Manure*, be applied unto them. 'Tis true, they may *maintain* themselves *there* for some time, by sending forth *Roots* farther and farther to a great extent all round, to fetch in *more remote Provision*; but at last all will fail, and

and they must either have a *fresh supply* brought to them, or they *themselves* be removed and *transplanted* to some Place better furnished with *Matter* for their *Subsistence*. And accordingly *Gardeners* observe, That *Plants* that have stood a great while in a Place, have longer *Roots* than usual; part of which they cut off when they *transplant* them to a *fresh Soil*, as now not of any farther use to them. All these *Instances*, to pass over a great many others that might be alledg'd, point forth a *particular Terrestrial Matter*, and not *Water*, for the *Subject* to which *Plants* owe their *Encrease*. Were it *Water only*, there would be no need of *Manures*, or of *transplanting* them from Place to Place. The *Rain* falls in all *Places* alike; in *this Field*, and in *that* indifferently; on one side of an *Orchard* or *Garden* as well as another. Nor could there be any reason why a *Tract* of *Land* should yield *Wheat* one Year, and not the next; since the *Rain* shows down alike in each. But I am sensible I have carried on *this Article* to too great a length; which yet, on so ample and extensive a *Subject*, 'twas not easie to avoid.

5. *Vegetables* are not form'd of *Water*, but of a certain peculiar *Terrestrial Matter*. It hath been shewn, That there is a considerable Quantity of this *Matter* contain'd both in *Rain*, *Spring*, and *River Water*: That the the much greatest part of the *Fluid Mass* that ascends up into *Plants* does

Observ. 5.
Vegetables
are not
form'd of
Water, but
Terrestrial
Matter.

not settle or abide there, but passes through the Pores of them, and exhales up into the Atmosphere: That a great part of the Terrestrial Matter mix'd with the Water, passes up into the Plant along with it; and that the Plant is more or less augmented, in proportion as the Water contains a greater or smaller Quantity of that Matter. From all which we may very reasonably infer, That Earth, and not Water, is the Matter that constitutes Vegetables. The Plant E drew up into it 2501 Grains of the Fluid Mass; and yet had receiv'd but gr. 3 $\frac{1}{2}$ of Encrease from all that. The Mint in L, p. 126, tho' it had at first the disadvantage to be much less than that in I; yet being set in Water wherewith Earth was plentifully mix'd, and that in I only in Water without any such additional Earth, it had vastly outgrown the other, weighing at least 145 gr. more than that did, and so having gain'd above twice as much as that had. In like manner that in K, tho' 'twas a great deal less when put in than that in I, and also was impair'd and offended by Insects; yet being planted in Water wherein Earth was dissolved, whereas the Water in which I stood had none, it not only overtook, but considerably surpass'd the other, weighing at least 29 gr. more than that in I, p. 125, and yet had not expended so much Water as that by above 2400 gr. The Plant in N, tho' at first a great deal less than that in M, yet being set in the
foul

foul crass Water that was left in the *Still*, after *that* in which M, p. 127, was set, was drawn off, in conclusion had gain'd in weight above double what *that* in the *finer* and *thinner* Water had. The *Proportion* of the *Augment* of *that* Plant that *throve* most, was, to the *Fluid Mass* spent upon it, but as 1 to 46. In *others* it was but as 1 to 60, 100, 200; nay, in the *Cataputia* 'twas but as 1 to 714. The *Mint* in B, p. 121, took up 39 gr. of Water a Day, one Day with another; which was much more than the *whole Weight* of the Plant originally; And yet with all *this* it gain'd not one fourth of a Grain a Day in *Weight*. Nay, that in H took up 253 Grains a Day of the *Fluid*, which was near *twice as much* as its *original Weight*, it weighing when first set in the *Water* but 127 Grains. And after all the *daily Encrease* of the Plant, was no more than gr. $2\frac{1}{5}$.

6. *Spring and Rain-Water* contain pretty near an equal Charge of *Vegetable Matter*; *River-Water* more than either of them. The *Plants* in the *Glasses* A, B, C, p. 120, 121, were at first of much the *same Size* and *Weight*. At the End of the Experiment, the *Mint* in A, p. 120, had gain'd 15 gr. out of 2558 gr. of *Spring-Water*: That in B, p. 121, gr. 17 and an half, out of 3004 gr. of *Rain-Water*: But that in C had got 26 gr. out of only 2493 gr. of *River-Water*. I do not found this *Proposition* solely upon *these Trials*; having made

Observ. 6.
Spring and
Rain-Water
contain
an equal
Quantity:
River and
Pond-Water
more than
either.

Some more, which I do not relate here, that agree well enough with these. So that the *Proportions* here delivered will hold for the *main*; but a *strict* and *just Comparison* is hardly to be expected. So far from it, that I make no doubt but the *Water* that falls in *Rain* at *some times*, contains a *greater share* of *Terrestrial Matter* than *that* which falls at others. A more *powerful* and *intense Heat* must needs hurry up a *larger Quantity* of *that Matter* along with the *humid Vapours* that form *Rain*, than one more *feeble* and *remiss* ever possibly can. The *Water* of one *Spring* may flow forth with an *higher Charge* of this *Matter*, than *that* of another: This depending partly upon the *quickness* of the *Ebullition* of the *Water*; and partly upon the *Quantity* of that *Matter* latent in the *Strata* through which the *Fluid* passes, and the *greater* or *less laxity* of those *Strata*. For the same Reason the *Water* of one *River* may *abound* with it *more* than *that* of another. Nay, the *same River*, when *much agitated* and in *Commotion*, must bear up more of it, than when it *moves* with *less Rapidity* and *Violence*. That there is a *great quantity* of this *Matter* in *Rivers*, and that it *contributes* vastly to the *ordinary Fertility* of the *Earth*, we have an *illustrious Instance* in the *Nile*, the *Ganges*, and *other Rivers* that *yearly overflow* the *Neighbouring Plains*. Their *Banks* shew the *fairest* and *largest Crops* of any in the *whole World*: They are even loaded with the

the multitude of their Productions: And those who have not seen them will hardly be induced to believe the mighty Returns those Tracts make, in Comparison of others that have not the Benefit of like Inundations.

7. Water serves only for a Vehicle to the Terrestrial Matter which forms Vegetables; and does not itself make any Addition unto them. Where the proper Terrestrial Matter is wanting, the Plant is not augmented, tho' never so much Water ascend into it. The Cataputia in E took up more Water than the Mint in C, p. 121, and yet had grown but very little, having received only three Grains and an half of additional Weight: Whereas the other had received no less than twenty six Grains. The Mint in I was planted in the same sort of Water as that in K, p. 125, was; only the latter had Earth dissolved in the Water; and yet that drew off 13140 gr. of the Water, gaining itself no more than 139 gr. in Weight: Whereas the other took up but 10731 gr. of Water, and was augmented 168 gr. in Weight. Consequently that spent 2409 gr. more of the Water than this in K, p. 125, did, and yet was not so much encreased in Weight as this by 29 gr. The Mint in M, p. 127, stood in the very same kind of Water as that in N did. But the Water in M, having much less Terrestrial Matter in it than that in N, p. 127, the Plant bore up 8803 gr. of it, gaining itself only 41 gr. the while: Whereas that in N, p. 127, drew off no more than 4344 gr.

Observ. 7.
Water only
a Vehicle
to the Ter-
restrial
Matter.

and yet was augmented 94 gr. So that it spent 4459 gr. of *Water* more than *that* did; and yet was not *itself* so much increased in Weight as *that* was by 53 gr. This is both a very *fair* and a very *conclusive* Instance: On which Account 'tis that I make oftner use of it. Indeed they are all so: And to add any thing farther on *this Head* will not be needful.

'Tis evident therefore *Water* is not the *Matter* that composes *Vegetable Bodies*; 'tis only the *Agent* that conveys that *Matter* to them, that *introduces* and *distributes* it to their several *Parts* for their *Nourishment*. That *Matter* is sluggish and *inactive*, and would lie eternally confin'd to its *Beds of Earth*, without ever *advancing up* into *Plants*, did not *Water* or some like *Instrument* fetch it *forth* and carry it unto them. That therefore there is that plentiful *Provision* and vast *Abundance* of it supplied to *all Parts* of the *Earth*, is a Mark of a *natural Providence* superintending over the *Globe* we inhabit; and ordaining a due *Dispension* of that *Fluid*, without the *ministry* of which, the noble *Succession* of *Bodies* we behold, *Animals*, *Vegetables*, and *Minerals* would be all at a stand (a). But to keep to *Plants*: 'Tis manifest, *Water*, as well on this as upon the other *Hypothesis*, is absolutely necessary in the *Affair of Vegetation*, and it will not *succeed* without it. Which

(a) Conf. *Nat. Hist. of Earth*, p. 47, & seq. & p. 128, &c. indeed

indeed gave occasion to the *Opinion*, that *Water* itself nourished, and was *changed* into *Vegetable Bodies*. They saw, though *these* were planted in a *Soil* never so rich, so *bappy*, so *advantageous*, nothing came of it, unless there was *Water* too in considerable quantity. And it must be allowed, *Vegetables* will not *come on* or *prosper* where *that* is wanting: But yet what *those Gentlemen* inferr'd *thence*, was not, we see, well grounded.

This *Fluid* is capacitated for the *Office* here assign'd it, several ways. By the *Figure* of its *Parts*, which, as appears from many *Experiments*, is exactly and *Mathematically Spherical*; their *Surfaces* being perfectly *polite*, and without any the least *Inequalities*. 'Tis evident, *Corpuscles* of such a *Figure* are easily *susceptible* of *Motion*, yea far above any *others* whatever; and consequently the most capable of *moving* and *conveying* other *Matter* that is not so *active* and *voluble*. Then the *Intervals* of *Bodies* of that *Figure*, are, with respect to their *Bulk*, of all others the *largest*; and so the most fitted to *receive* and *entertain* foreign *Matter* in them. Besides, as far as the *Trial*s hitherto made inform us, the *Constituent Corpuscles* of *Water*, are, each singly consider'd, *absolutely solid*, and do not *yield* to the greatest *external Force*. This secures their *Figure* against any *Alteration*: And the *Intervals* of the *Corpuscles* must be always alike. By the *latter*, 'twill be ever disposed to *receive Matter* into it; and by the *former*,
when

when once received, to bear it on along with it. *Water* is farther capacitated to be a *Vehicle* to this *Matter*, by the *tenuity* and *fineness* of the *Corpuscles* of which it consists. We hardly know any *Fluid* in all *Nature*, except *Fire*, whose *constituent Parts* are so exceeding *subtile* and *small* as those of *Water* are. They'll pass *Pores* and *Interstices* that neither *Air* nor any other *Fluid* will. This enables them to enter the *finest Tubes* and *Vessels* of *Plants*, and to introduce the *Terrestrial Matter*, conveying it to *all Parts* of them; whilst each, by means of *Organs* 'tis endowed with for that purpose, *intercepts* and *assumes* into itself such *Particles* as are suitable to its own *Nature*, letting the rest pass on through the *common Ducts*. Nay, we have almost every-where *Mechanical Instances* of much the *same Tenor*. 'Tis obvious to every one how *easily* and *suddenly* *Humidity*, or the *Corpuscles* of *Water* sustained in the *Air*, pervade and *insinuate* themselves into *Cords*, however tightly twisted, into *Leather*, *Parchment*, *Vegetable Bodies*, *Wood*, and the like. This it is that fits them for *Hydrometers*, and to measure and determine the different *quantities* of *Moisture* in the *Air*, in different *Places* and *Seasons*. How freely *Water* passes and carries with it *Terrestrial Matter*, through *Filtres*, *Colatures*, *Distillations*, &c. hath been intimated already.

8. *Water is not capable of performing this Office to Plants, unless assisted by a due Quantity of Heat; and this must concur, or Vegetation will not succeed.* The Plants that were set in the Glasses Q, R, S, &c. p. 129, in October and the following colder Months, had not near the quantity of Water sent up into them, or so great an additional Encrease, by much, as those that were set in June, July, and the hotter. 'Tis plain, Water has no Power of moving itself, or rising to the vast height it does in the more tall and lofty Plants. So far from this, that it does not appear from any Discovery yet made, that even its own Fluidity consists in the intestine Motion of its Parts; whatever some, otherwise very Learned and Knowing Persons, may have thought. There's no need of any thing more, for solving all the Phenomena of Fluidity, than such a Figure and Disposition of the Parts, as Water has. Corpuscles of that make, and that are all absolutely Spherical, must stand so very tickly and nicely upon each other, as to be susceptible of every Impression; and, though not perpetually in Motion, yet must be ever ready and liable to be put into it, by any the slightest Force imaginable. It is true, the Parts of Fire or Heat are not capable of moving themselves, any more than those of Water; but they are more subtle, light and active than those are, and so more easily put into Motion. In fine, 'tis evident and Matter of Fact, that Heat does operate upon and move
the

Observ. 8.
Water not
capable of
doing any
good with-
out the Sun.

the *Water*, in order to its carrying on the *Work of Vegetation*: But *how* 'tis agitated *itself*, and *where* the *Motion* first begins, this is no fit *Place* to enquire.

That the *Concourse of Heat* in this *Work* is really *necessary*, appears, not only from the *Experiments* before us, but from *all Nature*: From our *Fields* and *Forests*; our *Gardens* and *Orchards*. We see in *Autumn*, as the *Sun's Power* grows gradually *less* and *less*, so its *Effects* on *Plants* is *remitted*, and their *Vegetation* *slackens* by little and little. Its *failure* is first discernible in *Trees*. These are *raised* highest above the *Earth*, and require a more *intense Heat* to *elevate* the *Water*, charg'd with their *Nourishment*, to the *Tops* and *Extremities* of them; so that for want of *fresh Support* and *Nutrimment* they shed their *Leaves*, unless secur'd by a very *firm* and *hardy Constitution* indeed, as our *Ever-greens* are. Next the *Shrubs* part with theirs; and then the *Herbs* and *lower Tribes*; the *Heat* being at length not sufficient to supply ev'n *these*, tho' so *near* the *Earth*, the *Fund* of their *Nourishment*. As the *Heat* returns the succeeding *Spring*, they all recruit again; and are furnish'd with *fresh Supplies* and *Verdure*. But first those which are *lowest* and *nearest* the *Earth*, *Herbs*, and they that require a *less degree* of *Heat* to raise the *Water* with its *Earthly Charge* into them. Then the *Shrubs* and *higher Vegetables* in their *Turns*; and lastly the *Trees*. As the *Heat* encreases it
grows

grows too powerful, and hurries the Matter with too great *Rapidity* through the *finer* and more *tender Plants*. *These* therefore go off and decay, and others that are more *hardy* and *vigorous*, and require a greater *share* of *Heat*, succeed in their *Order*. By which *Mechanism provident Nature* furnishes us with a very various and differing *Entertainment*, and what is *best suited* to *each Season*, all the *Year* round.

As the *Heat* of the *several Seasons* affords us a *different Face* of *Things*; so the *several distant Climates* shew *different Scenes* of *Nature*, and *Productions* of the *Earth* (a). The *Hotter Countries* yield ordinarily the *largest* and *tallest Trees*, and those too in much greater *Variety* than the *colder* ever do. Even those *Plants* which are *common* to *both*, attain to a much *greater Bulk* in the *Southern* than in the *Northern Climes*. Nay, there are some *Regions* so *bleak* and *chill*, that they raise no *Vegetables* at all to any *considerable size*. This we learn from *Groenland*, from *Iseland*, and other *Places* of like *cold Site* and *Condition*. In these no *Tree* ever appears, and the very *Shrubs* they afford are *few*, *little*, and *low*.

I might have followed this Author farther, but this I have copied is the most material; and from what has been said, are discoverable those innumerable *Momenta's* that are in

(a) *Conf. Nat. Hist. Earth*, p. 267, & seq.

all parts of this Vegetative System, such as have not till of late been discovered. Much more doubtless remains of this kind, that declare the hidden Secrets of Nature, and the eternal Laws of the Supreme Being, by whose peculiar Care they are governed.

Pfalm 40.
v. 5.

Many, O Lord, are thy wondrous Works which thou hast done, and thy Thoughts which are to us-ward: they cannot be reckoned up in order to thee: if I would declare and speak them, they are more than can be numbred.

It is a singular Part of Nature; to the World
It is a singular Part of Nature; to the World
It is a singular Part of Nature; to the World
It is a singular Part of Nature; to the World
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DIRECTIONS

For the RAISING

Forest Trees.

CHAP. VII.

SECT. I.

MR. Evelyn, in his *Sylva*, having in a particular Chapter, intituled *The Sacredness and Use of Groves, &c.* run thro' the Proemial Part of this Treatise of Wood in the most inimitable manner, there will be the less Occasion for me to pursue that Matter far; that Gentleman having from an inexhaustible Fund of Rhetorick (peculiar to his great Genius) so beautifully described the Sacred, Civil, and Seraphick Use of those Nemorous Amenities, and in such pathetick Terms, as are sufficient to charm the most profound Drone (would he but give himself the liberty of reading it) in-

to

*Introd-
tion.*

to an Admiration thereof. And indeed, whoever (especially of our Profession) attempts to soar the Heights of that bright Person, to hold the Reins, and govern these sublime Subjects with a Dexterity equal to him, may justly expect the Fate of *Phaeton*, to be tumbled from those Sublimities his Ambition has carried him.

To epitomize then what has been said by him and others on this Subject: *'Tis here the wearied Traveller and laborious Rustick seek for Shelter and Refreshment; and (sub dio, as the Latins term it) to stretch their wearied Limbs, and enjoy that sweet Repose, and those meridian Naps; appointed for the Recruit of Nature in the recessive Intervals of a sultry Day: 'Tis here the indefatigable Statesman reads over and considers the several Governments of the World, and makes such Observations, as are for the Service of his Prince and Country: 'Tis here the learned Divine oft forms his elegant and pathetick Orations, and the Poet his never-dying Poems.*

Virgil begins his Pastorals, *Sub tegmine fagi*; and in his Second Georgick, as if fainting under the intense Heat of Heaven, breaks out:

———*O quis me gelidis in Vallibus Hemi
Sistat, & ingenti ramorum protegit Umbra.*

And thro' the whole Course of his Works, is often shrouding himself under the Covert
of

of some umbragious Tree. Scarce had he reach'd the middle of his *Aeneids*, before he makes these the happy Abodes of his departed Heroes: Says he,

(a) *Devenere locos latos & amœna vireta,
Fortunatorum nemorum sedesque beatas.* —

And a little after:

(b) ——— *Lucis habitamus opacis,
Riparumque toros & prata ricentia rivis
Incolimus.*

And *Juvenal*, amidst his Sarcasms, is found,

——— *Cupidus Sylvarum aptusque bibordis
Fontibus Aomidum.*

But if these should be thought the Strains of Poets born in Countries much hotter than ours, let us turn to the sublime Thoughts of our Northernly Bards on this Subject, who all of them harmoniously paint the Beauties of these Rural Shades, Groves, and Recesses. Thus *Mr. Otway*:

——— *We wandring thro' a Grove,
Trees green beneath us, and all Shade above, }
Mild as our Friendship, springing as our Love : }*

(a) *Aeneid.* 6. 637.

(b) *Aeneid.* 6. 672.

*Hundreds of chearful Birds fill ev'ry Tree,
And sing their joyful Songs of Liberty.*

And Dryden, in his *Bocc. Theod. & Hon.* describes his Lover :

———— *Within a lonely Lawn that stood,
On ev'ry side surrondded by a Wood,
Alone he walk'd, to please his pensive Mind,
And sought the deepest Solitude to find:
'Twas in a Grove of pleasant Pines he stray'd,
The Winds within the quiv'ring Branches play'd,
And dancing Trees a mournful Musick made. }
The Place itself was suiting to his Care,
Uncouth and savage as the Cruel Fair :
He wander'd on, unknowing where he went,
Lost in the Wood, and all on Love intent.*

And the incomparable *Boileau*, in several Parts of his Epistle to *Lamoignon* (which I shall collect together) speaks of it in the highest Raptures; for tho' his Theme be that of a Country Life in general, yet the Woods engross'd the beautifullest of his Thoughts: Speaking to *Lamoignon*, he says,

*There solid Pleasures at an easie Rate
I purchase, and am there content with Fate :
I take my Book, and in the Meadows stray,
Read as I walk; and musing, lose my Way :
So fast the sweet Idea's croud my Mind,
To Books the Fields, the Shades to Thought so
kind :*

*Oft at the Corner of a Wood I meet
The Word I wanted, and my Verse compleat.*

And in another Place,

*There, dear Lamoignon, in an easie Mind,
That Peace, in Cities never found, I find;
My lonely Hours I to my Profit turn,
Nor waste the Time, whose Loss in Town we
[mourn.*

And again, in recounting the Benefits of them to Poetry :

*The Sylvan Shade and Silence I require
To animate my Voice, and feed my Fire.*

But here, as if he intended to make the Shades his everlasting *Asylum* :

*O blest'd Abodes ! O dear delicious Shade !
Had I for you, or you for me, been made,
How gladly would I fix my wandring Course
With you ! How willing bear the World's Divorce !
And only blest'd in your's, her Charms forget ;
Renounce her Pleasures, and to your's retreat.*

Mr. Ozell.

Indeed, I can't but think I may, with the universal Consent of Mankind, suppose, that nothing on this side Heav'n is comparable to it : And this is most excellently describ'd by *Milton*, in that memorable Passage of his,

where he represents *Adam* just entering upon his Existence :

——— *As new waked from soundest Sleep,*
Soft on the flow'ry Mead I laid me down
In Balmy Sweat, which with its Beams the Sun
Soon dry'd, and on the reeking Moisture fed:
Streight towards Heaven my wandring Eyes I
[turn'd,
And gaz'd a while the ample Sky ; till rais'd
By quick, instinctive Motion, up I sprung,
As thitherward endeavouring, and upright
Stood on my Feet : About me round I saw
Hill, Dale, and shady Woods, and sunny Plains,
And liquid Lapse of murmur'ing Streams ; by these,
Creatures that liv'd, and mov'd, and walk'd,
[and flew,
Birds on the Branches warbling ; all things smil'd:
With Fragrance and with Joy my Heart o'erflow'd.

No wonder if this forc'd the greatest Admiration imaginable in this New Person ; since, should any Man living, after a long Annihilation, or even an Imprisonment in a dark and melancholy Dungeon, be immediately transported into such blissful Shades, into the View of such gay and beautiful Landskips, and into the midst of such innumerable Choirs of Birds, how agreeably surpriz'd would that Person be ! and cry out with *Adam*, in that incomparable Poem,

——— *Thou*

— *Thou Sun, said I, fair Light,
And thou enlighten'd Earth so fresh and gay,
Ye Hills and Dales, ye Rivers, Woods, and Plains,
And ye that live and move, fair Creatures, tell,
Tell, if you saw, how came I thus ! how here !*

These indeed are the Flights of a Poetick Fancy ; but upon a short *Examen* we shall find the Account that is made of these Amenities by the serious and religious part of Mankind : And certain it is, there is no Place so proper for divine Purposes as these Nemorous Abodes : 'Twas under a Tree, Mr. *Evelyn* observes, that *St. Austin's* solemn Conversion was wrought, after all his importunate Reluctances ; and he gives the Reason of it himself, *Solitudo enim mihi ad negotium flendi aptior suggerabatur*. And we may reasonably suppose (from that Example) that the Air of such retired Places may be assistant and influential for the Incitement of Penitential Expressions and Affections, especially when thereto is added solitary Grotts, murmuring Streams, and desolate Prospects. These are so very material, that I shall in my Designs make use of them in several Recesses of my Woody Plantations, rather than the most elaborate Architecture ; for as there is no Passion of the Soul more noble than that of Pity, we may see it here invited by such gloomy and melancholy Subjects as would, if one gives liberty to Thought, melt down the most obdurate Heart.

Thus to Noble and Ingenuous Natures, a Piece of *Ruin* is more entertaining than the most beautiful Edifice; and the sorrowful Reflexions they draw, are of the softest Temperament imaginable. There may be read the Instability of all Sublunary Affairs, and will remind us of the Frailty of these our Earthly Tabernacles; for if those magnificent Piles, compos'd of the hardest and most durable Materials of Wood and Stone, are subject to such Casualties; how much easier is it for Providence to destroy this tottering Frame of Nature, compos'd only of Flesh and Blood! In these gloomy and beautiful Abodes 'tis possible for a judicious Contriver so to order his Design, as that all the Passions of the Mind may be mov'd in a very wonderful manner. How surprizing would it be to a Stranger to fall accidentally on the Ruins of *Rome*, (tho' 'twas in Epitome) at the End of a noble Walk! How would a Man's Mind be insensibly carried to reflex on the Lives and gallant Actions of those ancient *Romans* that were once the Inhabitants of those miserable Desolations! In truth, in all the beautiful Scenes of a Country Seat, one passes thro' the several Gradations of Joy, Love, Fear, Contrition, and Repentance; every melodious Note of a Bird, and every gay Flower elevate the Mind, and all such desolate Scenes would create (dare I call it so) an agreeable Horror.

Every gentle Breeze of Air, a virtuous Man will readily esteem the immediate Breathing of his Maker; and every awful Bend of a Tree, the Premonitions of his approaching End; every Green Walk will remind him of the very Steps he is taking toward Happiness, the whole Design of no less than Heaven itself. The Sum of all is, Paradise itself was but a kind of Nemorous Temple or Sacred Grove; and beautiful Scenes of Gardening, (as the often cited Ingenious Author Mr. *Evelyn* observes) Places consecrated for sober Discipline, and to contemplate those mysterious and sacramental Trees, which they were not to touch with their Hands.

'Twas in a Grove that *Abraham* entertain'd the Angels, and piously invoc'd the Blessings of Heaven; and the Ancient and Primitive Fathers of our Church, *St. Jerom*, *St. Chrysostom*, *St. Cyprian*, the Divine *Augustine* before mention'd, and other ancient Fathers, greatly magnified these pious Adumbrages. 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 the same Author observes:) In such a Place did the Angel appear to *Gideon*: And in others Princes were inaugurated; so *Abimelech*, *Judg. 9.* And the Rabbins (says he) add a reason why they were reputed so venerable, As being very apt to compose the Soul, and fit it for divine Actions. And 'tis very remarkable,

that our Saviour chose those Abodes sometimes for his Oratory while he was alive, as he did them for his Sepulchre when dead.

And we do avouch, (says Mr. Evelyn) for many weighty Causes, That there is no Place more fit to bury our dead in, than Groves and Gardens, where our Beds may be deck'd and carpetted with verdant and fragrant Flowers, Trees, and perennial Plants, the most natural and instructive Hieroglyphicks of our Resurrection and Immortality.

But I must quit these entertaining Thoughts, lest they should draw me too far out of my Road, by observing the great deficiency of Shade in many of our modern Gardens: For tho' our Seasons of Heat are not so violent as they are in other Countries; yet the greatest Pleasure of a Garden being in the Summer, it calls for our first and principal Care in furnishing our *Villa's* and Gardens therewith.

And indeed, however those Persons may consider it, who have great Quantities of Greens in their Plantations, I can't but esteem a Forest-Tree very much beyond it; so chearful is their Livery in Summer, in comparison of Hardy Greens. I hope therefore they will pardon me, if I can't subscribe to their Opinion and Practice; and shall immediately pursue what I have all this while been aiming at, I mean, the Raising of Forest-Trees in Nurseries; leaving Greens for Winter-Gardens, and the more contracted Scenes of the Town.

The Method of Raising Forest-Trees in Nurseries, is so diverting as well as useful, that I have often wonder'd there has been so little professedly writ on that Subject. As for what Mr. *Evelyn* and Mr. *Cook* have left, it seems to have relation rather to the Sowing and Raising promiscuous Woods, Groves, &c. and not the exacter Method of Seminary and Nursery Plantations.

Cato, *Varro*, *Columella*, and *Palladius*, but particularly the industrious *Pliny*, have indeed, in their Rustick Discourses, left extraordinary Rules in this Matter; but those, as well as the Authors of our own Country above mention'd, have not pointed out that Method now made use of by our Nursery Gardeners, who have, doubtless, very much improv'd this part of Gardening, since the Time those Books were writ.

It would indeed be a needless piece of Service, to any that live within 20 or 30, or indeed 40 Miles of *London*, (or any-where where there be good Nurseries in the Country) to advise them to Raise Trees; since they are bought much cheaper than 'tis possible they can raise them: Besides, their being ready grown, and the choice of what Size and Kinds they please, are all undeniable Arguments of the Truth of this Paragraph.

Yet, to the more remote Parts of this Kingdom, the Consideration of the Expence in Carriage, and the Accidents and Damages they receive thereby, are great Motives to induce

induce all true Lovers of Gardening to a Prosecution of this delightful Employ : When, to what has been said, it be also added, the Pleasure and Satisfaction Persons of Quality and Gentlemen have in raising and viewing their own Trees, the Produce of their particular Care and Labour ; and, which is a Consideration of no less Moment than the former, that having their Seats prepared for Planting out in the open Park early in the Season, by moving them with a little Earth, they have the Satisfaction of apprehending little Loss ; and, by taking those Methods I shall hereafter direct, no occasion of Watering the next Summer.

I shall not pretend, in this, to shew the whole Art of what we call a *Nursery-Man* ; my Business being only to teach the Method of Raising Forest-Trees, and of them only that are most remarkable ; purposing in this, as well as all the other Parts of Gardening, to avoid Multiplicity, and to confine my self to a few the best, obvious, and most easie Rules and Kinds, both in the Practical as well as Specifick Part of Gardening, rather than to confound my self, and my Readers too, with a numerous Collection of Plants, some of them of little Use ; but shall leave that to the laborious Botanick, whose Business 'tis to discover and multiply a Number of Species in Plants, in order to amuse, I might add, amaze, rather than instruct, Mankind.

Thus

Thus in Fruits; two or three kinds of Cherries, and four or five of Plums at the most, three or four kinds of Apricots, of the best kinds of Peaches and Pears not above half a dozen each, and of Apples not above three or four; these being well manag'd, will sufficiently supply any Table *communis mensibus anni*.

The like do I observe in Forest-Trees; out of the many Sorts whereof, I shall only collect a few of the noblest and freest-growing Kinds.

I shall not follow the Method taken by any of the preceding Writers, in the Delivery of their Precepts, which are either alphabetically or casually, as the Trees they have treated of have found a priority in their Affection and Esteem; but I shall take that hinted at by *Virgil*, who has classically reduc'd all the Species into one Article, according to the Method of their Propagation. Thus he ranks the *Genista* among the *Spontaneous*; the Oak, Chesnut, and all the other Kinds, whether *Glandiferous*, *Bacciferous*, &c. to his Seed-Beds; the Elm to the Exuberances of the Mother-Roots; and the rest to the several more artificial Methods of Avulsion, Infossion, Arcuation, &c. This Order will, I hope, take away that Repetition that one often finds in those Authors, there being one and the same Culture and Management again and again repeated.

S E C T. II.

Of the Spontaneous Production of Trees.

Thus *Virgil*, Geo. 2.

*Principio arboribus varia est natura creandis
Namque aliæ, nullis hominum cogentibus, ipsæ
Sponte sua veniunt, camposque & flumina late
Arva tenent, ut molle siler, lentæque genistæ,
Populus & Glauca canentia fronde salicta.*

English'd by Mr. *Dryden* :

Some Trees their Birth to bounteous Nature owe,
For some without the Pains of Planting grow :
With *Ofers* thus the Banks of Brooks abound,
Sprung from the Watry *Genius* of the Ground.
From the same Principles Green Willows come,
Herculean Poplar, and the tender Broom.

The Intro-
duction.

BEfore I enter upon the Method of Raising
Trees, it may probably be expected I
should say something concerning the Sponta-
neous Production of Plants, with which *Vir-
gil* introduces his Works : To this I shall
be very short, considering it is of no great
Moment ; and the several Opinions of this
being only Guess-work, in my slender Opi-
nion are some of the difficultest *Phænomena*'s
in Nature (especially in this part of Natural
Philosophy) to solve : And after all, my weak
Thoughts

Thoughts on this Subject seem to terminate in the unbounded Laws of God Almighty, who doubtless reserves a great many of these Things as grand *Arcana's* in the Sacred Depositories of Providence.

There be who deny all Spontaneous Productions in Plants; but that they are rais'd by Seeds wafted from one Region to another in the Air; which afterwards fall down, and as soon as the Ground is dug or plough'd, spring up in great Abundance. And to confirm this, they have produced a great many Instances.

Some deny a Spontaneous Production.

But when we consider that there are many kinds of Plants which have no Seeds at all, and yet rise up and increase in great Abundance; to what can that be referr'd, but the latent Juices of the Earth, which give them Origin and Birth at first, and afterwards maintain them in Splendour, and often grow to an exceeding great Height? Besides, how comes it to pass, (for their delapse out of the Air is doubtless fortuitous) that it happens to fall just upon such and such Lands, as Gorze or Furze upon wet, soure Land; Genista and other kinds on a more mild and tractable? I say, how comes it to pass that these Seeds don't fall upon one Ground as well as another, where they would grow in some degree, tho' not perhaps so fast as they would in their own Natural Soil? Besides, all sorts of Earths transported from Place to Place carry with them their particular kinds of Vegetables,

which

Considerations against that Negation.

which spring certainly from the Juices inherent in their Natures, and imperceptible to the most curious *Examen*, (as well as from Seeds that are suppos'd to be shed thereon) and there flourish so long as there remains any Tincture of their Natural Soil: And this I have observ'd in Ground dug very deep out of the Foundations where Houses have stood a long Time, yet upon an exposure to the Sun and Air, the Weeds, &c. have sprung up; tho' 'tis certain that this Ground could have no way to receive any Seeds, either by the Wind or by shedding; and therefore they must be without doubt derived from the latent Qualities of the Earth. How this is effected, and how these Juices give Original to Plants, I must confess myself at a loss to account for: So leaving these curious Enquiries, I shall proceed to teach the Method of Raising Forest Trees by Seed.

S E C T. III.

Of the Method of Raising of Trees by Seed.

— *Pars autem surgunt de Semine, ut altæ
Castaneæ, nemorumq; Jovi quæ maxima frondes.*
Virgil.

But some from Seeds inclos'd in Earth arise,
For thus the mast-full Chestnut mates the Skies:
Hence

Hence rise the branching Beech, and vocal Oak,
Where *Jove* of old oraculously spoke.

THere are very many Kinds of Trees reducible to this Class; but some of them being of little Use in respect to the Forests and Woods I am treating of, I shall pass them by, and enumerate only those that are the fittest for this Purpose, which are the *Oak*, *Ash*, *Beech*, *Hornbeam*, *Sycamore*, *Maple*, the *Horse* and *common Chesnut*, the *Walnut*; and of the Greens, the *Scotch* and *Silver Firr*; and for Hedges, the *Holly*, *Tew*, and *White Thorn*. These are all very well known, for which reason I have got over them as soon as possible, and proceed to the Method to be observ'd in Raising them, as they stand collected together under this Head; and indeed, as to the General, one Management will do for them all, though there may be some small Exceptions, as in all other Cases there are.

*Of the
Kinds.*

It were almost a needless Matter to direct the Choice of Seed, which every one knows ought to be gathered from the most healthy Trees in their several kinds. I shall not therefore multiply the Observations and Rules which the Antients have left in this Point, much less their Lunar and such-like exploded Directions.

*Of the
Seed.*

'Tis sufficient for my Purpose, to advise, that it be not gather'd too early nor too late; the one being pernicious in respect to its shrinking;

shrinking ; and the other, the Damage they may sustain by too much Rain or Frost : But, for more particular Direction, it should be when we find the Pulp or Kernel of the Seed, Acorn, or Berry appear dryish, and approaching the Nature of Pease when commonly thresh'd, if you do not sow them immediately. You should also get the Seed, and lay it up as dry as you can, otherwise 'twill moulder or rot : The cleaning of those Seeds are so well known to every Rustick, that I shall say nothing of it ; but proceed to the manner of Chusing and Preparing the Earth, and the Time and Manner of Sowing.

*Directions
to chuse the
Ground.*

We ought first to chuse a good, light, clean Earth, or light, loamy Land for this Purpose ; and that ought to be done for the more indifferent as well as choice Kinds to be sown, inasmuch as if they will do well in indifferent Soil, they will do better in good, and will be more expeditious in their Growth, and sooner repay the Labour. In Ground thus chose, and not too much or too little shaded, let it be prepar'd, if possible, altogether in one Piece, for the more conveniently visiting and taking care of them, in the following manner.

*Manner of
preparing
the Ground.*

Let it be trench'd or dug clean, and in thin Spits 2 Foot deep, picking out all Clods, Stones, Roots, or any other Incumbrances or Obstructions, especially Weeds, which will afterwards appear to the Shame and Perplexity of the Dresser, and will so hamper themselves

selves among the tender Plants, that 'twill be a hard matter to clear one, without eradicating the other.

The next Thing in Course is, the Raking *Disposition into Beds.* it level and clear at top of all Stones, Weeds, or other Incumbrances of all sorts, and dividing the Ground into Beds of three and a half or four Foot wide, and Allies between them, for the convenience of Weeding, about two Foot.

This done, sow your Seed at a discretionary *Seed, the Manner and Time of Sowing.* Distance and Depth, with respect had to the Grossness of the Tree you sow; as Ash, Maple, and Sycamore thinner than Beech, Hornbeam, and other Plants that are weak and small when young. This should be done as soon as the Seed is ripe, which is about the middle of *October*.

The Seed being sowed in this manner, *Directions after Sowing.* ought to be first gently trod over, as we commonly tread Carrots, in order to fasten the Seed in the Earth, which is of some considerable Advantage. This done, cover it with some Mould, if it be good, one, two, three, or four Inches thick, according as the Tree you cover is best able to bear; an Oak four Inches; Beech and Hornbeam two or three; Ash, Maple, and other small Seeds, one or two at most.

Having committed the Seed to the Ground, *Securing.* and covered it with a proper Thickness of Earth, N^o 1. p. 105. the next Care is covering and securing them from the Scratching of Poul-

try, and other Accidents that are apt to happen to these unseen, and, as yet, unsprouted Plants; which is done by sticking of Sticks and Furze-Bushes by the Sides and a-cross the Beds.

*Covering
with Dung.*

But before this be done, if the Earth be poor, and not covered, as above, it will be of no small Advantage to the sprouting of the Seed, as well as to its future Growth, that an Inch of fine, clean, rotten Dung, from Magazine N^o 4. p. 106. and near consumed to Mould, be laid on; but this ought not to be an additional Inch, but a part of that already described; upon which let there be an Inch or two of Moss spread neatly over, and then you may stick on the Sticks as above-directed; this Moss will be of excellent Use in preventing the Extremity of Cold, and will at the same time receive such a due Perspiration of Air, as is convenient for the Germination of these tender Seedlings.

*The Time.
Autumn
th: best.*

There are some that prefer the Spring before the Time I have been now advising, but this I am against; for the Seed thus early committed to the Ground, is not only, as it were, directed by Nature for sowing in the Dropping from the Trees, but also Experience and Reason will farther inform us, that Seed takes up some time in swelling, extending, and extricating itself out of those testaceous Shells and Prisons in which they are by Nature enveloped.

That

That this Process being slow, requires some Months of the Winter to effect it; besides (as I shall hereafter make appear) 'tis necessary all Plants should well root and fix themselves before the approaching Spring, when Nature hastens out all her Off-spring; and 'tis certain, those that are the readiest, will make the greatest Progress in their Summer's Growth.

Reasons to prove it.

I know this Reason does not hold good in all Herbacious Matters; but in these I have been mentioning, I hope it has and will appear uncontestably true.

These are the general Directions I think most proper for the preparing the Ground, sowing and securing such Plants and Forest Trees are rais'd by Seeds; which meet with few Exceptions from the general Rule, save that Oaks and Chesnuts are rais'd with more Ease; for having chose clear, good Ground, the Chesnuts may be planted at five or six Inches asunder, and the Oaks sow'd in a Drill made with a Hoe, like Garden Pease, as the other are planted like Garden Beans; but for the other, tho' some will do with less Care, yet 'tis seldom known any one suffers on that side the Question.

Exceptions to the general Rule of Sowing.

Oaks. Chesnuts.

These Acorns and Chesnuts ought to be planted in the best Land you can, which will be sufficiently repaid by the Quickness of Shooting, as well as Beauty.

The best Lands for Acorns.

It must be observ'd, that the Seed of Yew, Holly, and White Thorn, which I bring in-

Holly and Yew lie two Tears in the Ground.

to this Account, for that they make good Hedges, lie in the Ground a whole Year and never sprout, which may make some unwarily suppose that they are either rotten or dead.

How to preserve Holly and Yew-Berries all the first Year.

The Practice in that Case is to pot or box them up for the first Year in fine Sand or Mould; whilst others, after a more careless manner, dig a deep Hole in some neglected Corner of their Gardens, and bury them, taking them up the *Michaelmas* following, at which Time they begin to germinate and sprout; and indeed I have seen this last succeed as well as the first; but Care should be taken to bury them at least four Foot deep.

What I would recommend more as to the sowing these Forest Seeds, is, the covering those you sow, either in Drills or Beds, with Coal-ashes that have lain some time, (or Pidgeons Dung is very good) provided they don't touch the Seed; these Coverings will send down such vast Quantities of Salt, as will wonderfully impregnate the Seed, and set the Ground into a very quick and proper Ferment; and any of the Seedlings will, I durst say from Experience, shoot as large again as if there had been nothing laid over them, and is indeed much better than common Dung, elsewhere recommended.

The Care that is to be taken the first Year after Sowing.

The next thing we are to inform ourselves about, is the Care that is to be taken the first Year. In the Winter they are apt to be infested with Mice and other Vermin, and therefore

therefore great Care should be taken to keep the Traps going; and about the beginning of *April* the Moss should be pull'd off, (the Earth gently stir'd, the Rains in the Winter having doubtless made it Cloddy) and then the Bushes laid on again, to prevent the Fowls, &c. (as before;) and if the Weather be dry, refresh them well with Water: But 'twill be best to lay a Mat or Cloth on as you water, lest the Rapidity of the Water discompose these young and as yet tender Beauties; for thereby the Force is stopt, and the Water runs gently through the Holes or Threads of the Cloth, &c.

'Tis necessary that we should keep the great Weeds all pull'd up as they grow; but as for the small ones, such as Chickweed, a little rather nourishes the Plants, and keeps the Ground cool: To effect which yet more, if a little Straw, Bracken or Fern were likewise laid gently over the Bushes, so as to admit but of a glimmering Light, it might be of considerable Use, but this only in the Extremity of Heat.

About *Michaelmas* scratch off the Mould that lies on the top very gently, and then earth the Plants again with the finest Melon Mould, and it will be of great use, for the Rains to wash them in and exhilarate and refresh the Fibres, and make them strike fresh Roots. Fetch this Earth from Magazine N^o 1. p. 105, if you have not fine Mould enough.

*New Mould-
ing and
Earthing
them at
Michael-
mas.*

Manage-
ment the
next Win-
ter.

In this manner I advise their standing till the *April* following, at which time begin to plant them out singly in Beds prepared and mark'd out as before directed. To be sure clear from it all Stones, Clods, Roots, or other Things that may any-way hinder or obstruct the Fibres; and if not naturally so, should be Skreen'd, and well mix'd with Dung and Earth well moulder'd and incorporated together, fetch'd from Magazine N^o 2. p. 105. But this should by no means be buried, but rather spread on the Ground about two, three, four, or five Inches thick, at the Discretion of the Planter, and the Goodness or Badness of the Natural Soil.

After this Preparation is made, and the Beds and Allies mark'd out, as before directed, for the sowing the Seed, 'twill be proper to rake the Beds, and gently tread and beat them even with a Spade; that your proceeding in the Planting may be the more regular and exact, and consequently the safer for the reception of your Plants.

The Method
of Plant-
ing out into
other Beds.

Setting your Line then a-cross the Bed four Foot wide, as before directed, cut out a Trench as when you plant *Dutch Box*, (for the Dibber commonly us'd is a clumisie way for this and Box;) the Trench being thus nicely cut out about two or three Inches deep, place your Plants about three or four Inches asunder; which done, close up your Roots, and fasten the Earth as before, and then remove the Line three or four Inches more off, and

and cut a new Trench, and so proceed 'till you have fill'd the whole Bed: After which, take a round Stick about two Inches diameter, and tread it down between every Row; and this will fasten the Earth yet more to the Roots, which is of no small Consequence.

Being thus planted, you may mulsh or lay ^{Mulshing} some Straw over the Roots, in the Trenches ^{them.} or Furrows made by that Stick, which will keep the Ground moist: And one ought often to examine and press the Mould down either with the Hand or with the aforesaid Stick; else the Worms will throw out the young Plants, as will also the natural Heaving of the Ground.

It will be of the greatest service to these ^{Covering} Plants, if you make low Arbours over the ^{necessary} Beds, in order to throw Mats over them to ^{after they} secure them from the Heat of the scorching ^{are new-} Sun, which are apt to be fatal to these and ^{planted.} all other tender Seedlings, and that the Seedlings be refresh'd three or four times a Week, in the Heat of Summer, with a fine small Water-pot; it should be in the Mornings in the Months of *April*, *May*, and *August*, but in the Evenings in *June* and *July*.

Here let them remain (watering and cleansing them of Weeds as you shall see occasion) 'till the beginning of *August* come Twelve-month after they are sow'd, if not to the Spring following, according as you see them either weaker or stronger; during which time, you ought once in a Month or two to

stir the Mould; and if the Ground is poor, earth them up with the Compost from Magazine N^o 2. (p. 105.) in extreme dry Weather, watering and refreshing them as soon as you have done.

*The Effect
of this Care.*

By this time we may hope to see some Beds of fine young thriving Plants ready for the Open Nursery; and the Kinds that merit this Care, are Beech, Hornbeam, White Thorn, Holly, and Yew. As for Oak, Ash, and Sycamore, they are quick of growth, and so may be planted out in Rows in the open Nursery. But if the Ground be Poor or Coarse, open some Holes about eight or ten Inches square, and fill them up with an equal mixture of Mould, from N^o 2 and 3, (p. 105.) But if the Ash or Sycamore be weak, put them in Beds likewise, but thinner.

*Particular
Directions
for Oak and
Chesnuts.*

The Chesnuts and Walnuts all this while stand as they were, because those Trees are not lovers of often transplanting; they should therefore not be planted out, till they have stood two, if not three Years, in the Seed-bed.

*Concerning
the Anti-
ents.*

I have diligently perus'd what the Antients have wrote concerning the Raising of Trees, but don't find their Directions amount to this Care; and perhaps 'tis more than is commonly us'd by all our Nursery-men: But this I thought my self oblig'd to do; because where one is so exact as to follow these Rules, I doubt too many will not; and therefore one can't press them too much, when they may

be

be done with so much Ease and Pleasure, and so little Expence.

A more speedy Method of advancing the Growth of Plantation, by buying young Stock.

But because this Process is tedious, there being now two or three Years, if not more, laps'd, and yet nothing fit for the Park or Open Plantation, which often discourages Gentlemen from proceeding :

I must, in the next place, advise them how they shall provide themselves, at a small Expence, with Plants thus forward, as I suppose to have brought them by Sowing, and as large. In the mean time, for the next Supply, the former Method may be of considerable moment, in point of succession one under another.

For there being several Nursery-men about *London* that raise abundance of these Plants every Year, 'tis easie to procure them, and that at the Expence of about Twenty or Five and Twenty Shillings a Thousand; a Price very cheap, for the Trouble those Persons must be at that raise them.

Some will venture at them out of the Seed-bed, but then they must be box'd up carefully from the Wind, with some Mould in the Box to keep them fresh: Great Care must also be taken that the Carrier takes them away the first Return, they being soon spoil'd.

But

Care of
Packing
and Trans-
porting.

But as for the other, (I mean those that have been transplanted) less Care will suffice; they may be tied up in small Bundles, and the Roots wrapt round with Pease-straw, or, which is better, wrapping them up in Mats; however, 'tis no matter how soon they are planted, which ought to be done with all proper Care. The Manner is sufficiently deliver'd, I hope, in the foregoing Directions, so I shall say no more as to that.

The same
for larger
Trees.

The larger Species of Forest Trees, as Oak, Elm, Lime, &c. may also be bought very cheap, and planted in the Nursery in like manner.

The Anti-
ents hold
Elm and
Lime to be
rais'd of
Seed.

I shall quit this Section, with observing, That the Antients have spoken of Elms and Limes being rais'd of Seed; but this being a Practice not us'd with us in *England*, and indeed a needless Nicety, we having much better Methods of Propagation, which is the next thing I am to speak to; only I thought this Caution might take off those unnecessary Amusements this chimerical Notion might infuse into Lovers of Gard'ning, for whose Service this is penn'd: For who is there that would go a round-about Way, when they might go a nearer direct one?

SECT.

S E C T. IV.

*Of the Raising Trees from the Suckers,
or rather the Spawn or Exuberance of
the Roots.*

Pullulat ab Radice alii densissima Sylva,
Ut Cerasis, ulmisque: etiam Parnassix Laurus,
Parva sub ingenti, Matris se subjecit Umbra.

Virg. Georg. 2.

*Some from the Roots a rising Wood disclose ;
Thus Elms, and thus the savage Cherry grows :
Thus the green Bays, that binds the Poet's Brows,
Shoots, and is shelter'd by the Mother's Boughs.*

Dryden.

TO pass by the *Cerasus*, which is our The Kinds. common Laurel, and the *Laurus Parnassia* of *Virgil*, which may be suppos'd to be no other than our common Bay, I find four or five Kinds of Forest Trees reducible to this Class, (*viz.*)

Ulmus, the Elm, of which we have three principal sorts, the *English*, *Dutch*, and *Witch*: The former is subdivided. There are other Kinds of less moment, which I purposely pass over.

Populus, the Poplar, of three Kinds: Amongst which we may reckon the *Abeal*, with others which I shall more largely insist on
when

when I come to speak of *Arcuation*, or raising Plants by Bowing or Bending them into the Ground, which we call Laying.

These Trees send forth abundance of Spawn at the Root in all uncultivated Places, Meadows, &c. which, if one would preserve, ought to be hedg'd round, that the Cattle do not crop them.

Some small time before *Michaelmas* they may be taken up and planted in Rows in the Nursery, at the Distance which shall be spoken of by and by.

But I can't but observe on this Head, in order to cut it off the shorter, that all these are much better rais'd by Laying; which I therefore refer to *Section VI.* where that Matter is fully and plainly handled.

But before I quit it, let me speak something of what *Salmasius* says concerning the Raising of Elms from Chips; which I have always esteem'd a fabulous Story, 'till, upon buying a great many in *Oxfordshire* for the Plantations at *Blenheim*, it was confirm'd in several Places, especially at a Place near Sir *Robert Jenkinson's*, where there was a very fine Nursery of Elms about five or six Inches Diameter; the Person that own'd them assuring me, that within Thirty Years before there was not one Elm, or any thing like it near them; but that upon hewing a great many Elm Trees for the Building a Lathe or Barn, they perceiv'd them the next Year to spring up; and having preserv'd them from
the

the Cattle, they had come to that Stature I then saw them. I shall only add a Supposition of my own, that it might probably be from those Knots which grow thick on Elms, rather than the common Chips, or from some *Seminalia* lodg'd in the furrow'd Coat of Elms, and undiscoverable to common Observation.

S E C T. V.

Of Raising Trees by Artificial Methods, as Avulsion, Arcuation, &c.

Sunt alii quos ipse via sibi reperit Usus.

Virg. Geo. 2.

Others there are, by late Experience, found.

Dryden.

WHICH Methods he seems to divide into six Parts, tho' the Interpreter *Ruanus*, and from him *Mr. Dryden* makes seven, dividing the second into two; against which I shall not contend, seeing neither of them are of any great Use, but shall pass them over hastily, that I may have the more Time on the fourth, (*viz.*) Arcuation, which performs all the rest, and that much easier and better. But to proceed: His first Method is,

Hic

*Hic planities tenero abscondens de corpore
Deposuit sulcis.* [Matrum
Virg.

Some cut the Shoots, and plant in furrow'd
Ground. *Dryden.*

Raising by
Cutting or
Slips.

This plainly belongs to what we call Slip-
ping or Cutting the Shoots off at a Knot, and
so planting them in the Ground to root: The
Plants rais'd by this means are the
Sallow in Woods, and in other Low Places
Willow, &c. The Sallow is a great Furni-
ture in our Common Coppices; and the Wil-
low, of which the *Dutch* is the best, is for
Wet Grounds, and for the Basket-maker's Use.
We commonly plant short Truncheons, about
two or three Foot long for Dwarfs in Islands
(let the Truncheon be planted a Foot deep in
the Ground, and as my Lord *Bacon* advises,
slopewise,) but if for Standards, next the
Water-side; or to make Walks or Willows,
they ought to be 9 or 10 Foot long at least,
sometimes 12 or 13 Foot. There be many
others that might be brought under this Head,
but being much better rais'd by the fourth
Method, I shall leave them to that. Either
the Spring or Fall, or the Middle of the
Winter will do for these; and they are so
well known to every Country Hedger, that
I shall say no more upon this Head, but only
advise, that the Ground in the Islands should be
dug

dug at first, in order to clear away the Weeds, which would otherwise choak the young Sets, tho' not easily; and in the Digging should be laid in Beds three or four Foot wide, for the better drawing off all Superfluities of Water in the Channels betwixt them.

— *Hic stirpes obruit arvo
Quadrifidasque sudes, & acuto robore Vallos.*
Virg. Geo. 2.

Some cover rooted Stalks in deeper Mould; Some cover Stakes, and (wondrous to behold!) Their sharpen'd ends in Earth their Footing And the dry Poles produce a living Place. [place,
Dryden.

Ruæus, the Author of the Dauphin's Edition, divides this into two Methods, as does also Mr. *Dryden*, which I might follow notwithstanding I have some Reasons to the contrary; however, this is not a very material Method, and so I shall let it slip, after having observ'd, that by them it relates chiefly to Willow and Sallow Stakes and Poles, which were mentioned in the last Article.

Vid. Delph. Edition. Geo. 2.

Manner of Raising Willows.

I have run over these two Sections with all the Brevity imaginable, reserving both Pen and Paper for the next, which is Laying; I therefore advise my Reader to use this *en passant*, as a Method I have inserted rather by way of Explanation to this Great Author, than of any real Use to this present Purpose.

S E C T. VI.

Of Raising Trees by Layers.

Sylvarum aliæ pressos propaginis arcus
Expectant & viva sua plantariâ Terrâ.

Virg. Georg. 2.

*Some bow their Vines, which buried in the Plain,
Their Tops in distant Arches rise again.*

Dryden.

*Arcuation,
or Raising
Trees by
Layers.*

*The several
Kinds.*

*How to
chuse Mo-
ther-Plants
or Stools.*

THIS is undoubtedly the Method of Raising Trees by Arcuation or Laying. *Virgil* mentions no more than the *Vine* that is rais'd by this Method; and 'tis probable he knew of no other: But now it is the general Method of Raising all Trees that can't be rais'd from Seed, or, to speak more plainly, that bear no Seed. The Trees that belong to our present purpose, are the *Dutch Witch* and *English Elm*, the *Lime*, *Abeal*, *Platanus*, *Alder*, and all sorts of *Sallows* and *Willows*, and (as has been before observed) every Tree that does not bear Seed.

The first thing to be done, is, the procuring large strong Mother-Plants; let them be Trees that are crooked, or any otherwise deformed, the larger the better; cut them down close to the Ground, and plant them in a Border full six Foot wide, and the
Plants

Plants in a straight line five or six Foot afunder.

Of these most Gentlemen have some by them; but if not, they may easily buy them: Any crooked Trees will serve, provided they are large and strong; and all the Head and Stem being cut down, they will be very easily transported to any Place.

As for the Quantity of Mother Plants, which I shall henceforward call *Stools*, they ought to be according to the Number one intends to raise. A good strong Stool will, one Year with another, throw out 20, or 25, sometimes 30, 40, 50, or 60 Plants; so that about 20 *Stools* of each may be sufficient, and perhaps less, seeing that these Plants will soon fill a small Nursery.

What Quantity is required.

The Kinds that I would prefer the most, are *English Elm* and *Limes*; as for the *Platanus*, a few of them will serve, they being chiefly to be used in Centres and Shady Groves; the *Abeal* will prosper in any sort of Ground, therefore a good Number of them ought to be rais'd; the *Alder* does well in Wet Low Lands, and the *Poplar* in Clayey Ground. The *English Elm* I prefer for Walks, either Standards or *Espaliers*; the *Dutch*, a few of them, for *Espaliers*; but the *Witch* for Thickets and promiscuous Planting, in respect of the Quickness of Growth: The *Limes* ought to have Clear Soil, and are fittest for Walks.

The Kinds to be preferred.

The proportionable Quantity of each.

So that there should be ten Stools of Elm and Lime to one of Platanus; and the same Quantity of Alder, if the Ground be Wet and Moory; and Abeal, if the Land be very Poor; And if Wet and Clayey, Asp or Poplar; since 'twould be in vain to multiply a great Number of Trees that one's Ground is not fit to receive, or in which they will not thrive. However, Elm and Alder will do tolerably well, with Poplar and Asp, but by no means Limes.

How to prepare the Border.

The Border of six Foot (as before hinted) being well trench'd or dug, clear from all Roots, Stones, Clods, or any other Obstructions, let these Roots be planted at five or six foot asunder in a straight line. And about *Michaelmas* following, or sooner, you may begin Laying; at which time you will find, if the Stools have any care at all taken of them, five six, or more of Main Branches shot out of the Roots; and on every one of these as many Side or Collateral Branches.

Method of laying them down.

How to peg them down.

You must therefore bend the main Branches down gently to the Ground; some will cut the half off, in order to bend them the easier; but this should be done with Care, lest you cut off the whole Branch.

The Main Branches being thus laid quite round the Stool, and pegg'd fast down, it remains that you likewise cover and peg down, if required, all the Small ones: The Main Branches or Shoots will be covered all over, except the very Top; and all the Small or Side-

Side-Branches ought to be covered over two or three Inches thick upon the Joints.

The whole Stool being cover'd over, and nothing appearing but the Tops of the small Branches, you may head them within three or four Inches of the Ground; some give the Branches a Twist, in order to make them root the better.

Earthing up the Stools.

You may Mulsh or lay some Strawy Dung over them; it will help to keep them moist; they ought to have a large Pan made round them to hold the Water, which they should by no means want the ensuing Summer, if the Weather be hot and dry, three or four times a Week.

Mulshing and covering with Straw, and Watering.

About the middle of September ensuing, upon opening and examining, may be easily discovered whether they have rooted, or no; if not, let them remain 'till Spring, at which time take them up and plant them in the Nursery.

How to find when they are rooted.

But if proper Care has been taken of them in the Summer, there is no fear of their being well rooted; and there is the more haste to be made in taking them up then, that the Shoots of the last Summer may be laid down again, in order to repeat the same Process.

S E C T. VII.

Of Raising Trees by Cuttings and Sets.

THE first of these Methods *Virgil* seems to hint at, when he says,

Nil Radicis egent aliæ summumque Putator,
Haud dubitat terra referens mandare cacumen.

Virg. Georg. 2.

*Others no Roots require; the Lab'rer cuts
Young Slips, and in the Soil securely puts.*

Dryden.

And the second, by

Quin & caudicibus sectis mirabile dictu,
Truditur è sicco radix Oleagina Ligno.

Virg. Georg. 2.

*Ev'n Stumps of Olives, bare of Leaves, and dead,
Revive, and oft redeem their wither'd Head.*

Dryden.

Tho' these two Methods of Raising Trees, may, in all probability, belong to the Raising Willows; yet *Virgil* seems to have his Eye particularly on the dry Boughs and Stumps of Olives, which he had observ'd to grow again
after

after they had lain a considerable Time out of the Ground, by reason he places it amongst the Wonders of Nature : The same may be said of those dry Stumps of Orange-Trees that we have from *Genoa*, which any unskilful Person would scarce take up on the Road (if possibly one was there dropt) upon any other account than the Fire ; To this Class, 'tis probable, belongs our *Ofers* and *Willows*, which appear more plainly in the first ; and if 'twere to be try'd, dryish Willow Stakes might take as well as Olive ; but neither of them are of much use on this account.

Et saepe alterius ramos impune videmus, &c.
Virg. Georg. 2.

'Tis usual now, an inmate Graft to see,
With Insolence invade a foreign Tree.

Dryden.

Which is the last Method of Raising Trees, prescribed by this eminent Author and Poet ; under which we may couch all our Methods of Grafting and Inoculation. But there is another Method, left by *Pliny*, which he calls *Emplastratio*, which is by some confounded with our Inoculation ; but this is a cutting out a circular piece of the Bark with the Eye in the centre, and placing it on the Stock, the same dimensions being first taken out of the Stock, to make room for the other ; but the Escutcheon-way seems to be the best :

Plin. l. 17.
c. 16.

S E C T. IX.

Directions for Planting in Open Nurseries.

FIRST fence in such a Quantity of Ground How to prepare the Open Nursery. as shall be thought necessary for this Purpose, be it 2, 3, or 4 Acres, more or less; 6 or 8 Acres is sufficient for the greatest Plantation.

This done, make such direct and cross How to divide the Nursery. Walks as may a little add to the Beauty, as well as be for the Conveniency of Carting in and out all that is wanting, as Dung, &c.

Then trench the Quarters at least one Foot and a half deep; and if the Ground be poor, To prepare it. lay at the bottom of your Trenches what Dung, Earth, and Compost you can get, such as is mix'd up in Magazine, No. 3. p. 105, for I esteem Earth and Dung well mix'd and incorporated together, much preferable to the same Quantity of Earth or Dung alone, as before.

The Ground being thus trench'd or dug, After Preparation. and the Stones, Stumps, Roots, and other Incumbrances pick'd out, it should be divided into Lands or Quarters about twenty Foot wide, and the Length more or less, as the Natural Divisions of the Ground will allow.

*How to
plant the
Nursery.*

The next thing in Course, is the Planting and securing the Trees taken out of the Nursery-Beds, as before directed from the Stools, being the Layers of the last Year, or Plants out of the Seed-Beds.

*The Di-
stance of
Rows.*

Then subdivide the Division or Quarter dug or trench'd, as before, into Rows at equal Distances of about three or four Foot asunder, according as the great Growth of the Trees require, some Trees growing faster, and bur- nishing more than others do.

*Distance in
the Rows.*

And straining the Line, open the Holes at about the Distance of two Foot from each other; and here one ought always to have at hand some of the Compost from No. 2. p. 105, the first Planting out of the Trees from the Nursery-Beds being very material; for a Plant once starv'd and baulk'd, scarce ever afterwards recovers itself; with which Compost the Hole (which I suppose to be about seven or eight Inches wide, and eight or ten Inches deep) ought to be fill'd.

*This Prepa-
ration be-
fore a Plant
is mov'd out
of the
Ground.*

The Holes should be thus prepar'd before a Plant is mov'd out of the Ground; for the Air soon destroys those emulgent Fibres; and then one's Hopes are doubtful, if not quite gone; the Plants ought to be carefully taken out of the Seed-bed without cutting or bruising the Roots, and put into a Sieve, or if large, a Hand-barrow with boarded Sides, that the Sun nor Air may not reach them, and so immediately planted in the Holes appointed and prepared as before directed.

The

The Time for this Process is indeed when ^{Time to do} the Plants are fittest, either the Latter end of ^{it.} *August*, Beginning of *September*, or All the *September* Month, as also the Month of *March* or Beginning of *April*, are Times when Gardeners, without any Consideration of the Moon, Wind, &c. (the exploded Tenets of the Antients) go on in this Work. The main Point to be observ'd is a right Guess at some succeeding Rains: Happy are those Planters that have it: However, I can't but recommend the Autumn Planting as the best; tho' the Roots being young and of an herbacious Nature, soon strike, and the Spring may do.

There seems to be no need to advise that all ^{About Wa-} small Plants, as soon as planted, ought to be ^{tering.} water'd; and so continually kept in all dry and scorching Weather; and that Dung, Straw, loose Hay, and Grass are very proper to lay at the Foot of the Plant, in order to keep the Earth moist; the Weeds ought to be kept clean likewise from the Roots, they having a double ill Effect, inasmuch as they not only rob the Roots of those nitrous and prolific Salts that lie latent in the Earth, but likewise hinder the Rains, the other Co-efficient in the great Work of Vegetation, from descending down to and refreshing the laborious Fibres in the Earth, busily employed as they are in the Work Nature has assigned them. In short, whoever is negligent or idle in his Care, will soon see the ill Effect, as well as suffer the Reproach of having starv'd his Plants:

Plants: And this is all that I think proper to say as to the Management of Trees after the first Planting out of their Nursery-Beds and Stools; it being a thing of course to plant Oaks, Ash, Elm, &c. all in their different Quarters, where I hope to find them alive, and in a flourishing Condition, when I come at *Michaelmas* following to dress and prune them.

S E C T. X.

*Directions for the Pruning and Dressing
of Forest Trees in the Open Nursery.*

HAVING thus conducted my Reader thro' the several Parts of managing a Tree from its utmost Minority till establish'd and fix'd in the Open Nursery, there remains little more to be said, but what relates to the Pruning and Dressing, conducing to their so-much-desired End, I mean Planting in the Open Fields, Plantations, &c.

*Pruning of
the Side-
Shoots.*

Those then that are design'd for Standards, ought every Year at *Michaelmas*, or in any of the two or three succeeding Months, to have their Side-Boughs so close cut off, that they may not spring out again: And 'tis a reasonable Query, whether 'twould not be better to rub them off as they break out in the preceding Months of the Summer, inasmuch as this same Sap might possibly be employed

ployed to better Use in the Ascent and Proce-
rity of the Tree?

I know, contrary to this, it has been object-
ed, That those Side-shoots cause an Hori-
zontal Distribution of the Sap; and that
withal the Tree waxes thicker in Proporti-
on to its Height, which would otherwise
grow too taper and limber, and consequent-
ly that this Method I have prescrib'd is in
this Point wrong.

*An Obje-
ction to rub-
bing off the
young Buds.*

To this I agree in all Trees that are full
of Sap, and quick of Growth; but for o-
thers of a slower Advance, such as Oak,
Beech, &c. this Method can't but be attend-
ed with good Effects. But to quit this nice
Enquiry, I proceed to that of Digging, Ma-
nuring, and Dressing; that is requir'd in Open
Nurseries.

*Agreed to,
as to quick-
growing
Trees.*

So soon therefore as the Leaves are fallen,
and Nature stript off all her verdant Robes, the
industrious Gard'ner begins to manure and dig
between his young Trees.

*Concerning
Manuring
and Dig-
ing.*

'Tis not necessary that Dung be laid on
the first Year after Planting; but the second
it is unavoidably requisite: And because these
Directions are to terminate with this Year,
I shall insert what is proper to be done at
any other time on this Account.

*Dunging
not requir'd
the first
Year after
Planting.*

In all Frosty Weather, or other Leifure-time,
let Dung be brought from N^o. 4. p. 106, and
laid by Barrowfuls all over the Ground you
judge requisite to be dug: This done, let the
Labourers with narrow clean Spades just
loosen

*But in the
second, and
how and
when to be
done.*

loosen the top of the Ground, and, as we commonly call it, prick in the Dung about two or three Inches thick. This I take to be the proper Manner of using Compost; and, as I said before, a Mixture of Dung and Earth, well incorporated together, is by much better than Dung alone: However, where there's Plenty, good rotten Dung is much us'd.

*Caution
against dig-
ing Dung
too deep
into the
Earth.*

And this Pricking in (as we call it) of Dung, is much to be prefer'd to digging it in deep, which has been a Fault too much practis'd; since, by this means, the Rains wash down the Salts, and help to make that Ground prolific; which, by the other Management of burying Dung so deep, would not: Besides, Dung is apt to canker and spoil the Fibres, when buried deep or too near them.

*An Objecti-
on against
Manuring
and Dung-
ing Forest
Trees, An-
swer'd.*

I am very well aware there be some will argue, That Forest Trees don't require rich Ground, but that which is fresh and hearty. Which is indeed true: But all Grounds abate of their Fertility in two or three Years; and perhaps it may be one of the greatest Pradoxes in Nature, to have Ground too rich for any sort of Tree, or that Trees can shoot too fast; except Fruit-Trees, which I shall take more notice of elsewhere.

*Dung of it-
self not pro-
per.*

Dung of itself is certainly not proper; but Dung and Earth mix'd and well incorporated together, and brought, by often turning, to Mould, is as precious for the Service of a good Planter, as the richest Mine to the Merchant.

chant. But this I advise the Use of no-where but in poor Lands.

I shall conclude these Directions with another Thing to be observ'd, which is not only the digging about, but often removing a Tree in the Open Nursery.

Trees in Nurseries ought to be often remov'd.

When you dig the Ground therefore, go round with the Spade at a proper Distance from the Stem, supposing 8, 10, 12, or 14 Inches, as the Trees advance in size; and not only so, but once in two or three Years strike quite under the Ball, and cut off all Roots that run deep, which they are too apt to do. This Process should be us'd, tho' you plant them immediately in the same Place.

By which means, when you come to remove this Tree out of the Nursery, he will rise with a good Ball of Earth; and 'tis a wonder if one in ten dies.

The good Effects of it.

On the contrary; supposing Gentlemen have them of their own, or, to save a little Money, buy 'em of some ordinary Nurseryman that has not taken this Care; in the taking up, one finds nothing but large Roots, which are commonly much abus'd by such Mismanagement, and portends a suspicious Omen to the Plantation where they are to be planted.

The bad Effects of the neglect thereof.

Before I quit this, I must, by all means, advise the Country Planter to be particularly careful in raising Thorn and Holly for Fences; because I shall hereafter (God willing)

Advice to the Country Planter.

ling) in another Treatise, shew them of what great Use it will be, in the dividing and fencing their inclos'd Lands, and with which it may be effected without any Guard-Fences, against Cattle. As near the Place, as possible, where you intend to divide your Land, fence in such a Quantity of Ground as you think will supply your Wants; and after the Ground is prepar'd, as before, either by Quicksets out of the Woods, or young Sets rais'd by Seed, plant them at about three or four Foot asunder, and give them every Year a cut with Shears, or something of that kind, to make them grow thick; but that they may be the fitter for your purpose of Planting, as shall be hereafter directed, let them be cut up to a single Stem about a Foot and half or two Foot high, by which means they will be the easier buried deep; a Method, which I shall shew by and by, will be of excellent Use, not only for their Stability, but likewise as it will save all Watering, which is often an expensive Article.

When any Gentleman is well stor'd with these, he will soon find the great use of them in Fencing his Ground, without any auxiliary Hedges, which, in most Countries where Wood is wanting, is very hard to be had likewise, and very often deters Gentlemen from making such Improvements as they are absolutely convinc'd are necessary.

SECT. XI.

Of Planting Trees in the Open Park.

I Come now to direct the planting of Forest-Trees. To pass by the Mathematical Order or Figure in which the Trees are to be planted, (that being the Subject of the next Book) I shall go on to lay down Rules concerning the Manner of Preparing the Earth, and Planting the Trees, with whatever else may be useful on this Head.

Introduction.

I suppose the Trees then standing in the Nursery I have been all along directing, and the Place where they are to be mov'd, mark'd out according to the Schemes following, or in any other Design.

Dig the Holes (except the Ground be naturally deep and clear from Stones, &c.) at least six Foot wide, and two Foot and a half deep, throwing in what Stones, Gravel, or any other Rubbish you can get at hand into the bottom, so that the Mould may be clear one Foot and a half deep: If it be a Rock, you may save the Pains of digging so deep as two Foot and a half. This will keep the Roots from running deep.

How the Holes ought to be dug.

The bottom to be fill'd with Stones, &c.

Then throw in the Swordy, Grassy, or Turfy Part of your Ground first, and fill up the excavated Hole with the Mould that came out, if it be fresh, or otherwise let it be procur'd from some other Place.

The Turf to be laid on them.

But

Concerning
the Pruning
of the
Roots.

When this
Method is
not to be
observ'd.

But first, if the Trees be mov'd with Earth to them, you are to prune the Roots: And in this all Planters are now agreed with Mons. *de la Quintinye*, that in most Trees the Fibres ought to be cut off, being of no Use, but rather a Detriment to the well-growing of the Tree; and this is strictly to be observ'd, when Trees are mov'd a great way without Earth: This is the Method in Elm, Ash, Maple, and all sorts of Trees that have spongy, porous Roots; but when the great Roots are of a hard Substance, such as are the Roots of Yew, &c, those Fibres ought to be preserv'd with all imaginable Care, because they are not apt to strike from those large Roots, especially when the Tree comes to be above 4 or 5 Years Growth: They should therefore be moved with some Earth, if possible; and this is the Reason why all large Greens are basketed; for should they once lose their Fibres, 'twould be a very hard Matter to make the Tree grow. Of this kind we may reckon the Yew, Holly, Beech, Hornbeam, White-thorn, and Oak, when they are arriv'd to any thing of Stature or Age; and this is the Reason that Plants taken out of Nurseries are better than those that are taken out of Woods and Hedge-Rows, as I shall hereafter mention. This, I hope, Planters will have a particular Regard to, inasmuch as 'tis one of the most material Points in Planting: And to the above-mentioned may
be

be added the two sorts of Firs I have here recommended, which don't much affect to have their Roots cut. Little Judgment is requir'd in this, it being only necessary in Forest Trees to cut off such Boughs as cross one another; and that is only in regular Walks, and not in promiscuous Plantations. I shall only advertise, That no Tree design'd for Timber ought to be headed, but Trees that have large pithy Hearts must not on any account; such is the Horse-Chestnut, and several others, of which more anon.

But to return to Practice: Present the Tree, and if it answers in Range, &c. fix it with the Base level with the Top of the Ground, as it naturally used to be: Then cover the Roots; but instead of covering them five or six Inches, as has been the common Practice; fail not of Piling (as the Country Word is) the Mould at least two Foot high upon them, spreading it likewise round the Stool of the Tree, and tread the Earth close with your Foot.

This Process of Burying the Roots so deep, will perhaps seem strange to those that never practis'd it, as it did at first to myself; but it has two extraordinary Effects: The first is the keeping the Tree steady, so that it may not be easily shook with the Wind; and the other, the Roots from being dry'd and pierc'd either by the Sun or Wind, and that in such a manner as never to want Water after Planting, which is a considerable Article.

Recommended again.

I can't but recommend this with great Earnestness, because I know many Gard'ners are much wedded to their old Methods, and are apt indeed (as I have seen) to condemn this: But there is more in it than they think; and I can assure them I have seen large Trees, Quick and Holly, taken out of the Woods, six or seven Foot high, which have all liv'd to a Miracle, and that not in a few Instances, but in some Furlongs of Fences, being in the Estate of a worthy Gentleman in the Wolds of *Lincolnshire*, whose Improvements deserve Imitation.

Mr. Chaplain.

But if this be to be practis'd with such Success in Plants taken out of Woods, what may not be expected from those out of a Nursery?

Objection.

But I must Answer one Objection that I foresee will be made against my way of Raising, in relation to Planting from good Ground to bad.

For, say some, (and indeed 'tis the common Opinion) I will not plant a Tree raised in good Ground, because mine is indifferent; and I cannot expect any thing, but that my Trees will rather die than prosper.

Answer.

To this I answer, That I have, in the several Steps and Removals I have taken, still brought my Plants from good Ground to worse, and so on; in that Case following the Dictates of Nature, that directs mellifluous and dainty Food to Sucklings, while the Robuster Part of Mankind feed on meaner, coarser,

fer, and more undigested Diet. Besides, I do not advise the Choice of fine Earth for a Nursery, but a hearty, strong Land; and those Indulgences I grant my Plants, are only when they are first striking Root; and I believe no Person will starve his Trees, in hopes to recommend them to his Soil or his Friend.

Again: There are others that having made Observations, how several of the aforementioned Trees grow on poor barren Ground; the Beech and Horn-beam on the shelly, poor, barren, rocky Land of *Buckinghamshire*; the Holly, on the contrary, on stiff and untractable Clays, and even the Oak on Rocks and mountainous Parts, conclude that all this Care is needless, and perhaps add an ill Thought, that the Bustle and Care we pretend to make about it, are only to amuse the World, and to put Gentlemen to needless and unnecessary Charges for our own Advantage.

On the contrary, those that have try'd this Point, I am apt to believe, have found themselves much deceived, there being little to be expected by Planting on such Lands (I mean the worser kind of Land, such as I have seen not above two or three Inches thick of Mould, and the rest a Rubble Rock :) For however Nature may work her Effects by sowing, 'tis morally impossible to plant large Trees with any great Hopes of Success; and this, I believe, dismal Experience

Observations on the Natural Production of Trees.

Trees that grow by Nature in some poor Land, will not do the same if planted large.

has taught a great many Gentlemen who have attempted it.

Trees out of Woods not good; two kinds excepted.

And indeed, except it be Ash or Elm, there are few Trees taken out of Woods that prosper, if they live at all: And the Trees and Hedge-lines the aforesaid Gentleman in *Lincolnshire* has planted, tho' they live to Admiration, I can't say that they shoot strong, or flourish so much as could be wished; the Reason being, that having few Fibres, but only great Roots, they are hard to strike at all, but much harder to make any great Proficiency; so that upon all Accounts Trees rais'd in a Nursery are much to be preferr'd for Planting; but I must always advise the Planting them at seven or eight Years old, before the Top is so high that it is forced to be cut off, since this unavoidably Pollards them for ever. And indeed, for my own part, I am never fond of any Tree that gives no hopes of future Profit as well as present Beauty: I therefore chuse to plant a young *English Elm*, rais'd in a Nursery, supposing it not to be above three or four Inches Girth, before those that are taken out of the Hedge-Rows of sixteen or eighteen, which one is commonly oblig'd to head to a determinate Height, by which means they are pollarded for ever.

All Trees ought to be planted out of the Nursery before they are past eight Years old.

The ancient and some modern Planters were, and still are, very precise in marking and placing the Tree they planted, in the same Position as it was before they took it up: Thus

A Mistake of the Ancients, about the Planting of Trees.

Thus by a Notch on the Bark of the Tree, the Side that was toward the South in the Nursery, must, by their Commands, be exactly planted that way again: But the best of our Planters have very little Regard to this Nicety: And indeed, if any thing were to be observ'd in this Case, it should be the quite contrary; since while the Tree is young, and the Bark thin, the Side that was towards the Sun encreases much more from the Heart or Centre, than the Side that is from the Sun; for which Reason, in order to assist Nature in this Case, and to bring up the Tree regular, we ought to change Sides. This we take care to do in all our Hous'd Plants, (chiefly indeed on account of the Regularity of their Heads, which grow thin, by being always plac'd from the Sun;) but this seems much more proper in all Timber and Forest Trees, than the mistaken Method of the Antients, whose Doctrine in this Case is certainly erroneous and superstitious.

*The direct
contrary
ought to be
observ'd.*

The best Time to begin Planting, is as soon as the Leaves are dropt off, which is commonly about *Michaelmas*, and so continue the two first Months of that Quarter; the sooner finish'd the better. First begin with Limes, and then follow with Elm, Beech, Oak, &c. for I have always observ'd that Nature is the truest Guide, but particularly in Limes, which ought to be planted with the greatest part of their Leaves on; since the middle of the Winter, when the Sap is in its deep Repose,

*Time for
Planting.*

has, by Experience, been found not so well ; and perhaps a Lime will bear being planted the earliest and latest of any Forest Tree ; the reason of which may be resolved into the thin Fluidness of the Sap, and spongy Nature of the Wood, which will not admit of the concussive Violence of transplanting in the Depth of Winter.

*Boxing and
Securing
them.*

The last Thing to be consider'd is, Fencing and Securing ; and this is a very material as well as expensive Article, such as very often deters Gentlemen from Planting at all. I having made it my Business to see and observe every thing of this kind in most Parts of the Nation, have found several Methods us'd, of which Boxing is certainly the best ; but these also differ much in their Form, as well as the Expence, being from 3 s. to 1 s. a Box, Materials and all. What I recommend both for Goodness and Cheapness, is three cleft Stakes Riv'd (as they call it in most Countries) out of the best Spine Oak Saplings ; they are commonly triangular, three Inches and a half to a Side is enough ; these ought to be drove close down round the Tree, and so close that they may be grasped almost with one's Hand ; this done, nail them round in two Places with strong Laths, one within six Inches of the top, and the other about the middle : This sort of Fence will last a great while, and will not cost above 6 d. Wood and all, nor above 1 d. or 2 d. at most Workmanship.

The Stakes ought to be full 7 Foot 6 Inches long, that is, 2 Foot 6 Inches in the Ground, and 5 Foot out of the Ground: The great Danger in this Case is the Wounding the Roots of the new-planted Tree, in driving the Stakes down, of which especial Care ought to be taken.

Length of Boxes and Stakes for securing Trees.

But I have seen another Method of Fencing, something like this, cheaper, but not so durable; which is at a Person of Quality's, whose Politeness in Gard'ning I have already made some mention of, and shall more in the ensuing Discourse.

The Labourers there take three Oak, Hazle, or other Stakes, of about six Foot long, and drive them close down, as is above directed, to the Stems of the Trees; they notch the Top of these Stakes round, and tie them and the Tree together with Tarpaulin, as they there call it, (Tar Cord) much us'd in Sea-Affairs; this, they told me, would last two or three Years; that the Expence was very small, (and only required some Care now and then in looking them over) not above a Penny each Tree.

Another way of Staking.

I have already mentioned, that by piling the Earth on so high upon the Roots, there is no manner of Occasion for Watering; for if you once begin, then you must continue it; only I have thought that once Watering at first Planting would be of considerable Use in the Setling the Earth about the Roots; but this, I

No Occasion of Watering.

remember, is not practis'd neither in the Place
aforementioned.

Pliny de
Lunari Ra-
tio, *lib.* 17.
cap. 32.
De Venti-
bus Ratio,
l. 17. *c.* 33.

I have omitted several Niceties deliver'd by
the Antients about Planting of Trees: *Pliny*
has professedly writ two Chapters, one con-
cerning the Moon, and the other the Winds;
inasmuch as those things are not at present
much in use, and should a Planter wait for
those critical Junctures, or were it of any
real Use; I don't see how 'tis possible to car-
ry on such noble Plantations as we common-
ly see planted at once in the several Parts
of this opulent Island, under such Philoso-
phical and trivial Restrictions.

S E C T. XII.

*Directions for the several Sorts of Soils
on which Trees thrive best.*

Introduci-
on.

AFTER what has been said on this Sub-
ject, I shall have little Occasion to add
much more on those Accounts, but conclude
with more general Directions of the several
Soils that are most proper for the Trees which
I have taught the Raising of; wherein I shall
observe a different Method, not yet taken by
any Author, and shall, instead of describing
the Soil that is proper for every Tree, turn the
Terms, and direct, that when a Gentleman
lights

lights on such and such Land, what Trees are most proper to be sown or planted thereon.

The first thing a Gentleman does, is, to consider the Nature of his Soil.

Nec vero terræ ferre omnes omnia possunt.

Virg.

And here we may observe, that we generally meet with about six Sorts of Land, three of which we may call Poor, Dry, Hot Land, and three of Poor, Cold Lands; as for the Midling, Good Soils, all Trees prosper very well; only Cold, Clayey Land (which is nevertheless very good Pasture) is the worst of all that can possibly be call'd any thing like good Land for Trees, unless very much meliorated and drain'd. I shall therefore follow my Four first Divisions.

(1.) If the Land a Gentleman is to plant upon be very Poor, Gravelly, and Dry, (such as is the Land going to Sir *Richard Child's* at *Wanstead*) 'twill be in vain to plant any thing that's choice; for as there is but a shallow Spit of Earth at the Top, so, to make the Matter yet worse, there is but a Hungry, Gravelly, Starv'd Bottom; for which Reason a Gentleman ought to plant nothing but Trees that are very free Growers, such is the Abeal, Witch-Elm; and I have seen the Witch-Hazle prosper very well on such Lands, tho' it is not much rais'd by our Nursery-men.

General Advice.

It

It can't be said properly that any Tree loves such barren Land; but being of a rapacious Nature, as is the Abeal, &c. and extraordinary free Growers in all tolerable good Land, they do the best of any thing that 'tis possible to plant; and the Poorness of the Earth curbs the Licentiousness of the Shoots, and makes them observe the ordinary Course of Nature: I say therefore, 'tis in vain to plant any choice Trees, as Lime, Elm, Oak, Beech, &c. unless the Owner is resolv'd to make large, deep Holes, and be at an Expence I doubt too great for any that have great Plantations.

This is indeed some of the worst Land I ever observ'd, there being very little Herbage or Grass, but only Heath, and such like useles Shrubbs growing thereon; and 'tis very much to be doubted whether Beech, Hornbeam, or any other kind of Tree, tho' they naturally affect dry Ground, will make any great Progress here, even tho' they should be rais'd by Seed, which is the most natural as well as easy Way.

(2.) The next in Course I have observ'd in dry Lands, is a Sandy, deep Soil: These, tho' in their Natures very hungry and poor, have produc'd very large Beeches and Hornbeam; the first, tho' it grows to be a very large Tree, is yet content with a tolerable Soil; but I suppose the Trees I shall hereafter mention were all of them sowed by Nature, and not planted when very large,
the

the Success of which would be doubtful, except some small Preparation was made for them, or that they were taken out of Nurseries well stor'd with Fibres. This Tree our Nursery-men care not much to raise, because it is a slow Grower, and never pays them so well as Elm, Lime, and Chesnuts do.

To return: On this Ground doubtless will prosper Abeal, Witch-Elm, Witch-Hazle, and Sycamore, Beech, and Hornbeam, especially when sowed. Of this sort is the Ground in the Park of the Right Honourable the the Earl of *Carlisle*, where there are very large Beeches growing in that incomparable Wood aforementioned. I have also observ'd the same at Sir *John Brownlow's* at *Belton*, near *Grantham* in *Lincolnshire*, Soil that appears to be very poor, but there are some very fine Plantations of Beech, &c.

(3.) A third sort of barren, dry Land I have observ'd in *Buckinghamshire*, where Beech is known to thrive in great abundance, and is supposed by *Cambden* to give Name to the County; *Buchen* being in *Saxon* the Name of Beech, easily converted to *Bucking*.

This Land, tho' it be of very little Value, as being very shallow, and upon Rocks of Chalk or loose Stone, produces these Trees in a wonderful manner; and the Accounts of some young thriving Trees are incredible in forty or fifty Years. I have been shewn some that are at least two Foot Diameter, and forty Foot high; which plainly demonstrates
that

that there are particular Juices in that Land that feed the hairy Fibres. But I very much doubt, after all, that were Persons to trust to large-planted Trees, they would be very much deceived ; and I have, in Lands very much like it, tried Trees taken out of Woods, but all to no Purpose : For which Reason I would advise no Gentleman to depend on any thing but Sowing, except he is resolved to open large Holes, or raise good high Banks, (as I have before directed ;) but above all, that they do not trust to Trees taken out of the Woods, except, upon trial, they find them full of Fibres. In this Ground we sow (or, by great Care, may plant) Ash, Beech, Hornbeam, Witch-Hazle, Witch-Elm, with some few Trees, not much to our Purpose to enumerate.

*The Sum of
all.*

Thus have I run through the Three Sorts of Poor Dry Land I have observed, (*viz.*) a Shallow Hearthy Land with a Gravelly Dry Bottom ; a Barren Deep Land, on which, generally speaking, there is a great deal of Fern ; and Poor Barren Land, upon Rocks of Chalk or Loose Stone. Middling Lands, as good Pasture, Wheat and Barley-Land, will produce any Tree : For which reason I shall omit that, and come to Wet Lands, of which I have likewise observ'd three sorts : The first is a Moorish Boggy Land ; the other a Wet Springy Land on Gravel ; and the other a Cold Clay. Upon the first of these we have our largest Alders, Willows,
and

and several other Aquaticks of less note; to which I might join the Elm, as being properly of this Watry Tribe.

But if the Trees that are rais'd are design'd for Hedges or Dwarf-Wood, I cann't but recommend a Shrub I have observ'd to grow in *Lincoln-shire*, in Moorish Boggy Ground, which they call *Eller*, having a large shining Leaf, and the Wood looks very beautiful; this, I have experienc'd, has been propagated by Layers.

(5.) The next Kind of Poor Wet Land, I have observ'd, is a Wet Spewy Gravel, intermix'd with Clay, where the Springs carry off, by Percolation, the Vital part of the Ground: In this I have observ'd Abeals, Poplar, Alder, and Elm likewise to prosper tolerably well.

(6.) The last is a Stiff, Rank, Cold Clay, which tho' it produce very good Herbage, (some of which Land, on the account of Pasture, I have known to yield 20s. an Acre, near an hundred Miles from *London*;) yet 'tis a hard matter to make Trees prosper to any manner of advantage, especially those that are planted large; for the Untractableness of the Earth is such, that it rots the Fibres, before ever they can strike to save Life to themselves. Whoever therefore plants on such Ground, must be very careful in making large Holes five or six Foot wide, and plant the Foot of the Tree level with the Surface of the Ground.

And

And if it be a promiscuous Plantation that is to be rais'd of Young Sets, or of Seed, it ought to be divided and thrown up into Beds of six, eight, or ten Foot wide, (as is elsewhere mention'd) and deep Furrows between them, and upon a hanging Level, that the Water may run off; it will likewise be of great Advantage to give this Ground a Summering and Wintering, (as we commonly call it) that is, a Trenching about *Michaelmas* into small thin Ridges, that the Frost may pierce through and dissolve those Lumpish Clods, that would otherwise obstruct the Growth of the Roots, if not quite destroy them: But this I shall speak more of anon; this Way however of proceeding will be of excellent Use in the 6th Division I have been upon. In this will prosper, after this manner of ordering, Oak, Ash, Elm, Alder, and all the *Vimineus* Kinds, if planted small or if Seed, (which is what I am now upon;) but with an indifferent Care you may plant the Abeal and Poplars, especially that Kind we commonly call *Arbor Tremula*, or, The Trembling Tree, all which do tolerably well in stiff Clayey, as well as other Spewy Ground; but 'tis not reasonable to expect the Lime, Beech, Hornbeam, or any other of the dry High-land Tribe should prosper here: And whoever makes this Observation, will find this confirm'd, especially Lime and Beech, which will by no means prosper in a heavy Cold Land: Indeed Oak, Elm, and
Ash

Ash do thrive in a wonderful manner, if they are sown or planted with such Care as has been prescrib'd ; and I must here observe, the Ash grows the most universally in all sorts of Ground, of any other Tree, except Abeal ; and tho' they are not very beautiful Trees, yet they are very useful, the first (besides several other good Uses) for Fire, and the other in making Rails, Styles, Gates, and other Conveniences about a *Villa*, and saves Oak and other Timber of more Value: But of this I shall be more particular in another Volume.

SECT. XIII.

TO this I shall add, what I find already collected to my Hands in Mr. *Evelyn's* last Edition of his *Sylva*, from his own Works, as well as the Works of all the Authors on this Subject, for the Satisfaction of the Curious in this Matter, which take as follow, tho' shorter, and with some Alteration.

Trees that grow in some Barren Dry Soils :

Birch, Hornbeam, Fir, Pine, Yew, Poplar, Beech, Abeal.

In Black Fat Land.

Oak, and all sorts of Chesnuts.

In

In Boggy Drain'd Ground:

Birch, Poplar, Alder, Ash, Willow.

In Chalky Ground:

Beech, Walnut, Juniper, Elm, Ash, Oak;
but not *Poplar*.

In Clayey Ground:

The *toughest Oak, Poplar;* not *Abeal*.
Evel. Sylv.

In Moist Clay:

Oak, Ash, Chesnut; and will serve for *Red Willow, White Sallow,* and *Male and Witch Elm*.

In very strong Clay few Trees will grow.

In a Loamy Clay. See Loam.

In Corn Ground *most Timber Trees*.

Coarse Ground serves for most Trees, provided it be meliorated, and exposed to the Air by Ploughing, &c. (viz.) *Chesnut, Beech, Hornbeam, Walnut, Oak, Ash,* and all Kinds of Forest, and most Fruit Trees.

Craggy Ground:

Ash and *Fir*, and even *Oak* if from Seed, not else, as will neither of the other two.

On Ditch Banks: *Female Elm, Ash*.

On Dry, Poor, Clear Soil :

Holly, Walnut, Maple, Abeal, Black Alder, Sallow, Poplar ; not *Willow*.

On Dry Rich Ground :

Walnut, Chesnut, Oak, Beech, Hornbeam, and Lime.

Dry, Sandy, Hot Ground :

Birch, Beech, Lime with a little help ; but not *Elm* to any purpose.

Fat Soil excellent for *Limes*, and almost all sorts of Trees, if not mix'd with Dung : But if Fat with Dung, neither *Holly, Yew*, nor *Forest Trees*, except the Dung is well consum'd.

Flinty Ground :

Oak, Ash, Elm, Beech, if sow'd.

Gravel, provided there be any thickness of Mould :

Beech, Oak, Ash, Holly, Walnut, Elm ; *Oak* better than *Chesnut*.

A Hungry Gravel :

Only *Abeal* ; not *Oak, Elm, Ash, or Walnut*.

Gravel mix'd with Loam :

Oak, Ash, Elm, and Walnut, and almost any Tree but the *Aquaticks*.

On Moist Gravel:

Chestnut, Elm, Oak, Pine, and Fir, Green Willow, English, Dutch, and French Elms.

These are the most material Advices in these Cases, and with them I shall conclude these Tabular Directions.

SECT. XIV.

General Aphorisms or Maxims of Planting, &c. drawn from the foregoing Chapters.

FROM what has been said on the Subject of *Planting*, in the foregoing Chapters, 'twill not be improper if I should deduce some Aphorisms, which may serve for Maxims in this truly useful and delightful Employ.

(I.) We are taught, That no Tree design'd for Timber, ought to be planted after eight or ten Years old, or that has not been often mov'd, so that there are a great Number of small Roots. Since natural Experience and Observation informs us, that most Trees taken out of a Wood have but a few, and those very large Roots, which if once cut off, (as they

they must in taking up) the Tree is for ever after incapacitated to gain such Strength and Nourishment from the Ground as to become good Timber.

(2.) The same Reason holds good likewise in the Top; for if you cut off the Top of a Tree, it is for ever made a Pollard of, and consequently not fit for Timber; no Tree indeed ought to be Headed, except he grows crooked, and there be a Shoot or Bud that points directly upward; but there are some Trees that have large pithy Hearts, that ought by no means to be Headed; such (I have already intimated) are all the sorts of Chestnuts, the Sycamore, Platanus; to this I might add on the former account, the Beech, Oak, Elm, &c. 'Tis true, we very commonly do, and are oblig'd to Head Lime and Elm for our Avenues or Walks; but here we don't expect Timber, and it would be much better could we avoid it.

(3.) I can't in this place pass over a Fault, that I have often observ'd, and saw but the very Day I am writing this of Heading Trees (which, in the Example, was Elm) that had several large Branches at the Heading-Place. These our ignorant Planter turn'd into Forks, whereas he ought to have Headed them into a single Stem, or two Forks is the most that can be allow'd in any Tree; for when we consider the great number of Buds that must remain on all those Forks, what a Thicket of Shoots must not be expected, most of them

A very great Fault commonly committed in Heading such Trees as are allowable to be Headed.

very small and weak, growing a-cross one another, and all in the utmost Confusion? Now had the Tree had but one Stem, we might have expected only five or six, seven or eight collateral Shoots in the directest order of Nature, Strong, Regular, Vigorous and Lively; whereas the other can possibly produce no other than a Thicket or Birds-nest; so ignorant are many Men in this Affair.

(4.) There are Others that are not for Heading (or, I would rather say in this Case, not Pruning off) the collateral or side Branches from their Trees; but this is against all Reason, for if they come out of a Nursery or Coppice, as most of them do, the side Branches are very thin, and will make an improper Conveyance of the Sap. Besides, the Danger is, that they will require more Sap than 'tis possible the Root can supply them with; the side Branches however ought to be cut off, but if possible spare the Top, then we may expect that Nature (in the open Air) will force out those collateral or side Branches in a more regular and splendid Manner.

(5.) As for Monsieur *de la Quintinye's* Method in pruning Roots, we find it hold good in Limes, Elms, and all other Spungy-rooted Trees, but is as dangerous in Fir, Yew, Holly, Beech, and other Trees that are more difficult to grow; for which Reason, how valuable soever 'tis in the other Case, yet in these it ought to be avoided; and indeed these kind of Trees, when any thing large, ought to

to be mov'd, Earth and all, as we commonly phrase it.

(6.) We may likewise hence observe, and establish it as a Maxim, That although Nature very often presents to our View many noble Beeches, &c. on poor, shallow, barren Land, and very large Oaks on the stiffest Clay, yet 'tis not reasonable to expect the same by common artificial Methods of Planting, but with the utmost Care; and this I particularly mention, for that I have seen many Gentlemen deceiv'd by this mistaken Observation. And it proves,

(7.) That the Practice of the Ancient and Modern Planters, about fixing the Tree they plant in the same Position it was when they took it up, is a superstitious Nicety, not to be regarded.

(8.) As is also the Time of the Moon, the Position of the Winds, and several other Tenets of the Antients.

(9.) We are likewise inform'd, that, properly speaking, no Tree loves poor barren Hearthy Ground, but that Abeal and other free Growers do the best, which will be confirm'd by many Nobles and Gentlemen that have experienc'd it.

(10.) This will also instruct us in a Method not yet much in Practice amongst us here, (tho' I suppose it be in *Herefordshire*, and other Planting Countries) of laying at least two Foot thickness of Earth upon the Roots of new-planted Trees, which saves all Expences

in Watering, and keeps the Tree very stable and upright; since 'tis the Thinness of Earth (that in one common Method) we spread over the Roots, which exposes them to the parching Winds and Sun. But of this more elsewhere.

(II.) From hence we may likewise observe, that there are different Juices in the Earth that every sort of Plant sucks and imbibes; thus Beech will not grow so well in Wet as Dry Ground, as being most agreeable to its own Nature, and the Frame of those Fibres, Ducts, and Channels that imbibe and suck up the latent Juices of the Earth, be they Nitrous, or whatever the Speculative Philosophers please to call them; while others avariciously devour all that comes in their way, and will prosper on Dry Ground, as well as Wet, and such is the Abeal, some of the Elms, Ash, &c.

To this I add an Advice which I have before omitted, or at least not prest hard enough; I mean the Sowing and Planting good store of Silver and *Scotch* Firs, as well in the Nursery before directed, as in the Coppice hereafter to be mention'd; since there is nothing that looks nobler, either in separate Squares or Walks, as well as promiscuous Plantations, where the dark and lively Greens of each make an agreeable Mixture and Variety.

Many

Many indeed are the Observations and Maxims that occur from Planting, but at present these must suffice, till Providence and the Encouragement of this generous Age shall farther prompt on these weak Endeavours.



S 4

DIREC-



DIRECTIONS

For the RAISING

Woods and Coppices.

CHAP. VIII.

*Introdu-
tion.*

IT was my first Intention, not to have said any thing as to the Raising Woods and Coppices, supposing the same had been effectually done to my Hand by Mr. *Evelyn*: But upon a second Revival of that Work, I found that in this as well as other Parts I have been treating of, his Method was not so plain and proper for Instruction, as that which I have followed.

*Observati-
ons on this
Method.*

For whereas (as I have before observ'd) that Treatise is taken to pieces by the particular Account given of every Tree, with their Use, &c. this, on the contrary, is as it were a continual Clew to conduct my Reader thro' this painful Labyrinth to the desired Centre, or rather End of his Business.

The

The Person therefore that proposes to plant or sow a young Coppice, is suppos'd to have made choice of a proper Piece of Ground, according as is directed before.

Directions how to prepare the Ground for Raising Coppices.

Some direct the Ploughing this as often and in the same manner as for Corn; but except the Ground be very clear, and free from Roots and other Obstructions, especially if it be for to make into Woods, for Gardens, I rather advise the Trenching it about 18 or 20 Inches deep. 'Tis true, every Acre of this manner of Digging will cost 3 or 4 l. but be that as it will, I am sure 'twill sufficiently repay the Expence, by the quicker Advances the Wood will make.

But should the Ground be a wet stiff Ground, any way inclinable to a Clay, then Trenching and laying in Beds of 6 or 7 Foot wide, with Allies betwixt them, or indeed they may be call'd rather Ditches to draw off the superfluous Water, is absolutely requir'd, since there can be little or no Hopes without it in a considerable Time, but Quickness of Growth is what I am very much contending for: Happy are those who have good clear Land, where Ploughing only, and Sowing with or after Corn, may do, but otherwise I am indispensably obliged to press the following Method of Trenching.

A farther Care.

This Business of Trenching I have likewise observ'd to be very ill managed in some Places, where they are apt to go too deep, sixteen or eighteen Inches at the most is deep enough,

Directions how to Trench Ground well.

enough, since the deeper the Ground is dug, the deeper and easier the Roots will run down, (which is a Fault;) besides, it has a worse Effect than any yet mentioned, and that is the throwing upon the top of the Ground the bottom Mould, which is always barren, and consequently will endanger the starving the Seed.

It is indeed (by lying at Top) in a way of Improvement, but I doubt, not soon enough to accelerate what I am always pressing, I mean the quick Growth and Procerity of our Coppices.

Farther
Directions
in Trench-
ing Ground
for Woods
and Coppi-
ces.

The Trenchers should then have a Line, and a Measure of three Foot always by them, and after they have open'd the first Trench sixteen or eighteen Inches deep, and three Foot wide, they should pare into that open Bottom all the Leaves, Trash, &c. they have in the next; having strain'd their Line there likewise, and mark'd out the Ground the Breadth of their former three Foot Stick; which done, they should sling their Spits of Mould over it; but these Spits ought not to be taken up above six Inches thick with their Spades, neither too confusedly. A Fault one can hardly prevent in the Country, where the Labourers are generally so stupid and opinionated, that 'tis hard to bring them into any right Method; yet about *London* they are much handier; good long Steel Spades, as they are made at *London*, will with two Digings and Shovelings between them, go sixteen
teen

teen or eighteen Inches, and this generally we call Trenching two Spit deep, but leaving the Crumbs (a way of Discourse) level enough to the Capacities of our *London* Kitchen-Garden Labourers, who will do twice or thrice as much as most Countrymen, they being generally very lazy, and great Slovens in digging, and should for that reason have a watchful Eye over them, that they pick out the Weeds and Roots, and dig their Ground level and true.

After this Preparation, either by Digging or Ploughing, I am not for advising the Sowing of Corn, &c. which seems to be only a delusive Pill to make the other go down the better, or the Contrivance of some Bailiff or Husbandman for the sake of a little Corn.

Against Sowing with Corn.

The first thing is to Rake or well Harrow the Surface of the Ground, so as to break the Clods, and clear the Top of any Bushy, Grassy, or other Rubbish; when being provided with Acorns, Beech, and Hornbeam-Mast, and in general with whatever Seeds the neighbouring Woods produce, you are to sow them promiscuously, at a discretionary Thickness, but rather too thick than too thin, making large Allowances for bad Seed, Mice, and other Casualties; then Rake or Harrow the Ground very well over again.

Raking or Harrowing the Surface.

One thing I must advise, as very material for the Encouragement of these Seeds after they are sown: If it happens to be upon light, barren Land, as soon as ever the Seed

A particular Advice after the Seed is sown.

is sown and harrowed in, then (having before-hand made a good Preparation) sow some Mould and Dung, well rotted and blended together, over it at least $\frac{1}{4}$ of an Inch thick, which will be a great Help to the Ground, and to the Seed likewise: But if the Ground be Cold and Heavy, then sow some slack'd Lime over it once a Week, for this will not only kill all the Slugs and Vermin, but will also improve the Ground, and impregnate the Seed: I do not advise to have it sown thick, but often; and it may be depended on, that the Rain and Air will soon strip it of its fiery Quality in such a manner, as that it will do no Hurt to the Seed, but, on the contrary, will have the desired Effect, the Impregnation of the Seed, and the Destruction of all the Slugs and other Vermin.

By this means you have laid a Foundation for the Raising all sorts of Trees that come from Seeds. But how you are to furnish this Wood with the rest, neither the good Esquire, nor any Body else, has, that I know of, advis'd, at least in such a manner, as that the World may be profited by it.

Evelyn.

 *Extraordinary Advice.*

To supply this Defect then, I advise, That whosoever is the Planter or Sower of this, ought to be stock'd with some Thousands of Plants of those sorts of Woods that are Rais'd by Arcuation or Laying, as also, which it is very easy for any one to be, with great Quantities of Sets, or Truncheons of Sallows,

lows, and in such a case, of Abeal, and any thing that will possibly be Rais'd by Sets; but above all, (as before hinted) there can't be too many Limes, Witch and Dutch Elms, Platanus, &c. since these will not only very much enoble the Nature of the Wood, but will also by their Shooting faster away, (which will indeed be twice the pace, or more, than those sow'd of Seed) give present Succour from the Winds to the tender Seedling, which one may suppose are peeping out of the Ground, and will draw them up the faster: And this I take to be a very material Article, both for the Beauty of the Wood, and the quicker Dispatch in the Growth of it.

What Use 'twill be to the Oak, Beech, and other slow Growers, which love to grow in Consort, and exert a kind of natural Emulation, I leave to the Experience and Practice of those who think fit to make use of this Method.

I must not forget to admonish, That the Sets or Layers I have been mentioning should have Hills about them like Hop-Hills, that Roots may be well cover'd without Planting too deep, and thereby save an Expence of Watering, which will otherwise unavoidably ensue, and ought to be planted sloopewise, promiscuously, at above four or five Foot asunder.

A Second Caution.

'Twill

Concerning
Pruning
and Clean-
sing.

'Twill be impossible to attempt (and indeed there seems to be little need) any-ways the Pruning and Regulating the promiscuous Lump and Thicket this will make.

But if any Person will be so curious, it may not be improper to advise a large strong Hoe (as we call them) made very sharp, with which one may the first Year cut up both the insulting Weeds, and thin the young Seedlings, where-ever there shall be occasion, in the manner the Turnip-Hoers do in and about *London*.

Making
good the
Deficiencies.

It will be necessary also that there be a reserve of Plants, to make good, at the *Michaelmas* following; all the Gaps and other thin Places to be found in the Wood, that so all things may come away together compleat.

The last
Care to be
taken.

Likewise, when upon a general Survey of the Coppice, one finds any fine thriving Oak, Fir, Lime, or other valuable Tree oppress'd by Shrubs or Bushes of less esteem; then ought the careful Planter to relieve his oppress'd Tyro, by pruning and cutting away the Branches that interrupt it.

The proper
Time.

Having said so much already concerning the Time of Sowing, I think there is no Occasion to say much more: However, if it be a very Wet Clung Ground, (as we commonly say) 'tis best to Trench it, and lay it up in Ridges all the Winter; by which Process, the danger of Rotting in the Winter is avoided: Besides, the Frost will so meliorate the Ground,

Ground, that 'twill fall like Dust in the Spring, and from the most incorrigible, become a very fine and tractable Earth. I have already advis'd Allies and Ditches lying with a Descent to carry off the superfluous Water: The Beds, Ridges, or Lands may be six, eight, or ten Foot; and the Allies or Trenches two or three Foot: But the Beds ought to be level; since one often sees Corn very poor, and sometimes quite kill'd, in Lands laid Rounding, I mean that Corn which lies next the Furrows.

A D D E N D A.

I Come now to give a short Account of the several Uses I propose to make of the foregoing Stock of Trees, and of the Woods and Coppices I have been just now teaching the Manner of Raising, which is in General for *Gard'ning*.

Of the several Uses to be made of the foregoing Care.

But when I mention *Gard'ning*, 'tis not that which has been commonly us'd and understood by that Name; I mean, Flowering, Parterre's, Box-work, Clipt Plants, &c. but Wood, Water, and and such-like Natural and Rural, yet Noble and Magnificent Decorations of the Country *Villa*.

The First Use.

Towards

*Directions
about the
Fencing.*

Towards the Advancement of this, if the House is without Coppices and Woods at a reasonable Distance, which is the case of a great many noble Old as well as New Seats, I would advise the Fencing in and Sowing a Wood or Coppice of twenty or thirty Acres, more or less; the Expence is not much: And if the House is to be built, by the time that 'tis finish'd you may see a great progress in the advancing Coppice. In four or five Years you may expect to find the Witch and Dutch Elms, Limes, &c. eight, nine, or ten Foot high, and those sow'd of Seed, as it were struggling which shall outvie each other in Procerity and Tallness.

*The Result
of this Pro-
cess in four
or five years
time.*

*Cheaper
than any
other Me-
thod of
making
Gardens.*

These kind of Woods, as they are more Natural and Rural than the Set Wilderesses and Groves, so much us'd of late amongst us, yet are they a great deal less expensive, an Acre of this being made full five times cheaper than the other; so that if those cost Fifty Pounds an Acre, which is the least, if they are well made, these may be set at Ten Pounds, and that indeed is more than I can reckon with all the Arithmetick and Reason I am Master of.

*More Ru-
ral, and
Cheaper to
keep in Or-
der.*

And as the Making is much Cheaper, so likewise is the Keeping; for being of a much more natural Aspect than Set Gardens, the less Keeping will suffice. Instead of that prodigious deal of Clipping in Espaliers, a Scythe fix'd into a Pole or Handle will do this Work, and retrench the Extravagances of

of Nature in a more expeditious and less expensive Method.

I don't pretend, by this, to propose the entire exclusion of *Espaliers*, they are noble in their Kinds, and in some few of the main and principal Walks add the greatest Beauty imaginable; but in all the more private and natural Meanders that should intermix themselves in these kinds of Designs, will be still the better.

Espaliers, not to be excluded.

The Nursery of regular and well-manag'd Plants will repair any Defect, and make what addition the Designer pleases to the Beauty of these Woods.

The Use of the Nursery in the Gardens.

But when by any Methods yet taken, or any that may be thought of, these kinds of Rural Gardens shall be laid open to the extensive Avenues all round, in an open and unaffected manner, (not Wall'd round or Immured, as has been the Practice) when those large Sums of Money that have been buried within the narrow Limits of a high Wall, upon the trifling and diminutive Beauties of Greens and Flowers, shall be lightly spread over great and extensive Parks and Forests: I say, such seem to be Gardens for the Politer and Greater Genius's of *Britain*, especially if to it be added Water the Spirit and most enchanting Beauty of Nature, and when Parks shall be turn'd into Gardens.

'Tis then we may hope to excel the so-much-boasted Gardens of *France*, and make that great Nation give way to the superiour Beauties

The Author's Ambition to Equal the Gardens in France.

Beauties of our Gardens, as their late Prince has to the invincible Force of the *British* Arms.

The Use of the Nursery in Exterior Plantations.

But to return from this Digression, to which the extreme Love I have to Gardening has carried me; I suppose this Nursery sufficiently stockt with all sorts of Elms, Limes, Oaks, &c. fit for planting all Exteriour Avenues, and other regular or promiscuous Plantations; how they may be dispos'd to the best Advantage, so as to add a Beauty, Grace, and Ornament to our Country-Seat, is the Subject of the next Treatise.

Use of the Nursery in Enclosing and Planting Lordships and Commons.

And before I quit this, I shall extend the Use of the Nursery yet farther, and that is, to the Fencing and Enclosing Large and Waste Lordships, Commons, &c.

I'll suppose then, that our Nursery is well stockt with some Thousands of White-Thorn, Holly, &c. that are thick-made Plants, (for which reason they should always be kept shorten'd and cut in the Nursery) to five or six Foot high.

Method of Moving them out into Hedges, &c.

These Plants may be mov'd with ease, and with good success, (if they have had the care of often Removing, &c. as before directed.) Taking them up with good Roots, and some Earth, they may be Carted away, Planted, and a Hedge made at once.

Mr. Chaplain near Lowth in Lincolnshire.

This Method I have seen practis'd in the Grounds of that worthy Gentleman before mention'd, and that with White-Thorn and Holly, and, which is worse to move than

than any of them, Black-Thorn taken out of the Woods, Coppices, &c. which live to Admiration, and would doubtless thrive much better, had they been Rais'd in a Nursery, and well stor'd with Fibrous Roots.

'Tis true, that contrary to this Method (say some) small Quick is very easily planted, and with less Charge. But these Persons ought at the same time to consider what Expence and Trouble there is in making of Fence-hedges, Stoop, and Rail, or other Methods of securing them for a considerable Number of Years, while this is an immediate Fence, and has no manner of Occasion of those preliminary Cares.

*An Objection
on Answer'd.*

But the farther Pursuit of this Point I shall leave to be the Subject of some other Treatise (if haply the present meets with any Encouragement from the World) under the same General Title.

*A Particular
Treatise
designed for
this at ano-
ther Time.*

In the mean time I can't but humbly recommend the Study and Practice of these Things to the Nobility and Gentry of Great-Britain, with all the Earnestness that the Profit, as well as the Nobleness of the Subject requires, that by it they also gain another two-fold Advantage, the Health of their Bodies; and, by employing the Poor, reap another, very often delivered from the Pulpit of the laborious Divine.

*The Study
and Pra-
ctice recom-
mended.*

*As it con-
duces to
Health,
and Employ-
ing of the
Poor.*

Neither are they less beneficial to the Nation in general, as well as to Gentlemen in

As beneficial to the Honour, Grandeur, and Wealth of the Nation.

particular: 'Tis by the means of elegant and noble Structures, and the noble Distribution and Decorum of our Country *Villa's*, that Foreigners will still more admire and court us. 'Tis by this means, of enclosing Lands, that Estates advance considerably in Value; and the Price of Food and Sustainance keeps pace with that which makes every Nation formidable, I mean the numerous Encrease as well as Wealth of its Inhabitants.

Guards the House from the Winds.

The Planting and Sowing of Wood, and guarding Country Houses from the Winds, besides the other Advantages of shady Walks, is what can't be thought of too soon; neither can the Aged Parent leave a better Legacy to his Heir, than some young Woods and Coppices growing round his Habitation. The Expence is very little, but attended with great Profit and Pleasure.

A good Legacy to Posterity.

Encouragement, tho' formerly unsuccessful.

And if any former Attempts have prov'd unsuccessful, let not that deterr them from renewing the Charge; it was probably from wrong Measures, amongst which the excessive Expence of Gard'ning may have been one: But from this Method laid down, the Decoration and Improvement of a Country-Seat will not be that expensive Bug-bear it may of late have appear'd to be. And indeed, by what Observations I have made in many Parts of this Kingdom, there is generally twice the Money expended on a bad Design, as would have made a good one; tho' I confess

sefs to have seen the contrary in some Places where Frugality has mix'd itself with Grandeur and good Design: And 'tis there, and there only, one may reasonably hope for a good Issue and Period from such our Undertakings.

Let therefore those that would appear *The Sum of all.* splendidly frugal in the Decoration and Embellishments of their Country-Seats, first sow twenty, thirty, or forty Acres of Wood, (as is before directed) and begin raising a Nursery or Reserve to stock and plant these exterior Parts (which 'tis impossible to spare now) in regard of the Profit it brings; twenty, thirty, or forty Acres being what I very much fear many Persons will think too much of already (especially Stewards and Bailiffs.) Commit then the Management of these Matters to some careful Person; and do, as it were, forget it for four or five Years; in which Time the Wood will have made such a considerable Advance, that you may carbonate it into what Method or Figure you please, and that with a very little Expence. The manner how that or the other shall be done, and how to make the best Use of Situations, and all other natural Advantages, shall be the Subject of the next Volume: And I shall terminate this Chapter with a Recommendatory Paper of an Ingenious Author, whose Lucubrations have diverted this present Age; and will, I believe, have more

Weight with the World, than any thing I can say on this Subject.

Spectator,
Vol. 8. No.
585.

“ Every Station of Life (says he) has
 “ Duties which are proper to it. Those
 “ who are determined by Choice to any par-
 “ ticular kind of Business, are indeed more
 “ happy than those who are determin’d by
 “ Necessity ; but both are under an equal
 “ Obligation of fixing on Employments
 “ which may be either useful to themselves,
 “ or beneficial to others. No one of the
 “ Sons of *Adam* ought to think himself ex-
 “ empt from that Labour and Industry which
 “ were denounc’d to our first Parent, and in
 “ him to all his Posterity. Those to whom
 “ Birth or Fortune may seem to make such
 “ an Application unnecessary, ought to find
 “ out some Calling or Profession for them-
 “ selves, that they may not lie as a Burden
 “ on the Species, and be the only useless
 “ Parts of the Creation.

“ Many of our Country Gentlemen, in
 “ their busie Hours, apply themselves whol-
 “ ly to the Chase, or to some other Diver-
 “ sion which they find in the Fields and
 “ Woods. This gave occasion to one of our
 “ most eminent *English* Writers to represent
 “ every one of them as lying under a kind
 “ of Curse pronounc’d to them in the Words
 “ of *Goliath*, *I will give thee to the Fowls*
 “ *of the Air, and to the Beasts of the Field.*

“ Though

“ Though Exercifes of this kind, when indulg’d with Moderation, may have a good Influence both on the Mind and Body, the Country affords many other Amusements of a more noble kind.

“ Among these, I know none more delightful in itself, and beneficial to the Publick, than that of *P L A N T I N G*. I could mention a Nobleman whose Fortune has plac’d him in several Parts of *England*, and who has always left these visible Marks behind him, which shew he has been there : He never hired a House in his Life, without leaving all about it the Seeds of Wealth, and bestowing Legacies on the Posterity of the Owner. Had all the Gentlemen of *England* made the same Improvements upon their Estates, our whole Country would have been at this time as one great Garden. Nor ought such an Employment to be looked upon as too inglorious for Men of the highest Rank. There have been Heroes in this Art, as well as in others. We are told in particular of *Cyrus* the Great, that he planted all the Lesser *Asia*. There is indeed something truly magnificent in this kind of Amusement : It gives a nobler Air to several Parts of Nature ; it fills the Earth with a Variety of beautiful Scenes, and has something in it like Creation. For this Reason the Pleasure of one who plants, is something like that of a Poet, who, as *Aristotle* observes,

“ is more delighted with his Productions, than
 “ any other Writer or Artist whatsoever.

“ Plantations have one Advantage in them,
 “ which is not to found in most other Works,
 “ as they give a Pleasure of a more lasting
 “ Date, and continually improve in the Eye
 “ of the Planter. When you have finish'd a
 “ Building, or any other Undertaking of the
 “ like Nature, it immediately decays upon
 “ your Hands; you see it brought to its ut-
 “ most Point of Perfection, and from that
 “ time hastening to its Ruin. On the con-
 “ trary, when you have finish'd your Planta-
 “ tions, they are still arriving at greater de-
 “ grees of Perfection as long as you live, and
 “ appear more delightful in every succeed-
 “ ing Year, than they did in the forego-
 “ ing.

“ But I do not only recommend this Art
 “ to Men of Estates, as a pleasing Amusement,
 “ but as it is a kind of virtuous Employment,
 “ and may therefore be inculcated by moral
 “ Motives; particularly from the Love
 “ which we ought to have for our Country,
 “ and the Regard which we ought to bear to
 “ our Posterity. As for the first, I need on-
 “ ly mention, what is frequently observ'd by
 “ others, that the Increase of Forest-Trees
 “ does by no means bear a Proportion to the
 “ Destruction of them, insomuch that in a
 “ few Ages the Nation may be at a Loss to
 “ supply itself with Timber sufficient for the
 “ Fleets of *England*. I know, when a Man
 “ talks

“ talks of Posterity in Matters of this Nature,
 “ he is look'd upon with an Eye of Ridicule
 “ by the cunning and selfish part of Mankind.
 “ Most People are of the Humour of an
 “ old Fellow of a College, who when he
 “ was pressed by the Society to come into
 “ something that might redound to the Good
 “ of their Successors, grew very peevish; *We*
 “ *are always doing* (says he) *something for*
 “ *Posterity, but I would fain see Posterity do*
 “ *something for us.*

“ But I think Men are inexcusable, who
 “ fail in a Duty of this Nature, since it is so
 “ easily discharg'd. When a Man considers,
 “ that the putting a few Twigs into the
 “ Ground, is doing good to one who will
 “ make his Appearance in the World about
 “ fifty Years hence, or that he is perhaps
 “ making one of his own Descendants easie or
 “ rich, by so inconsiderable an Expence; if
 “ he finds himself averse to it, he must con-
 “ clude that he has a poor and base Heart,
 “ void of all generous Principles and Love to
 “ Mankind.

“ There is one Consideration which may
 “ very much enforce what I have here said.
 “ Many honest Minds that are naturally dis-
 “ posed to do Good in the World, and be-
 “ come Beneficial to Mankind, complain
 “ within themselves that they have not Ta-
 “ lents for it. This therefore is a good Office
 “ which is suited to the meanest Capacities,
 “ and which may be performed by Multi-
 “ tudes,

“ tudes, who have not Abilities sufficient
 “ to deserve well of their Country, and to
 “ recommend themselves to their Posterity,
 “ by any other Method. It is the Phrase of
 “ a Friend of mine, when any useful Country
 “ Neighbour dies, to say, *You may Trace him.*
 “ Which I look upon as a good Funeral Ora-
 “ tion, at the Death of an honest Husband-
 “ man, who has left the Impressions of his
 “ Industry behind him, in the Place where
 “ he has lived.

“ Upon the foregoing Considerations, I
 “ can scarce forbear representing the Sub-
 “ jects of this Paper as a kind of Moral Vir-
 “ tue; which, as I have already shewn, re-
 “ commends itself likewise by the Pleasure
 “ that attends it. It must be confess'd, that
 “ this is none of those turbulent Pleasures,
 “ which is apt to gratifie a Man in the Heats
 “ of Youth; but if it be not so tumultuous,
 “ it is more lasting. Nothing can be more
 “ delightful than to entertain our selves with
 “ Prospects of our own making, and to walk
 “ under those Shades, which our own In-
 “ dustry has rais'd. Amusements of this Na-
 “ ture compose the Mind, and lay at Rest all
 “ those Passions which are uneasie to the
 “ Soul of Man, besides they naturally engen-
 “ der good Thoughts, and dispose us to lau-
 “ dable Contemplations. Many of the old
 “ Philosophers passed away the greatest parts
 “ of their Lives among their Gardens. *Epi-*
 “ *curus* himself could not think sensual Plea-
 “ sure

“ sure attainable in any other Scene. Every
 “ Reader who is acquainted with *Homer*, *Vir-*
 “ *gil*, and *Horace*, the greatest Genius’s of
 “ all Antiquity, know very well with how
 “ much Rapture they have spoken on this
 “ Subject ; and that *Virgil* in particular
 “ has written a whole Book on the Art of
 “ Planting.

I shall conclude this interwoven Discourse with some regular Heads, which in other Cases generally engage ev’n the frugallest of Mankind, I mean the Profit, Diversiſion, and natural Pleasure that attend this Noble Employ of Planting and Sowing.

And here it may be suppos’d that I should give a Pecuniary Calculation of my Observations on this Head ; in which I shall be short, intending to handle it more at large when I come to treat of large Estates, and the manner of improving them. To proceed then : A Friend of mine has only a little Grove of Oaks, which he very often views with Satisfaction : It is about a hundred Yards long, and forty wide, which multiplied together makes $\frac{3}{4}$ of an Acre and twelve Rood, on which, I computed, were above 160 Oaks, that in about 120 Years time would be worth, at a moderate Computation, 5 *l.* a Tree, which is in all 800 *l.* Suppose then that we account 20 *s.* *per. Ann.* for the Rent of that Ground, it comes but to 120 *l.* by which Account we perceive, that my Friend,
 were

were he to sell them, would get 800 *l.* for the Interest, supposing the Principal 120 *l.* Original, which it is not: As for the Expences in Sowing and Fencing, the Underwood sufficiently pays for that (and much more than that) all the while: And I would from this appeal to any Bank or Trade, whether any Person can lay out so small a matter of Money to so great an Advantage, and having besides the Pleasure of seeing those bold Sons of *Jove* advancing their Summits towards the Skies, in a perfect Emulation one of another? It seems to be the Glory and Endeavour of the most provident part of Men to heap up Wealth for their Families; and sure they cannot possibly do it better than in this, when perhaps for the laying out 100 *l.* their Heirs will be repaid above sixty-fold, ev'n 6000 *l.* (exclusive of the Rent of the Ground) A valuable Return for so small an Expence.

My next Consideration is, that healthful, easie, and cheap Distribution of Time it affords, which would otherwise lie heavy on our Hands. For as Man is an intelligent, rational Being, and has a Mind always in Action, either in that which is good or bad; how is it possible he can employ his Thoughts and his Hands better than in these busie, innocent, happy, and successive Toils that follow each other in the Pruning, Dressing, and Ordering of Nurseries, and other our Plantations? This is excellently described by *Milton*, when
 he

he is representing our First Parents in their State of Innocence, solicitous about their Nocturnal Repose, and the laborious Business of the ensuing Day ; and as I began this Subject with the Poetick Raptures of our greatest Bard, I end them so too :

*When Adam thus to Eve: Fair Consort, th' Hour
Of Night, and all Things now retir'd to Rest,
Mind us of like Repose ; since God has set
Labour and Rest as Day and Night to Man,
Successive, and the timely Dew of Sleep
Now falling with soft, slumbrous Weight, inclines
Our Eye-lids. Other Creatures all Day long
Rove idle, unemploy'd, and less need Rest :
Man has his daily Work of Body or Mind
Appointed, which declares his Dignity,
And the Regard of Heav'n on all his Ways ;
While other Animals, unactive, range,
And of their Doings God takes no Account.
Tomorrow, e're fresh Morning streak the East,
With first Approach of Light we must be ris'n,
And at our pleasant Labour to reform
Yon flowry Arbours, yonder Allies green,
Our Walk at Noon, with Branches overgrown,
That mock our scant Manure, and require
More Hands than ours to top their wanton Growth :
Those Blossoms also, and those dropping Gums,
That lie bestrown unsightly and unsmooth,
Ask Riddance, if we mean to tread with Ease.*

How sweet a Theme had this unparallel'd Poet to expatiate his Genius on ! How beautiful is even the toilsome and laborious Part of this Work ! But let us turn to one of our modern Seraphick Poets, on the happy
Inno-

Innocence of *Adam* in Paradise, during his State of Innocence:

*In all the Joys that happy Minds attain,
 Blest Adam first began to live and reign.
 He to fair Eden's Paradise resorts,
 Where every Sense its proper Pleasure courts:
 The joyful Spring, by soft Favonius fann'd,
 Diffus'd her Riches with a wanton Hand.
 From new-born Flow'rs luxurious Odours fly,
 And heav'nly Landskips meet his ravish'd Eye.
 The twining Branches weave him shady Bow'rs,
 And Honey-dews fall in delicious Show'rs.
 Birds with their Songs their Sovereign salute
 From Boughs which bend beneath their Golden Fruit.
 Pure Streams to him the crystal Waters bring,
 And the glad Fish leap up to see their King.
 The harmless Beasts their humble Homage paid,
 And the sole Monarch of the World obey'd.
 Uninterrupted Peace his Mind possess,
 And Joys unutterable fill'd his Breast.
 A Day serene smil'd on his Godlike Mind,
 Free from black Clouds, and undisturb'd with Wind:
 No Guilt, no Frown from Heav'n disturb'd his Soul,
 Calm as deep Rivers in still Ev'nings roul:
 No Storms of Passion, such as us molest,
 Annoy the peaceful Region of his Breast:
 No boiling Lust swell'd the o'erwhelming Blood,
 To blend our Reason with the impetuous Flood.
 His spotless Mind knows yet no other Fire,
 Than those pure Flames which Heav'nly Minds inspire.
 O happy Man! above Description blest,
 Had he maintain'd the Station he possess.*

Blackm. P. Arthur.

In this (or near this exalted State) is every Man that pursues these Pleasures: The greatest

greatest Misfortune is, that Gentlemen never set themselves heartily to it till 'tis commonly very late, till Judgment and Reason get the Mastery of Passion, and Death is ready to seize us. But I must leave these Rural Thoughts, with an allusive Prologue proper to the present Paragraph :

*Sweet Solitude ! when Life's gay Hours are past,
How'er we range, in thee we fix at last :
Tost thro' tempestuous Seas ; the Voyage o'er,
Pale, we look back, and bless thy friendly Shore.
Our own strict Judges our past Life we scan,
And ask if Glory have enlarg'd the Span.
If bright the Prospect, we the Grace desire,
Trust future Ages, and contented die.*

Mr. Tickell.





O F
S P R I N G S
A N D
W A T E R - W O R K S .

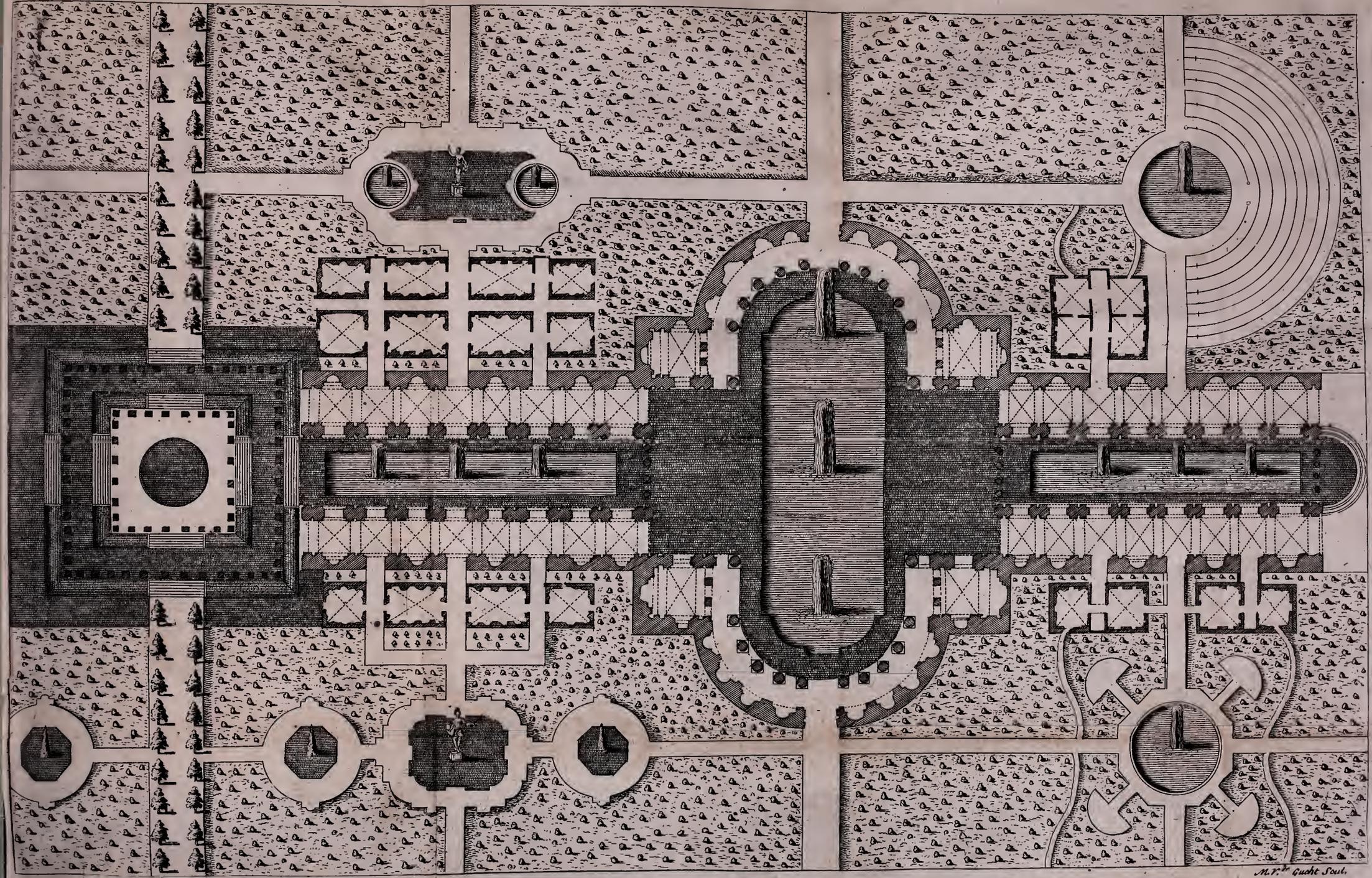
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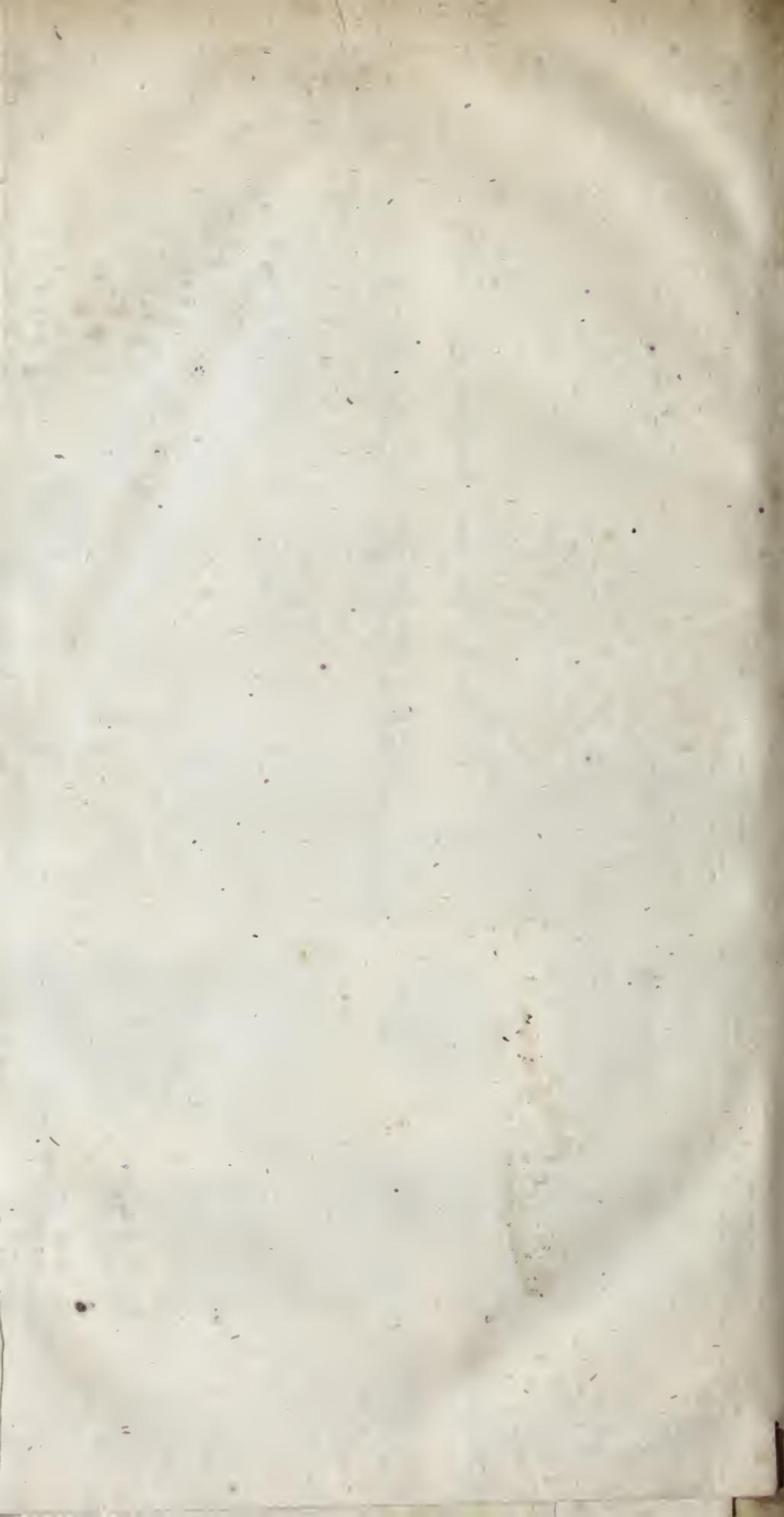
*Introdukti-
on.*

I Come now to treat of Water, in respect of that Beauty and Decorum it furnishes a Country Seat or *Villa* withal, some Directions for conveying it to the Place 'tis to be us'd, the Method of making Canals, Ponds, Cascades, and Fountains.

The Originals.

As to the Original of Springs, there seem to be different Opinions, some believing them to be





be deriv'd from the Rains, Snows, and Dews that descend upon the Ground, and after gathering together in a Body, break out of the Ground in the Sides of Hills, &c. In which I observe, that it may be possible for Rains, Snows, and Dews to strengthen the Springs, and by their great Conflux to make those violent Eruptions as we often discover in them, particularly after great Rains, and what we commonly call Land-Springs or Floods.

But this I can't think to be the main Origine of Springs, but rather that there is a subterraneous Correspondence in all that Watry Body; and that the Sea and Rivers are the Grand Reserve from whence they all proceed, and with which they have an immediate Communication through the Gravelly, Rocky, and other loose or arenaceous Passages of the Earth, as there is from a Grand *Reservoir* through Pipes to Fountains, and other Water-works.

For though one should be induc'd to believe, that Rains are the Original of Springs in Bottoms and Low Grounds; yet 'tis not so easie to conceive they should be the same on the Tops and Sides of Hills, from which the Rains run down with such Violence, that they sink scarce any deeper than the Herbage; and 'tis certain the same may be said of Snows. And as for the Dews, nothing can be more plain, they never entring half an Inch into the Ground, scarce deep enough

to refresh the Roots of ev'n the creeping Herb.

Aristotle (in his Treatise *De Meteoribus*, lib. 1, cap. 13.) supposes that there was the same Original of Rivers within the Earth, as there was of the Watry Meteors in the Air above the Earth. For if this Air (says he) coming near to the Nature of a Vapour, is by Cold turned into Water; then the Air, which is in the Caverns of the Earth, may be, by the same Cause, condens'd into Water also. According to which Grounds, he makes That the Original of Fountains and Rivers, namely, that they are engendred in the hollow Concavities of the Earth, and derive both their Birth and continual Sufstance from the Air, which piercing the open Chinks and Chasma's of the Earth, and congeal'd by the Cold of those Places, dissolveth into Water, (as we see Air in Winter Nights to be melted into pearly Dew,) and being grown into some Quantity, it will either find a Way or make a Way to vent its Superfluity.

And for the continual Succession and Running of Rivers (says *Aristotle*) it is by a perpetual Succession of new Air. But to this Opinion 'tis not easy to assent; for although the Air may be thus converted into Water, yet the sole Matter of Rivers cannot come from hence; 'tis possible it may be a helping, but not a prime Cause: For since the Air is a thin subtle Body, there is necessarily requir-
red

red an abundance of Air to make a little Water : And it may be a very reasonable Doubt, whether the Hollows of any Rocks are large enough to contain Quantity enough of Air to make Water run so continually, and in such great Quantities, as we often see them do.

The ingenious Mr. *Halley*, in his Dissertation on this Subject, in the *Philos. Transf.* of *Jan.* and *Feb.* 1692, seems to hint they are deriv'd from Vapours exhal'd from the Sea ; as does *Monf. le Clerc*, in his *Physicks*, quoting the aforesaid Author, in Justification of his Opinion. Against such great Authority, I shall not pretend absolutely to determine ; the stress of the Argument there, is, that the quantity of Vapours drawn out of the Ocean, by the Heat of the Sun, (especially amongst the Tropicks) is so great, that it put his Astronomical Instruments in disorder ; and particularly, that his Paper was in a very short space of Time so wet, that it would not hold Ink. These Observations were made not only in *Europe*, but in the Island of *Saint Helen* ; to all which he adds, and infers from thence, that these Vapours are dispers'd *Qua-quaverùm* by Winds) and that they lodge on the highest Hills, rather than below, there sinking down to the Receptacle or Fountain, and afterwards break out in the manner we see them.

It would certainly very much have confirm'd this Experiment, if they had at the same time open'd the Ground with any

Instrument : For there are few but what may have observ'd, that Vapours drawn out of the Earth, in a Misty Evening, have the same kind of superficial Effect, (tho' perhaps, not to so great a degree) wetting not only Paper, but ev'n thick Cloaths; from whence ensue very often Sickness, &c.

The Observations there made, concerning the Frigidity of the Air (on high Hills,) the power and aptness thereof for the Condensation and Conversion of those Vapours into Water, is I believe allow'd by all Mankind; seeing they are by their Altitude so much nearer the Atmosphere, where the general Concourse and Rendezvous of those Vapours are : But it might not be amiss in this Case to observe, whether all Hills of one and the same Extent, afford the like quantity of Springs. I suppose it will be found to the contrary, since this holds good in all the *Phænomena's* about Springs, that there are in many Places large Hills and tracts of Land that have no Springs, though they were as capacious of receiving and retaining them as others; yet by the close Contexture of some sorts of Ground, they never break thro', (according to this Hypothesis I am advancing, or otherwise) the Ground being all Gravelly, they are so disperst, as not to rise to any height or strength, (it being observable that Springs break out most where the Ground is of several different Kinds, and of different perpendicular Tubes of Gravel and Clay, &c.)
neither

neither according to theirs (as before hinted) are they retain'd; it must then (I think) follow, that their procedure is from the subterraneous Fountains of the Earth; of which more in their Course.

But the difficultest Account to be given about the Original of Springs (according to this or any other Scheme) is, how they can possibly amount to the Tops of very high Hills? Which, in my humble Opinion, is, as will hereafter more plainly appear, by Ignous Ebullition, or rather by that Aerial impulse, which the Philosophers call (as I suppose) the Elastick Power of the Air; of use in the Body of the Earth, as well as in Vegetation: 'Tis not hard to suppose that they lose their Saline Qualities thro' the Veins and Passages of the Earth, by Percolation, tho' this be one of the Doubts (a) Monsieur *le Clerc* makes in that Matter.

Mr. *Ray*, in his Treatises of *Agriculture*, attributes it to the attractive Power of the Sun: But this I must confess is not so plain to me; for tho' tis natural and easie to apprehend what Power the Sun may have in Exhalation of Fogs, Mists and Dews, and of all other Vapours of the Earth, and humid Particles, Herbs and Plants, (since by placing of a wet

(a) *Qua in re duæ occurrunt difficultates, quas non difficulter solvi posse Opinantur.* 1. *Queritur qui fieri queat, ut aqua Marina ad summos attollatur Montes?* 2. *Qui etiam fiat ut aqua Fontium salsa non sit?* Joan. Clerc. *Physica*, lib. 2. sect. 21.

Cloth, or any thing of that kind near the Fire; the Heat immediately attracts the humid Particles to itself;) yet how that attractive Power should reach into the Bowels of the Earth, through all those Beds and *Strata's* of Clay, and other Bodies, that lie one upon another, is something beyond Nature, unless one should resolve it into a hidden supernatural Power.

The most probable Truth in this Case seems to be, that the Springs (as I before mention'd) have a Communication through the Pores of the Earth, and that the Sea and Rivers are as it were the *Grand Reservoir* to them; that the weight of Air that lies upon those Watry Powers, forces on the Water thro' those Subterraneous Aqueducts, and by their interposition one with another, to ascend likewise to the Tops of the highest Hills, and where-ever they find easie Passages thro' Rocky, Gravelly, or Sandy Holes and Hollows.

To help make out this Supposition, it is no hard matter to conceive how the violent Agitations of the Sea, which generally lies above the main Surface of the Land, may add to this Case; and it can be no Objection against the Nature of the Water, which is doubtless purg'd of its Salifick Properties in its Passages through the Pores of the Earth.

And this seems to be the easier effected, because that the Chasms and Hollows in Rocks, and the looseness of Gravel, which commonly

commonly lie in the heart and sides of those Hills, are more common in such Places, than any-where else; and whenever a Passage is broke through any Clayey or other heavy *Strata's* of the Earth, and the Spring unloaded of its Fetters, (according to the common Phrase) and the violence of the Water gushing out, is a Demonstration that it must be attributed to some violent Ebullition from below; which is as hard to account for, as the other Supposition of Attraction: But this is with more probability occasion'd to mount so high, by that load of *Æther* that lies upon the Face of the Waters, and by their pressures still running forwards, by forcing them in also through those Channels just now mention'd.

As soon as I had finish'd the foregoing plain Essay, on the Original of Springs, the Book-feller put into my Hands a Treatise of Meteorology, publish'd by an Anonymous Author, and Dedicated to the Earl of Oxford, &c.

This Gentleman lays the Original and Course of all sorts of Springs on Rain, and will not allow the Sea, or any other Conjecture that has so many Years prevailed with the learned World, to be so much as concurrent Causes in this Affair.

The whole seems to be writ with a great deal of Spirit, and some Observations taken from Coal-Mines; but I must confess, after all he has urg'd to the contrary, that I

can't but still continue of the same Opinion I was, as to the Sea, and the Subterraneous Aqueducts that correspond with it, to be at least the Ground and Foundation of all that Watry Body, that lies as it were latent in the Bowels of the Earth, and that these Waters are agitated by some Aerial Principle, and made to ascend up into the highest Hills, in some degree or other, according to the Capaciousness of those Subterraneous Fountains they receive their Rise from.

That the Rains help to feed and keep up Springs, is evident enough; but how they should be the Original thereof, is hard to judge; for admitting they thus aggregate together in great Bodies, (as that Treatise supposes) and so break out of the Side-Hills, and that the large Tracts of Land that lie level with them, should for some time supply the Current of those Springs, yet that has not weight enough in it to determine this Matter; since those Fountains actuating, as he affirms, only by downright or direct Motion, would much sooner grow dry, than we often observe them to do.

But, on the contrary, by one Example, to which, had I time, I might add a great many more, as an ingenious Person of my Acquaintance, that was born near it, assures me that there is a round Hill in the Shire of *Aberdeen* in *Scotland*, call'd *Pennychy* or *Bend-up-High*, about the height of a *Scotch* Mile, and so steep, that they are oblig'd to go round it; that

that at about three quarters of the Way up, there is a very strong Spring that runs continually; that the greatest Diameter of the Hill in that Place is not above 200 Yards, if so much, and yet its Strength is considerable, ev'n in the driest Seasons.

This certainly can't proceed, much less can it be maintain'd by any level Fountain, which in such a Case ought to be as big as one of the greatest of our Commons to have supplied it in any adequate Proportion to its Consumption: Besides, I can't think the Answer there given, of four Rivers that issued out in one Place in Paradise, is sufficient; since it does not appear by History, that there was any thing Supernatural in that Place, but made on purpose to entertain the grossest Faculties and Conceptions of Sublunary Beings, whose Perfection consisted in Innocence, rather than in Divine and Supernatural Power.

As positive is that Piece, in Reasons concerning those Places where there falls no Rain, yet Springs abound plentifully; almost denying there are such Places, tho' the contrary is evident out of abundance of Histories.

I have not time to trace this Point quite through, it being a Work that would swell this Treatise beyond its due bulk; I shall only sum up what may be said in a few Words; That tho' the Vapours (which *Aristotle* speaks of) may be some part of the Cause of Springs:
Tho'

Tho' Mr. *Hally's* Concourse of Vapours on Hills, may yet be another additional Cause: Tho' Rains help to swell and enlarge the Springs, and to keep up those *Fountains of the Deep*, (as they are called in Holy Writ.) Yet their Original and Basis must come from a more distant Cause, I mean the Sea, where, by the Compression of the Air, the Height of the Sea above the Earth (be it but a little,) and the violent Concussions and Agitations of it, they mount thro' the loose Veins and Chafins of Hills to that great Height we often see them; when to it we add that Aerial Respiration and Pulsation, (not improperly defin'd by *Pulsatio Cordis*) which we may suppose in this vast Body of Earth, as well as in the Body Natural, and with ease to ascend thro' those Arenaceous and Cavernous parts of the Earth.

And tho' we don't allow of Attraction, or Ignous Ebullition, yet our Hypothesis seems very plain and agreeable with several parts of Sacred Writ. The wise Man *Siracides* thought very truly concerning these Things, (*Ecclus. xl. 11.*) *That all things which are of the Earth, shall turn to the Earth again; and that which is of the Waters, doth turn again into the Sea.* Which is also confirm'd by a more authentick Author, the Philosopher as well as King of that Age, I mean *Solomon*, *Eccles. i. 7.* *All Rivers (says he) run into the Sea, yet the Sea is not full; unto the Place from whence the Rivers come, thither they return again.*

again. Thus those Springs run into the Rivers, and then return back and press themselves into the Earth, either until free leave be given them to come abroad, or, like *Hannibal* in the *Alps*, to work themselves a Way through.

And I have wonder'd how that Author, who has taken so much Pains in tracing the Origine and Motion of all other Meteors, and has made them to act and subsist by such a Number of intricate Principles, should resolve this great Point into the dull and lazy Laws of Gravitation and Natural Propensity; when the whole Creation abounds with so many and such powerful Marks of an Omnipotent Power, that alters and dispenses with those Rules; and indeed makes the Reasonings of all Philosophers on all these Points, look foolish, or at least very intricate.

In fine, I may venture to say, he has (in my Opinion) been too quick in determining against the concurrent Opinion of a great many Philosophers, both Ancient and Modern, to whom I refer my Readers for their farther Satisfaction: Observing only (what I had almost forgot) that the strength of Springs do doubtless depend on the Capaciousness of the Fountains they proceed from, out of those deep Caverns of the Earth. And this may in some measure solve a Mistake of the Author's, about the two Springs mention'd by him near the Sea-side; for it is not suppos'd that the Sea has so very near a Communication with
those

those Fountains, as to fill them up in a Moment; but that they leisurely correspond with them, and are the Ground-work and Support of all, and without which the Rains would inevitably sink to the very Centre, and be lost in so great a Body as the Earth is.

Agreeable to what I have been urging on this Subject, is the Opinion of almost all that have heretofore wrote on the Original of Springs; and that the Saline Properties of the Water are left in its Percolation or Passage through the Veins of the Earth. My Lord *Bacon* affirms, and *Cæsar* (as that Great Author has it) made Experiments of it, when he was besieg'd in *Alexandria*, and thereby sav'd his Army; and that it was Sea-water, he likewise affirms; because those Pits that *Cæsar* dug, rose and fell as the Tide did. And that the Waters lie rounding and much higher than the Land, has been confirm'd to me by an Ingenious Gentleman in the *Isle of Wight*, who has observ'd the going out of a Ship, cross the Seas to the Coasts of *France*; that after it had been a considerable Time, has vanish'd by degrees, and has yet been part of her visible, even to the Main-top-Sails: And this he view'd from the Top of some of the highest Hills in that Island. And it is affirm'd that *Sesostris* King of *Ægypt*, and after him *Darius*, would have cut the Earth, and join'd the *Nilus* and the *Red-Sea* together; but finding the *Red-Sea* higher than the Land of *Ægypt*, they gave over their Enterprize,

terprize, for fear of drowning the Country. And that Rains only, or any other of our own *Phenomena's*, simply consider'd, should be the Original of Springs, is very plain; in that, according to the late Account we have of *Switzerland*, publish'd, I suppose, by Mr. *Stanyan*, there are four of the greatest Rivers in the World that break out of one Hill: Which, I think, plainly inferrs a Subterraneous Correspondence, and some very large and capacious Reserve below that furnishes them therewith; unless it be true, that there is a continual Deluge of Rain on that Hill.

But whatever it be, Nature has dispos'd of Springs, generally speaking, on the Sides of Hills, to our great Advantage, since by that means they may be easily convey'd to what Place the Ingenious Designer thinks fit: And considering how beautiful an Addition Water is to Gard'ning, 'tis hardly to be purchas'd too dear, being indeed the Life and Spirit of all Country-Seats, without which they are dull and flat.

One of the first things therefore that a Surveyor ought to do, is to examine after them, and consider how to bring them home for his Use. Three Inches in a Mile is a proper Fall, (if they can't have more) to bring Water from any Spring-head to a Canal or other Still Water.

Where Water is brought from a Spring-head in a direct level Line, a rough Stone or Brick-Drain is to be preferr'd for its Cheapness,

Of Drains for the carrying of Water.

ness, especially rough Stone. A Drain about six Inches hollow is sufficient, which ought to be clay'd round, to prevent any Waste of Water. However, Elm-Pipe is very reasonable, and upon casting up the Expences of one and the other, a Gentleman may in some Places rather chuse these Wooden-Pipes than a Drain.

*Wood and
Leaden
Pipes.*

But where the Water is brought over Hills and Dales, 'tis absolutely necessary to have Wood or Leaden-Pipes; the first are to be preferr'd in respect of Cheapness, and indeed for Goodness; tho' the other are more durable and lasting: And 'tis by this one Convenience of Pipes, either of Wood or Lead, that we can have cheaper and better Water-works than they can in *France*, which has been to them an unheard of Expence: Besides, we abound as much, or more, in Hilly, Springy Ground than they.

*Signs of
Springs.*

It is certain that all Hills abound more or less with Springs; but in some there are such great thick Beds of Clay, that they can't possibly force their Way through. Where-ever therefore one searches for Springs in a Hill, and finds none, it must be attributed to these Obstructions; and so the contrary, if the Rocky, Gravelly Beds go quite down to the Level of the Springs.

*In bushy
and boggy
Ground.*

But where-ever Springs abound, they shew themselves by the Bushy, Boggy Grounds where they break out, which, if open'd but a small depth, will quickly discover

cover their Strength; which the Surveyor ought to be well inform'd of, because on their Quantity depends his good Success in Water-works.

The next Care is, to draw this Spring into some *Reservoir*; but let it not be too near the main Head, but rather at two or three hundred Yards Distance.

This *Reservoir* ought to be in Proportion Of a Re-
servoir. to the Quantity of Water you want, or the Strength of the Spring, at least 100 Yards, but if 2, 3, or 400 Yards, still the better: If they are cut out of whole Ground, they are commonly circular, and ought to be well clayed, except the Hill abound with Water. But it may be possible there is some Hollow or Valley in the Hill; then a Head made with the sinking, widening, and clearing of it will do, and save a great deal of Money; but there should be a Trench dug down in the middle of the Head, about a Foot wide or wider, and some strong Clay well ramm'd down, or else the Water will soak away thro' the Head; and this Trench ought to be cut down lower than the Bottom of the *Reservoir* or Pond.

But perhaps you have Water enough for Of Foun-
tains. Canals, Fish-Ponds, &c. near the House, then there will be less Occasion for so great Quantities; and the chief Use will be for *Fed'eaux* or Spouts of Water in Fountains: In which we must observe, that this *Reservoir* will throw Water thro' a Pipe $\frac{2}{7}$ of an Inch

Inch Diameter the same Height as it lies above the Surface of the Fountain: If therefore you would have it to play higher, you must make the Bore or Spout of your Pipe the less; or if you would have the Body of Water the bigger, you must expect it will play still the lower: And the better Performance of this will depend on the Largeness of the Grand Pipe or Body of Water that lies ready from the Grand Reserve for this Purpose. But the farther Account of this shall be the Work of some ensuing Treatise (if Providence gives me the liberty of Going, and a safe Return from Abroad.)

Their Construction & Security.

It has been always the Method of Stoning or Bricking, and sometimes Leading the Sides of Fountains, Canals, and Ponds; but in this respect there is so much Money buried, that I can't but advise Gentlemen to consider if there are no nearer Methods. These Walls are generally made of Stone or Brick, and clay'd well behind, to keep the Water from finding its way thro' the Sides; or by Lead both in the Sides and Bottom, which is very chargeable, scarce adviseable to be us'd any where but in *Derbyshire*, or other Countries where Lead is in great plenty, and the Carriage near. Persons of Quality and Gentlemen that have large Plantations, ought to be well aware what Money they bury under Ground, when they have so great a Space of Ground to furnish and embellish above: And tho' such Expences be but 100 l.

or

or the like, as is at first generally the Estimate, tho' perhaps it amounts afterwards to twice or thrice the Money : Yet were it but 50, or even 20, 30, or 40, I should not advise the laying out so much on one single small Spot.

I am not altogether against Fountains adorn'd with Masonry, and other superficial Embellishments, but can't advise them in any but the most elegant Quarters and Recesses of what we esteem the finest Parts of the Gardens.

As for other exterior Parts (except Stone is very plenty and cheap) 'twould be rather honest to advise a Grassy, strong Turf round the Edge of the Fountain, Canal, and Pond, as being very natural, and of little Expence. Water is not the less, but rather the more beautiful by it ; and tho' these Stone-Works may be allow'd to Fountains, 'twill by no means bear the same Allowance to Canals, or other larger Works.

The Method which is now used in this Case, is to dig the Fountains, Canals, or Ponds we have all along been speaking of, in the nature of a Skimming-Dish, which is a Segment of a Circle ; in the Mathematical Construction of which, there will be a great deal more in the next Book. Five or six Foot is deep enough for any one of them ; which done, if the Ground be not a Natural Clay or Heavy Land, and full of Springs,

but upon a dry, sandy, deep Gravel, there is great Danger in entring upon this Work,

But Water is so desirable a Beauty, that if One is extravagant, it ought to be in that; in such a Case, these Works should be Clay'd six or eight Inches thick at least all over, and great Care ought to be taken that the Clay be very good; and because 'tis an easy matter to be deceiv'd, take a Load or two, and make a large Pan upon the driest Ground you can find; for if you make it on wet, you may expect to be deceiv'd; but very dry Ground will prove the best of Clay, whilst wet Ground will make bad Clay appear to be good.

This done, if the Clay is not very good, (I mean free from Stones, and other Veins and Mixtures of Mould) you ought to work it with a little Water, that it may mix the better; and after that tread it, and ram it close in the Place where it's us'd; and this must likewise be done in Clay that is so hard and stiff as not to work without it.

There be some who affirm, that there is no need of Claying all Over, but only the Sides; and this doubtless may do, where-ever there is any Layers of Clay or Clayey Gravel under the Bottom of your Pond, which often-times naturally happens, or if the Spring lies near; but if it be a deep, loose Sand or Gravel, or if it be towards the Brow of a Hill, or upon the Ground, I doubt it ought to be Clayed all over,

over, even tho' the Sides were Brick, as has been commonly used: Yet 'tis certainly best to Clay the Bottom, and that with extraordinary good Clay, such as has been prov'd; and if it were twelve or fourteen Inches thick, still the better. But this amounts to a great deal of Money, and 'tis the Quality rather than the Quantity that does in this Case; only there ought to be a tolerable Thickness, because lean Gravel or Sand will insinuate and mix amongst, and in time corrode and eat out that Balsamick Quality, (if I may so call it) as is in the best of Clays.

However, in some sorts of Ground, Clay-
ing at the Sides is sufficient, (*viz.*) where the Springs lie near, or (as I have hinted before) where there are naturally Layers of Clay or Clayey Gravel: The Workmen then (after the Canal or Pond is form'd) ought to dig a good deep Trench down to the bottom of the Sides, and ram it a Foot thick into the Trench, which will keep the Water from that Horizontal Motion which it assumes rather than any.

In the Western Part of *England*, where Chalk is plenty, and Clay scarce, they chalk the Bottoms and Sides of their Ponds; for after having brought them to a rough Level, they take off their finest Chalk, and work it with Rammers till 'tis as fine as Powder, by which working it lies very close, so that no Water will enter, at least it does not soak out very fast: This ought to be laid a Foot thick at
X 2 least,

least, and is the next to Clay of any thing. Where their Cattle go in to drink, or for any other Purpose, they pitch it with Flint Stones, to secure the Feet of the Cattle from pressing thro' it into the loose Ground.

It may very well be thought, notwithstanding what has been said all this while, that any Ground, when well drench'd, will hold Water without all this Care; but that is uncertain.

It will be necessary, for the Security of the Clay, to cover it over a good thickness with Gravel, especially where Cattle are to go in upon any Occasion.

'Tis easy to observe, from what I have been thus advancing, that I have been endeavouring to retrench the Expence of making Canals, Fountains, &c. which, generally speaking, cost twice or thrice the Money that this manner of making will.

For first of all, the Brick or Stone Walls of each Side are very expensive; and to that may be added a great Fault generally committed in making Canals too deep, some being so unwise as to dig them seven or eight Foot deep, whereas four or five is enough; it shews the same Volume of Water above, and I dare affirm it may be done for almost one third part of the Money the other Method consumes; for ev'n the digging is a considerable deal more.

This I must confess, is not a new thing; 'tis what has been done by several Gentlemen,

men, (tho' not many neither) but I believe my self the first that has committed it to Print, for the Publick Good. In this one Article I hope to have shewn the Method of saving Two hundred Pounds out of Three, which is a considerable deal ; and there are a great many more Articles which I shall hereafter observe, where there is an infinite deal of Money ill expended in Gardening and Country Business.

There are several Engines for the forcing Water up a Hill, for the Uses in Gard'ning ; but these belong to another sort of Trade than to us Gard'ners, and so I shall say little of them : However, it may not be amiss to add, that about sixty or seventy Pounds will purchase a very good Horse-Engine ; a small Sum, considering the infinite Advantages that accrue to a Seat thereby.

There are other ways of bringing Water for the Conveniency and Beauty of Houses and Gardens ; and that is by Drains laid to conduct it from higher Land to some well-made Pond or Reserve ; for we often see that those Ponds are kept full by Rain it self : much better would it be if there were conducting Drains or Ditches to help it. *Rapin* is very plain to this purpose.

I shall not trace the Business of Water-Works thro' its several Branches in this first Work, reserving it for the next, when all that remains shall be laid down by the Practical Parts of the Mathematicks.



O F

STATUES.

CHAP. X.

Introdu-
tion.

AMongst the several Methods made use of to convey the memorable Actions and great Personages of Antiquity to these Times, this of *Statues* is not the least, being the most publick and durable Memoirs of Virtue, Honour, and Valour.

For tho' there be many fabulous Relations of the Heathen Deities, which compose a great Part of this History, as of *Jupiter*, *Mars*, *Apollo*, and the rest of the Capital Deities; yet the most modest Accounts are, that some of them were Persons of Heroick and Valiant Behaviour, while others were Generous, Just, and Liberal, great Encouragers

gers of Learning, and all virtuous Amusements; and this drew the Eyes of the Heathens upon them so much, as to Deifie them: And from a Contemplation of their Virtues, 'tis possible for any Thoughtful Person to extract many useful Things for the Conduct of this Life. But leaving that, the Grace and Majesty they give a Country Seat is very great; the Modern as well as the Ancient *Romans*, the greatest and politest People of the World, have fill'd almost every High-way and Publick Place with the Statues of their *Patres Patriæ*, as a grateful Tribute to their Merit; but their Gardens, as well as those of *France*, abound so much in them, that 'tis in that point They are still likely to out-doe Us.

I shall not here pretend to give an Historical Account of these illustrious Hero's, nor of their Virtual Attributes and Hieroglyphical Significations, leaving that to the skilful Mythologist; nor yet of their Shape, Lineament, or Articulate and Corporeal Dimensions, that being the Business of the ingenious Statuary. My Intent, in this Place, being to rectifie some Mistakes in their Local Distribution, Magnitude, and general Proportion.

It can't but be an unpleasant Sight (as common as it is) to view *Jupiter*, *Mars*, *Neptune*, and the rest of the capital Deities of Heaven, misplac'd, and by a meanness of

spirit below a good Designer, set perching upon a little Pedestal; one like a Citizen; a second with a Pike in his Hand, like a Foot-Soldier; and the third upon dry Land with a Trident, like a Cart-filler. These are certainly great Diminutions to the Politeness of the Statuary, as they are to the Noble Personages they hieroglyphically represent.

Others, perhaps, err in another respect, by placing *Pan* as a Tutelar God in the Flower-Garden, whilst *Ceres* and *Flora* are the silent Inhabitants of Woods and Groves. To this may be often join'd an Impropriety in the Gesture and Habiliments of these Gods, which ought to differ, as the Actions they are representing do: *Neptune* in the Management of his Sea-Affairs, embracing *Amphitrite*; and *Mars* in his Armorial Array in his Amour with *Venus*; are such Incongruities as the Statuary should always avoid: Since one would be as useles and troublesome a Companion in the guiding and taming his Sea-Horses, as the Warlike Habiliments of the other would be in the Embraces of a Fair Lady.

But to return: *Jupiter* and *Mars* should possess the largest Open Centres and Lawns of a grand Design, elevated upon Pedestal Colum-nial, and other Architectonical Works, according to the Model of the best Designer, with their immediate Servants and Vassels under-

underneath ; *Jupiter* with his *Mercurius*, *Mars* with *Fame*, and the rest of their Attendants ; whilst the Niches ought to be fill'd with *Dii Minores* for one, or the Warlike Heroes of Antiquity, as well as Modern, for the other, every one accoutred and ready to execute the Commands of their great Masters.

Neptune should possess the Centre of the greatest body of Water, (be it either Fountain, Bason, or whatever of that kind) in his Chariot, attended by the *Naiades*, *Tritons*, and other his Sea-Attendants.

Venus ought to be placed among the *Graces*, *Cupid*, &c. And in all the lesser Centres of a Polygonar Circumscription, it would be proper to place *Apollo* with the *Muses* in the Niches, *Minerva* with the *Liberal Sciences*, &c.

Then *Vulcan* with the *Cyclops* in a Centre of less note, and all the rest of the Deities dispers'd in their particular Places and Order. *Flora*, *Ceres* and *Pomona*, to their several Charges ; and the *Faunes* and *Sylvans*, to the more remote and Rural Centres and Parts of the Wood-work.

If such a Cruel Piece as *Andromeda* fasten'd to a Rock, should be brought into a Garden, it might be proper to place it near the Water, where she might always weep and lament her sad Fate. Thus *Niobe*, &c.

To be more plain : *Venus*, *Diana*, *Daphne*, and *Flora*, with their Attendants, may be compleat Furniture for the Flower-Garden; but they ought not to be too small, but bigger than the Life, especially in large Gardens, and elevated upon an accumulation of Architecture or Masonry, (as I have before mention'd) whilst *Mars* and *Neptune* be placed in the larger Centres; *Apollo* amongst the *Muses*; and *Minerva* amongst the *Liberal Sciences*, (as before.) That noble Grace that abundance of these Figures, placed all over our Rural Gardens and Plantations, will afford, is charming to consider. But the farther Disquisition of this Point is deferr'd 'till the next Volume.

Before I conclude this Chapter, I can't but say a word or two concerning the farther Encouragement of *Statuary*, which seems at present as much or more neglected than any other Art whatsoever.

I can't but think it a Work worthy of the Royal Munificence, to erect an Academy, as is common in other Countries, especially *Italy* and *France*, for its Improvement, and for a Nursery for young ingenious Men; which when they have learnt to Draw and Carve well, might be distributed amongst the Nobility and Gentry, who most of them stand in great need of these noble Decorations of Statues about their Country-Seats.

And how unusual a thing soever it may be to them, 'tis certain there can be no better Method to furnish themselves with Statues and other Ornamental Works in Stone, than by continually employing four or five Masons, and as many or more Carvers in that Work; 'tis inconceivable what a Show such a number of Men will make in four or five Years time; and the Expence in keeping, no more than that of other common Servants, Wages excepted.

But methinks in this Case, they ought to have, as it were, a little Academy to themselves, and such a handsome Preparation of Meat, Drink, and Lodging, as is convenient, with such an Allowance of sound Country Food as may refresh their Labours; but this ought to be as far as possible from all Tipling-Houses, the Bane of all Ingenuity; with such an Encouragement given to the Industrious, and such Discouragement to the contrary, as may make them strive to out-doe each other in Ingenuity and Performance: And being under the Care of some solid, sober Man, what may not be expected from them in a few Years?

Thither may the Owner, in all his leisure Intervals, retreat and consider their Works and Improvements, and give them such farther Encouragement as he shall see is most convenient for them; and there, what by Drawings, Workmanship, and the like, he
may

may find a great deal of noble Diversion, and that, amongst the rest, that will perpetuate his Name a great deal more than many Diversions very much in use, which are very transitory; and like the dainty Bit of the Glutton, pleases scarce any longer than they are upon the tip of the Tongue, if they don't too often prove Bitter, even in that point too.

'Tis without dispute, that Masonry is now in its highest Perfection: And if Statuary were so too, what standing Monuments might not the present Age erect for Posterity to know them by?

'Tis this, among a few other things, that has drawn the great Concourse of Nobility and Gentry to admire and court that darling Mistress of the World, *Italy*, where the High-ways and Publick Places are said to be crouded with Statues and Monuments in memory of their deceased Hero's and Great Men, and their Gardens with all the Magnificence which that Art can furnish.

But such is our Misfortune in *England*, that we have not only very few Instances of this Publick and Noble Good in the Open Roads; but likewise our Gardens are very destitute of any thing that is Good in that kind, at least very diminutively, only in a few Leaden lame Copies, abounding with all the Incongruities I have before mention'd.

I might,

I might, under this Head, enlarge considerably on Urns, Obelisks, Pieces of Ruin, or other Lapidary Ornaments of a Country-Seat; but the Design in the next Volume will make these Matters much plainer than many Words can. I shall therefore add no more on this Subject, when I have recommended the Erection of all Lodges, Granges, and other Buildings that Gentlemen are obliged to build, for Conveniency, in the Form of some Antiquated Place, which will be more beautiful than the most curious Architecture: There seems to be a much more inexpressible Entertainment to a Virtuous and Thoughtful Mind, in Desolate Prospects, Cool murmuring Streams, and Grots, and in several other Cheap and Natural Embellishments, than in what many of our modern Designers have recommended, in themselves very Expensive.

'Tis certain, our Buildings excel for Plainness, Strength, and good Architecture, all that is to be seen Abroad, especially in *France*, our great Competitor; and there seems to be nothing now so much wanting to compleat the Grandeur of the *British* Nation, as noble and magnificent Gardens, Statues, Water-works, and the like; in all which, 'tis to be fear'd, we are much inferiour to those other great Nations. *Inventis addere*, has been always our *English* Motto; let us strive to keep it.

But

But I must finish this Chapter, having I doubt already trespass'd upon my Reader's Patience, and said more than may be thought consistent with one of my Profession. But I hope Truth will find never the worse Acceptance, for coming from an unworthy Author. And that what I have said, relating to the deficiency of *Statues*, is too true, I believe most ingenious Men are sensible enough of, to second me: But if I have us'd too much Tautology, or elop'd my own Province too much, I humbly beg Pardon, and submit my self to the just Censure of all good-natur'd Readers.





O F

G R A S S

A N D

G R A V E L.

C H A P. XI.

THere seems to be little Occasion to say *Introd-*
 much to this Point, they being what *tion.*
 are so well known and understood
 by all that profess any thing of Gardening
 and Country Business; however, I could not,
 without Injustice and Deficiency to my pre-
 sent Subject, pass them over, they being those
 natural Ornaments of our Country-Seats, by
 which we much excel all other Nations, and
 are indeed the Glory of all our Gardens.

The

*Sheep-walk
Turf.*

The first is well known to be cut off from Commons and Sheep-Pasture Lands, being there the finest; but in order to save Expence, I have known it cut in the rankest Pasture Ground adjoining to Gardens, about *March*, when 'tis short: And this, as coarse as it seem'd to be at first, came afterwards, with often Rowling, Mowing, and Cleansing, to be as fine as the best Sheep-walk Turf, and not so apt to grow Mossie, and abound with Daisies, Plantane, Mouse-ear, and other large growing Herbs, that unavoidably spoil the fineness of the Carpet.

*Pasture-
Turf.*

*Land pro-
per to Lay
it on.*

I know 'tis generally thought, that the Sheep-walk Turf coming off from poorer Land, and laying it on that which is richer, is the best and most regular way of proceeding. Against which I shall not much contend, but shall observe, That 'tis a great Fault to lay that and any sort of Grass on rich Land; which is always apt to be full of Worm-casts, and so a continual Burden and Trouble to the Green-keeper.

*How to help
that which
is improper.*

If the Ground is therefore naturally rank and good, there should be a Coat three or four Inches thick of more indifferent Mould upon it, or else remove that whole Bed away, as shall be thought most proper: And if it be a hot burning Land, lay on the same Thickness, (or if it be five or six Inches thick, still the better) of good strong holding Loam. or heavy Clayey Land: This will wonderfully preserve your Grass in the Summer

mer Season, and always keep an agreeable Verdure upon all your Carpet Walks: But particularly all Sloops on Hot Lands should be lin'd with it, because they can't possibly retain the Rains to refresh the Turf; besides, they lie more directly against the intense Heat of the Sun than the Flats. Nevertheless, what I have been directing, relates chiefly to the interior Parts of a Garden. As for the other exterior Parts, the Ground can't be well too good for Feeding, for the Verdure and noble Sight of the Grass; a good Green being one of the pleasantest Colours in Nature.

These Directions relate chiefly to fine Carpet Walks.

The Method of Cutting it is so well known amongst us, that there is as little need to mention it as any thing; a Foot wide, and a Yard long, is the common size of our Turf, tho' it may be cut larger or smaller, according as there is room for the Turf-cutters, or as the Turf-layers shall require it; because in some Verges of Grass a less Dimension is the best, there being not so much Waste in it as in larger. After the Ground is scor'd out with a Line and Racer into Parallels a Foot wide, they then set their Line across, and cut them into Yard Lengths, tho' some there be so dexterous as not to want any Line at all, but will cut it very strait without: After 'tis thus rac'd out, they slip the Turfing-Iron made like a Spade, but the Handle very crooked, that the Iron may lie the flatter on the Ground; an Inch is commonly the

The Method of cutting Turf.

Thickness, tho' there be those which sometimes in a late Season cut it an Inch and a half, or two Inches thick; this Turf will not lay so clever and true as the first.

*Of sowing
Hay-seed.*

The cheapest way of procuring Grass Walks, is certainly by sowing Hay-Seed, which will doubtless equal, if not exceed any of the Turf in *France*; but if Turf is to be had near at hand, I would always advise that, for there is some Trouble as well as Uncertainty in the first by Weeding, and after all its coming thin and in Gaps, and indeed it will never be so fine as Turf: However, to apply myself to all Methods, let it be sow'd about *Michaelmas*, (some do it in the Spring, but not to that good Effect) and let the Seed be chose from those Pastures where the Grass is naturally fine and clear, otherwise you will entail a prodigious Trouble on the keeping by Spiry and Benty Grass, as we commonly call it, which cuts extremely bad, and scarce ever looks handsome.

*A great
Caution.*

Before I quit this Part relating to Grass, I can't but observe the needless and extraordinary Expence many Gentlemen put themselves to, in fetching Turf very often two, three, or four Miles, and sometimes more; when, in truth, the coarsest Turf they can lay their Hands on, by a little good keeping, will come fine, and be in some degree better than the fine Turf itself, as I have before observ'd. The Owner should therefore think with himself whether he has no Pasture
Land

Land at hand he intends to plough; or if he borrows some from off those Pastures he does not intend to plough, by sowing Hay-Seed, his Loss is not comparable to that Expence he is otherwise at. In this one Article I have seen above 60 *per Cent.* sav'd, which is no small Matter in a great Design.

Of GRAVEL.

The main Directions that I can give in this Matter, is, in relation to such a Composition as will make the Walks lie firm and hard; in case the Gravel is not naturally good; since there be many kinds of Gravel that will not bind, and thereby a continual trouble in Rowling to no Purpose, besides the Unpleasantness in walking upon them.

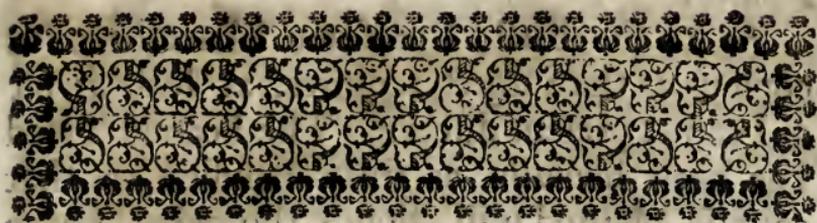
If it be a loose, sandy Gravel, take then one Load of strong Loam, to two Load of Gravel; let them be well mix'd and cast together; if the Walk be old, and so wants only Coating over, two or three Inches thick will be enough; except you have great quantities of this strong reddish Loam, then 'twill be better to lay the Walk the full Depth of this. And it must be esteem'd a great Fault when Gravel is skreen'd too fine, the casting upon a round Heap, and raking off the largest Stones, is much the better Way; and in the laying the Gravel-Walk, a gentle casting the Stones back again over the Walk, which one is obliged to rake pretty fine, that it

may lie true, and not in Hills and Holes : I say, this makes the Walk the firmer, and looks much the better. But I need not say much on this Head ; all our *English* Gard'ners are very expert in it, and possibly out-doe all other Countries.

*A great
Mistake in
Laying Gra-
vel Walks.*

I shall therefore do no more than remark one great Fault committed in the laying Gravel Walks too round, which makes them look narrow, besides they are not so pleasant to walk on. An Inch in five Foot Crown is full enough ; so that if a Walk be 20 Foot wide, it ought to lie four Inches higher in the middle than it does on each side, and no more. A Foot Thickness is sufficient in all Gravel Walks ; but where the Gravel is hard to come at, six or eight Inches may suffice.





T H E
CONCLUSION.

C H A P. XII.

BEING unwilling that this, or any other Volume I shall write on this Subject, should suffer by any new and large Additions; I have, in this CONCLUSION, added what I perceive at present to be most wanting to compleat this Design, and to give my Reader the better Taste of what he may expect in the next: And all this appears to be couch'd under Three General Heads; I mean, *The Nature and Process of Vegetation: The best Method of furnishing a Seat with Wood, Water, &c. And the last, the Method of Designing and Distributing to the best Advantage*

any Country Seat, both in respect to Profit and Pleasure.

As to the First, I presume I have been as copious as the Subject requires, at least as far as I can at present discern. The Second Head has been likewise as fully handled as that concise Method will allow; tho' what I have to add is chiefly on that Account, in relation to the Nature of Trees that are the most material for the Use, Beauty, and Profit of the laborious Planter. I begin first with the Oak, as it is the noblest and most useful Tree we have.

Of the Oak.

I shall not need to run into the Etymological Derivation of this or any other Tree, their Medicinal Vertues, or Mechanical Uses, much less of those Oracular Attributes, or any other blind and superstitious Story of the Antients; but shall confine myself purely to the Nature of the Tree in Rooting, Shooting, and Growing. The only way of Raising an Oak, is by Acorns sow'd as soon as they fall from the Trees; and be it either in Nurseries or Coppices, the foregoing Directions are, I hope, sufficient: But I must observe 'tis the most untoward Tree we have to train up; for which Reason our Nursery-men care not much to meddle with it. The best Directions I can lay down in this Case, take as follow: When the Oak is taken out of the Seed-bed, and you design to plant it in a Nursery or Coppice, cut it close down within a Bud or two of the Ground, by which means it will shoot

shoot much the stronger ; for a young Seedling Oak is in its own Nature too weak to begin a Foundation for so strong a Tree ; at least, 'tis much more pleasing to see a good strong Shoot of one Year, than a bushy Bottom, or a few weak, irregular, and confus'd Shoots. In Nurseries, People should be at the Trouble of tying them up to strait Stakes, otherwise they will be apt to grow crooked.

———— *In teneris assuescere multum est,*

was a modest Assertion of *Virgil's*, and is never more seen than in this Tree ; for altho' we every Day see whole Groves of Oaks, that doubtless had none of this Care ever bestow'd on them ; yet, when we come to assist Nature in this case, we are indispensably oblig'd to follow it ; and we may observe, That in a promiscuous Thicket, Nature works her own Effects ; the Thicket in the first place draws up the Oak, keeps it from burnishing and breaking out into such Bushes as otherwise they would do, naturally stifles and prunes off the the Horizontal, Collateral, or Side-Branches, call it which you will, and forces the Current of the Sap directly perpendicular ; this therefore we ought by all means to do. I have already mention'd something of pruning the Side-Shoots of a Tree : When the young Oaks are therefore tied to a Stake, by no means suffer the Shoots of each Side to open large and knotty ; but if you do not rub them off as they come out in the

Summer, be sure fail not of doing it at the *Michaelmas* following: I have likewise told my Reasons for rubbing off the Side-Buds, inasmuch as it will turn all that Sap (that is spent in the Sides of the Tree to no purpose) upwards, towards the forwarding the Ascent and Procerity of the Tree. But tho' this be to be observ'd in Oak or Beech, it may well be omitted in all free Growers, such as the Elm, Lime, Abeal, &c. and indeed most of these sorts of Trees are more easily govern'd than Oak and Beech are. In some Places where the Ground is poor, I advise the cutting down Oaks twice or thrice after the first Year's planting, which will make the Roots still gather more and more Strength, till they will (notwithstanding they stand upon poor Land) make a fine Shoot, and a lovely Foundation to build the noblest Oak on: To this a little good Mould would be a great Help, apply'd at any time of the Year; since the Rains will thereby wash the Salts down, and invigorate the Earth below, make the Roots send forth new Fibres, and consequently the Tree shoot the stronger.

Let me always advise the Planting of Oaks and Beech in consort, if we ever desire to have Timber, which is, or indeed ought to be, the chief Aim of every Planter; because we may observe where-ever they stand single, and are expos'd to Winds, they grow crooked, and into large, spreading Heads; and tho' we do sometimes see single Trees tall and stately,

stately, yet we may reasonably suppose they were first of all shrouded and brought up in other Company, that had been some time or other cut away; for which Reason one should rarely plant them for Walks in open, bleak Places.

'Tis certain an Oak will grow almost in any Ground, if it be not too poor, if it be train'd up *ab Origine* from Seed in that Place; the wettest Clays are not too cold for it, nor the driest Banks unnatural: Tho' if we should expect to have the same Success when we plant large Trees, I doubt we should be much mistaken; but as I have already been very plain on this Subject, I shall have no Occasion to prosecute it any farther here.

That there are particular Juices which every Plant imbibes to itself in all Lands, has been before hinted at; and this might be made more apparent by some Chymical Operations of Earth; where, without doubt, we should find those lymphatick Juices liquate and distribute themselves into their several Species of Viscous, Glutinous, Resinous, &c. This, I say, would be a curious *Examen*, worthy of some elaborate and skilful Chymist; these Juices we have generally understood by the Name of Nitre; but from the aforementioned Essay of Dr. *Woodward's*, we find him of the quite contrary Opinion, and that what is properly call'd Nitre, is only a fiery, spirituous Substance, by which the lumpy, heavy Clods of Earth are divided, and that Nitre is not only
not

not an Essential in Vegetation, but, on the contrary, directly opposite to it. To clear up this would indeed lead us farther than the Nature and Compass of this Chapter. I must therefore quit it for the present to a more convenient Opportunity, and finish what more remains concerning the Nature of our best sorts of Forest-Trees.

Of the
Beech.

All that has been said of the Training up an Oak, is likewise to be practis'd in Beech, that being next to Oak, very hard to bring up by artificial Methods; this Tree when train'd up *ab Origine* from Seed sowed in the Place where they are always to stand, will prosper in very poor Land, and is of the noblest Shade and Shelter for Beasts. If to this be added the great Advantages that Mr. Hill has propos'd in relation to Beech-Oil, or indeed were it only Mast for Deer, &c. this Tree will appear to deserve our Care in a particular manner; and instead of planting so many useles Limes, Beech should have our greatest Care in Sowing, Planting, and all other Methods of Propagation and Improvement. The Nature of this Tree I have spoke of at large already, and shall only observe the immeasurable *Arcana's* that are in the System of Vegetation; some Trees prospering in a very wonderful manner, where others will not grow at all, and can't by any human Art be compell'd to assume any other Order but that which Providence assign'd to them from the Foundation of the World.

I have

I have very little more to add concerning *Of Elm* Elm, Lime, Sycamore, &c. But by all means I must again and again advise the planting all open Avenues with *English Elm*; since there is no Tree grows more regular than that does, that produces a Wood that sells better, or indeed that carries a more noble Shade and Verdure with it; the Umbrage it casts is noble, the Leaves are of a dark, holding Green, and not so apt as Lime to be affected by Heat, or gravelly hot Ground, and to turn Yellow, and shed its Leaves in the middle of Summer; finally, 'tis one of the most hospitable Plants of all, since whatever grows under it will prosper; which Ash, Yew, and several other Trees will not suffer.

Lime, altho' we find it the only Furniture *Of Lime.* of all our Country Seats, is, in my Opinion, one of the worst Trees a Man can plant, in hopes of ever receiving future Profit by it; and the only Reason I can see why so many of them have been planted, is, that they grow away pretty quick, are easy to propagate, and still easier to train up; no Trees growing handsomer, or making a more noble Appearance; but the little Use 'tis of, ought to cashier the Planting so very many of them, and ev'n only of a few for Variety's sake; so likewise of Sycamore, as useles as the *Of Sycamore.* former.

Abeal, Poplar, &c. ought by no means to *Of Abe-* be rais'd on good Ground, or in our View, *al, &c.* except

except the Ground be of such a Nature (as before I have largely described) as to admit of nothing besides, or that nothing else will grow upon it; however, in Bye-Corners, where the Ground is but indifferent, they may be planted, even in Lands that will bear better Trees, for their Quickness of Growth sake, and to save the Waste of better Timber for Stiles, Stoop, Rail - Gates, &c. that are the necessary Furniture of a *Villa*, (as has already been, and shall be much more handled in another Volume.)

Of Firs.

The Nobleness and Usefulness of these Trees, of which we generally advise two Kinds, the *Scotch* and *Silver*, is such, that, upon good Land, no Person can have too many; tho' if the Land be shallow or barren, I doubt it will not be worth any Gentleman's while; but where it is strong, loamy, hearty Earth, they thrive exceedingly; such I have formerly observ'd at a Place call'd *Farleigh* near *Basingstoke* in *Hampshire*, where, unless I am very much misinform'd, there were three Firs that were valued at 100 *l.* each; besides, the Nobleness of that Grove is such, that a Stranger would justly stand amaz'd to see it, if it be the same as 'twas about fifteen or sixteen Years ago: Upon such Land 'tis certain no Tree can be planted to greater Advantage, even beyond Oak or Elm, or any thing else: What Use it may be to the Druggist in the Extraction of the Sap, shall be considered some other time.

There

There are several other Kinds of Forest-Trees, all of them very easily rais'd from what has been already delivered; the chief of them Birch, Maple, Sallows, and Ash; they may be mix'd promiscuously with other Wood, and 'twill be no easy matter to impede or hinder their Growth.

I have one thing more to add, in relation to the Raising Wood; for besides the Length of Time before Wood comes to its Perfection, and to make any Returns, the Husbandman and some selfish Persons object against Planting or Raising Wood, on account of the Loss of Land for many Years. I must confess, in *Yorkshire*, and some other Coal-Countries, the Under-wood is of very little Value; but in others, where Coals are hard to come by, the Under-wood will in a great measure, pay the Rent of the Ground; and where Land will not yield above 18 *d.* or 2 *s.* an Acre, which is the Price in many Places of *England*, 'tis very certain that Wood is as profitable a Commodity as any they can sow; but Oak and Beech, Ash and Elm, are in all Countries of excellent Use: And I can't but recommend to all Husbandmen, how frugal soever they are, to plough up and sow fifteen or sixteen Foot of Ground round all their Enclosures; for this will not only be a great Shelter to their Cattle, but likewise to their Corn and Grass, (especially if it be on bleak cold Grounds) besides the extreme Beauty which Wood adds to those

enclos d,

enclos'd, the Use and the happy Prospect of noble Timber of Lawns for Posterity.

From what has here and elsewhere been advanc'd on this Subject, we shall find that the Account will stand thus, (*viz.*) for all Avenues, regular Walks, Platoons, &c. in open expos'd Ground, *English Elm* is or ought to be preferr'd; and *Lime*, too much us'd by some, ought to be cast out every-where, as of no manner of Use. *Fir* will likewise make a handsome Walk.

For promiscuous Plantations, Thickets, Woods, and Coppices; *Oak*, *Beech*, *Hornbeam*, *Maple*, *Witch* and *Dutch Elm*, &c. a Mixture of *Fir*, &c. This, if the Ground be dry and strong; but if wet, *Abeal*, *Alder*, *Willow*, and *Oak*, if sow'd naturally, and according as has been before taught, is better.

Ash is what most People chuse to plant in Hedges; but this I can't but mightily condemn, for 'tis a very inhospitable Plant, and whenever the Hedge comes to be a little old and thin (which *Ash*, being set therein, forwards very much) there is nothing but Gaps, and 'tis a hard matter ever to recover it; so pernicious is *Ash*, or indeed (tho' not in so great a degree) are all sorts of Trees; I therefore rather advise in this case to plant what Trees the Owner designs for the Shelter of his Ground, ten or fifteen Foot distance from the Hedge, it will be a good Shade for his Cattle, and will not spoil his Hedge.

By

By this short Supplement, I have added what I had more to say on the Subject of Raising Trees: It remains, that I should illustrate as much as I can by Words, what I mean by the next Design of Rural and Extensive Gard'ning, and how far the same may be serviceable to the World.

And first, it is necessary that Gardens ought to appear as large as possible; if they were a hundred Acres or more, still the nobler; but how this should be done without the Loss of too much Ground, or how any Gentleman should be contented to be at so great an Expence, is not obvious to all that perhaps may read this Book, at first sight.

The Method of Sowing and Raising Wood is certainly much cheaper than planting Exotics, &c. the Way that has been followed in all our Modern Wilderesses; besides, it is of considerable more Use and Advantage; and that nothing is more noble than our *English* Woods, is as undeniably true. But that there should not be too much Ground taken up in these sort of Rural Gardens, I have propos'd, That in the Heart of all Quarters and Divisions of Wood I have been speaking of, there shall be a large Lawn or open Square, or other Polygonar or Natural Plot, which may be turn'd into Kitchen-Gardens, Fruit-Gardens, Orchards, &c. all of them of considerable Use; and while the Whole Design appears grand, these useful Beauties are in some measure hid, tho' they help to make out

out the Bulk of the Design. By this I make good my Motto,

Omne tulit punctum, qui miscuit utile dulci.

That those Extensive Plantations I have been speaking of, adorn'd with Water and Statues, add as great a Grace to our Country Seats as the most elaborate Gardens of the *French*, will, I believe, not be denied, when 'tis consider'd that our Grass and Gravel is so much handsomer than theirs, in which respect our Parks and common Ridings excel them by Nature; but if to that be added Rowling and Levelling the Mould Hills, and a little more Exactitude near the Bounds of the inner Parts of our Gardens; how much better may it not be than the best of their Turf and Carpet Walks and Gardens in *France* or *Holland*?

And when our Lines of Wood are continued a quarter or half a Mile long, and the Garden, as it were, laid open to it, which I shall make more plain in the Designs, I can't but think it will add a prodigious Magnificence to them.

It may be ask'd, how those Outer Lines are to be kept? To which I answer: That the Cattle shall be the Mowers; and for Rowling, a Boy and Horse will do a great deal; and 'tis not incredible to affirm, that 100 Acres will not cost above 50 *l. per annum* the keeping, since there is no occasion of keeping those Outer Plantations very fine; a Paddle

to cut up any staring Thistles and other things of that kind, and a Scythe fix'd into a long Handle, are the chief Instruments in this Rural way of Gard'ning.

And when I am speaking of a Scythe fix'd in a long Handle, I must advise, That this stripping up or cutting be done when the Shoots are young and tender; for it seems to be a Fault both in this and Clipping to let them be old and hard, especially it would be in this, where so much Strength is requir'd to manage this Instrument.

I must then, in this Place, advise my Reader, that the Lines I speak of, are to be cut up in the Inside, otherwise 'tis no more than what is in many other Parks, where the Garden-lines are too soon terminated, as well by that as the immediate Appearance of some Grill of Iron, Iron-Gate, or other such-like Termination, which is very common in the best Designs; so that if the Garden be an Espalier Hedge, the same shall be continued quite thro' the Woods and Parks, let them go as far as they will, and no Appearance where the Bounds of the Garden is.

And if they are Standards in the Garden, they shall likewise continue in the same manner; as also, if it be a Grass Walk, Gravel, Water or the like, they are by these Designs to go, as it were *ad infinitum* without changing the Scene: And this I take to be the essential part of these and all other Designs of this kind, in which other Countries out-doe Us; and

it must be added, that the best of our Gardens discover the Slenderness of their View by a Termination most Designers are fond of, I mean fine Iron Gates, a kind of Artifice not good, and a very great Expence in the Bargain.

I beg leave here to insert the ingenious Thoughts of a late Author (*Spectator*, Vol. 6. N^o. 414.) where, after he had elegantly describ'd the general and pleasing Idea's that exterior Objects convey to the Imagination, he proceeds to this of Gardens.

“ If we consider (says he) the Works of
 “ *Nature* and *Art*, as they are qualify'd to
 “ entertain the Imagination, we shall find the
 “ last very defective, in comparison of the
 “ former; for tho' they may sometimes ap-
 “ pear as Beautiful or Strange, they can have
 “ nothing in them of that Vastness and Im-
 “ mensity, which afford so great an Enter-
 “ tainment to the Mind of the Beholder.
 “ The one may be as Polite and Delicate as
 “ the other, but can never shew herself so
 “ August and Magnificent in the Design.
 “ There is something more bold and masterly
 “ in the rough, careless Strokes of Nature,
 “ than in the nice Touches and Embellish-
 “ ments of Art. The Beauties of the most
 “ stately Garden or Palace lie in a narrow
 “ Compass, the Imagination immediately
 “ runs them over, and requires something
 “ else

“ else to gratifie her; but in the wide
 “ Fields of Nature, the Sight wanders up
 “ and down without Confinement, and is
 “ fed with an infinite variety of Images,
 “ without any certain Stint or Number. For
 “ this Reason we always find the Poet in love
 “ with a Country Life, where Nature ap-
 “ pears in the greatest Perfection, and fur-
 “ nishes out all those Scenes that are most
 “ apt to delight the Imagination.

*Scriptorum chorus omnis amat nemus & fugit
 Urbes.*

Hor.

*Hic secura quies, & nescia fallere vita,
 Dives opum variarum; hic latis otia fundis,
 Spelunca, vivique lacus, hic frigida Tempe,
 Mugitusque boum, mollesque sub arbore somni.*

Virg.

“ But tho’ there are several of these wild
 “ Scenes, that are more delightful than any
 “ artificial Shows; yet we find the Works
 “ of Nature still more pleasant, the more
 “ they resemble those of Art: For in this
 “ case, our Pleasure rises from a double Prin-
 “ ciple; from the Agreeableness of the Ob-
 “ ject to the Eye, and from their Similitude
 “ to other Objects: We are pleased as well
 “ with comparing their Beauties as with
 “ surveying them, and can represent them
 “ to our Minds, either as Copies or
 “ Origi-

“ Originals. Hence it is that we take de-
 “ light in a Prospect which is well laid out,
 “ and diversify’d with Fields and Meadows,
 “ Woods and Rivers; in those accidental
 “ Landskips of Trees, Clouds, and Cities,
 “ that are sometimes found in the Veins of
 “ Marble; in the curious Fret-work of
 “ Rocks and Grotto’s; and, in a word, in
 “ any thing that hath such a Variety or Re-
 “ gularity as may seem the Effect of Design,
 “ in what we call the Works of Chance.

“ If the Products of Nature rise in Value,
 “ according as they more or less resemble
 “ those of Art, we may be sure that Artifi-
 “ cial Works receive a greater Advantage
 “ from their Resemblance of such as are Na-
 “ tural; because here the Similitude is not
 “ only pleasant, but the Pattern more per-
 “ fect. The prettiest Landskip I ever saw,
 “ was one drawn on the Walls of a dark
 “ Room, which stood opposite on one side
 “ to a navigable River, and on the other to
 “ a Park. The Experiment is very common
 “ in Opticks. Here you might discover the
 “ Waves and Fluctuations of the Water in
 “ strong and proper Colours, with the Pi-
 “ cture of a Ship entering at one end, and
 “ sailing by degrees thro’ the whole Piece.
 “ On another there appear’d the green Sha-
 “ dows of Trees, waving to and fro with
 “ Wind, and Herds of Deer among them
 “ in Miniature, leaping about upon the
 “ Wall. I must confess, the Novelty of such
 “ a Sight

“ a Sight may be one occasion of its Pleasant-
“ ness to the Imagination ; but certainly the
“ chief Reason is, its near Resemblance to
“ Nature, as it does not only, like other
“ Pictures, give the Colour and Figure, but
“ the Motion of the Things it represents.

“ We have before observ'd, that there is
“ generally in Nature something more Grand
“ and August, than what we meet with in
“ the Curiosities of Art. When therefore
“ we see this imitated in any measure, it
“ gives us a nobler and more exalted kind
“ of Pleasure than what we receive from
“ the nicer and more accurate Productions
“ of Art. On this account our *English*
“ Gardens are not so entertaining to the
“ Fancy, as those in *France* and *Italy*, where
“ we see a large Extent of Ground covered
“ over with an agreeable Mixture of Garden
“ and Forest; which represent every-where
“ an artificial Rudeness, much more charming
“ than that Neatness and Elegancy which we
“ meet with in those of our own Country.
“ It might indeed be of ill Consequence to
“ the Publick, as well as unprofitable to pri-
“ vate Persons, to alienate so much Ground
“ from Pasturage and the Plough, in many
“ Parts of a Country that is so well Peopled,
“ and cultivated to a far greater Advantage.
“ But why may not a whole Estate be thrown
“ into a kind of Garden, by frequent Planta-
“ tions, that may turn as much to the Profit
“ as the Pleasure of the Owner ? A Marsh

“ overgrown with Willows, or a Mountain
 “ shaded with Oaks, are not only more beau-
 “ tiful, but more beneficial, than when they
 “ lie bare and unadorn'd. Fields of Corn
 “ make a pleasant Prospect; and if the Walks
 “ were a little taken care of that lie between
 “ them, if the natural Embroidery of the
 “ Meadows were help'd and improv'd by
 “ some small Additions of Art, and the fe-
 “ veral Rows of Hedges set off by Trees and
 “ Flowers that the Soil was capable of re-
 “ ceiving, a Man might make a pretty Land-
 “ skip of his own Possessions.

“ Writers, who have given us an Account
 “ of *China*, tell us, the Inhabitants of that
 “ Country laugh at the Plantations of our
 “ *Europeans*, which are laid out by the Rule
 “ and Line; because, they say, any one may
 “ place Trees in equal Rows and uniform
 “ Figures. They chuse rather to shew a
 “ Genius in Works of this Nature, and
 “ therefore always conceal the Art by which
 “ they direct themselves. They have a
 “ Word, it seems, in their Language, by
 “ which they express the particular Beauty
 “ of a Plantation, that thus strikes the Imagi-
 “ nation at first sight, without discovering
 “ what it is that has so agreeable an Effect.
 “ Our *British* Gardeners, on the contrary,
 “ instead of humouring Nature, love to devi-
 “ ate from it as much as possible. Our
 “ Trees rise in Cones, Globes, and Pyra-
 “ mids. We see the Marks of the Scissars
 “ upon

“ upon every Plant and Bush. I do not
 “ know whether I am singular in my Opi-
 “ nion ; but for my own part, I would ra-
 “ ther look upon a Tree in all its Luxurian-
 “ cy and Diffusion of Boughs and Branches,
 “ than when it is thus cut and trimm’d in-
 “ to a Mathematical Figure ; and cannot but
 “ fancy that an Orchard in Flower looks in-
 “ finitely more delightful, than all the little
 “ Labyrinths of the most finish’d Parterre.

/ But I shall not copy this Paper any far-
 ther, lest it should appear invidious ; and in-
 deed ’tis a more proper Subject for any other
 Person to use than me : However, this I dare
 affirm, That had there been as great a num-
 ber of Oak and Beech Trees rais’d in our *Lon-
 don* Nurseries, as there have been Greens,
 Posterity would have reap’d more Benefit by
 it than by them, and perhaps these King-
 doms would have been some Millions the
 richer on that account, besides the Noble-
 ness and Grace that would have accrued to
 our Country Seats thereby. This natural
 Wildness of our Gardens is every-where de-
 scribed by the Ingenious Bards of our Coun-
 try, a few of which I shall quote, and then
 conclude this Volume.

The first is Mr. *Pope’s* Description of
Windsor-Forest, which is admirably fine,
 and is as follows :

*The Groves of Eden, vanish'd now so long,
Live in Description, and look Green in Song :
These, were my Breast inspir'd with equal Flame,
Like them in Beauty, shou'd be like in Fame :
Here Hills and Dales, the Woodland and the
Plain ;*

*Here Earth and Water seem to strive again ;
Not Chaos-like, together crush'd and bruis'd,
But, as the World, harmoniously confus'd ;
Where Order in Variety we see ;
And where, tho' all Things differ, all agree.
Here waving Groves a chequer'd Scene display,
And part admit, and part exclude the Day.
As some coy Nymph her Lover's warm Address
Nor quite indulges, nor can quite repress.
There interspers'd in Lawns and opening Glades,
Then Trees arise that shun each other's Shades.
Here in full Light the Russet Plains extend ;
There, wrapt in Clouds, the Blueish Hills ascend.
Evn the wild Heath displays her Purple Dyes,
And 'midst the Desert fruitful Fields arise ;
That crown'd with tufted Trees, and springing
Corn,*

*Like verdant Isles, the sable Waste adorn.
Let India boast her Plants, nor envy we
The weeping Amber of the Balmy Tree ;
While by our Oaks the precious Load is born,
And Realms commanded which those Trees adorn.*

*That inimitable Description of Paradise,
by Milton, likewise worthily deserves a Place
amongst these Rural Landskips :*

*Southward through Eden went a River large ;
Nor chang'd his Course, but thro' a shaggy Hill
Pass'd underneath ingulf'd : For God had
thrown*

*That Mountain, as his Garden Mould high
rais'd,*

*Upon the rapid Current, which through Veins
Of Porous Earth, with kindly Thirst up drawn,
Rose a fresh Fountain, and with many a Rill
Water'd the Garden ; thence united, fell
Down the steep Glade, and met the nether Flood,
Which from the darksome Passage now appears,
And now divided into four Streams,*

*Runs divers, wandring many a famous Realm
And Country, whereof here needs no Account ;
But rather to tell how, if Art could tell,
How from that Saphire Font the crisped Brooks
Rowling on Orient Pearl, and Sands of Gold,
With mazy Error under pendant Shades,
Ran Nectar, visiting each Plant, and fed
Flow'rs worthy of Paradise, which no nice Art
In Beds and curious Knots, but Nature's Boon,
Pour'd forth profuse on Hill, and Dale, and
Plain,*

*Both where the Morning Sun first warmly smote
The open Field ; and the unpierced Shade
Imbound the Noon-tide Bowers. Thus was this
Place*

*A happy Rural Seat of various View ;
Groves, whose rich Trees wept odorous Gums
and Balm ;*

*Others, whose Fruit burnish'd with golden Rind,
Hung amiable, Hesperian Fables true,*

Of

Of true, here only, and delicious Taste.
 Betwixt them Lawns or level Downs, and Flocks
 Grasing the tender Herb, were interpos'd,
 of Palmy Hillock, or the Flow'ry Lap
 Of some irriguous Valley spread her Shore ;
 Flow'rs of all hue, and without them the Rose.
 Another side umbragious Grotts and Caves
 Of cool Recess, o'er which the mantling Vine
 Lays forth her purple Grape, and gently creeps
 Luxuriant. Mean while murm'ring Waters fall
 Down the slope Hill, dispers'd, or in a Lake,
 That to the fringed Bank with Myrtles crown'd,
 Her chrystal Mirrour holds, unite their Streams.

Milton's Paradise Lost.

What a Variety of Natural Thought is here found ? as much beyond the trifling diminutive Beauties of some of our modern Gardens, as the Poem is superior to the meanest Ballad. In those Scenes, 'tis hard to turn One's Head any way without Wonder and Surprize ; whilst in our modern Gardens a few clipt Plants and Hedges is the utmost of our Variety.

I shall no longer detain the Reader, than to remark some Misapplications of Money in these Rural Works.

In this it is often seen, that Persons who have Ponds to make for Fish, which are certainly beautiful as well as useful, yet it's ten to one but they are in some cunning Hole or other where 'tis impossible to see them, or that they should add any Grace to the
 Seat

Seat in general; whereas, had it been rightly managed, there should be Walks planted to and round about them: And if they can't be contain'd within the Limits of the Gardens, or in View of the House; yet One wou'd carry some Arm of the Garden to view them, or, if possible, corresponding or projecting over them. I, for my own part, who have been all my Time, since I had any Thought this Way, observing it, have griev'd to see Money thrown away in Holes and Corners, which might have been laid out so much to the Advantage and Beauty of a Seat.

And altho' these Dilemma's be too true, it is yet a very hard matter to undeceive Gentlemen of their Error. This I have spoke to already in the P R E F A C E, and shall not make much more Repetition of it: And indeed, the only Objection that I find rais'd against Writing and Printing Schemes and Books of *Gard'ning*, is the base Use and absurd Imitation that many Gard'ners make of them: For as Situation and Soils do very much differ, 'tis hard for any Person to prescribe Rules that may be suitable to every particular one; so that these dull Imitators, like Quacks and Plagiaries, stealing something out of one Book, and something out of another, make such a Medly, that a judicious Person can't but be sorry to see it.

Mr. Pope

Mr. *Pope* seems to hint at such Persons as these, in his afore-mention'd inimitable *Essay on Criticism*.

*A little Learning is a dangerous thing :
 Drink deep, or taste not the Pierian Spring.
 There shallow Draughts intoxicate the Brain ;
 And drinking largely, sobers us again.*

This is certainly too much the Case of many that pretend to give Designs in Gardening, as it is of many other Artizans; and I have, not long since, seen one of them with a Design like a Butter-Print, taken out of one of our old Books of *Gard'ning*, in as great Ecstasy as *Pythagoras* was said to be, when he offer'd the Hecatomb to the Gods, for the happy Invention of a very useful Problem in the Mathematicks.

Gentlemen therefore, in such Cases, ought not to depend on the single Judgment of Themselves, or a Gardener, (perhaps very ingenious in many respects) yet in this may be entirely ignorant. If he is at the Expence of three or four good Designs, it is certainly the better, out of which he may chuse the best; which is all that I shall say as to this Point. And as this *Introductory* Volume is interspers'd with the Happiness, Use, and Beauty of this Employ; it may not, I hope, be improper to close it with that harmonious and beautiful Portraiture of a Country Life, by *Horace*, and in imitation of him, by our often-

often-mention'd Seraphick *Cowley*; which, tho' it be in some Hands already, is a Work that may not be seen by many of my Profession, for whose sake this is in a great measure calculated; since there is nothing that will more enlarge and sweeten the Minds of Man, than such Poems as these: And how much of that kind is wanting to those Persons, every ingenious Man will readily own.

The worthy Mr. *Cowley* afore-named deserves a greater Encomium than can possibly be given him by so mean a Pen, for his sweet Thought on these Amusements. Thus he begins:

*Happy the Man whom bounteous Gods allow
With his own Hands Paternal Ground to plough:
Like the first Mortals, happy he,
From Bus'ness and the Cares of Money free.
Not human Storms at Land break off his Sleep,
Nor loud Alarms of Nature on the Deep.
From all the Cheats of Law he lives secure,
Nor does th' Affront of Palaces endure.
Sometimes the beauteous marriageable Vine
Into the lusty Bridegroom-Elm does joyn:
Sometimes the barren Trees around,
And grafts new Life into the fruitful Wound.
Sometimes he shears his Flock, and sometimes he
Stirs up the golden Treasures of the Tree.
He sees the Lowing Herds walk o'er the Plain,
Whilst neighb'ring Hills Low back the same
again. And*

*And when the Season, rich as well as gay,
 All her Autumnal Beauty does display,
 How is he pleas'd th'increasing Use to see
 Of his well-trusted Labour bend the Tree!
 Of which large Shares on the glad sacred Days
 He gives to Friends, and to the Gods repays.
 With how much Joy does he beneath some Shade,
 By aged Trees rev'rend Embraces made,
 His careless Head on the fresh Green recline,
 His Heart uncharg'd with Fear or with Design!
 By him a River constantly complains;
 The Birds above rejoyce with various Strains,
 And in the solemn Scene the Orgies keep,
 Like Dreams mix'd with the Gravity of Sleep;
 Sleep, which does always there for Entrance wait,
 And nought within against it shuts the Gate.*

Thus charm'd was he with these blessed
 Solitudes: And in a few Pages following,
 resolves,

*Nor by me e'er shall you ———
 You of all Names the surest and the best,
 You Muses, Books, and Liberty, and Rest,
 You Gardens, Fields, and Woods, forsaken be,
 So long as Life itself forsakes not me.*

With Man, in the happy Enjoyment of
 these Shades, methinks I hear every one,
 not only during the Vigour and Gaiety
 of Life, but also in his last departing
 Momens,

Moments, when the invincible Force of
Truth prevails, ready to say,

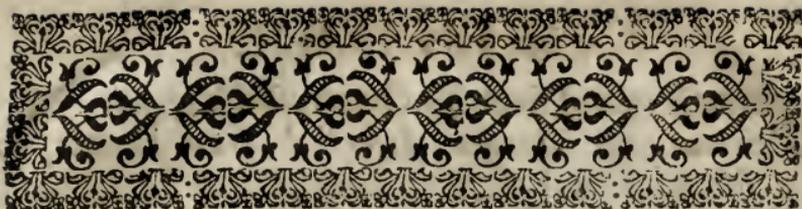
*O cruel Fate ! whose unrelenting Pow'r
Gives Man his fatal Stroke ; but then the Hour
To him uncertain is ; here let me musing be,
With Mind unspotted, and from Mischief free.
From these blest Shades in Triumph let me fly,
And learn to live in Heav'n before I die.
I'll welcome Death, nor fear his gloomy End ;
But daily die, and learn my State to mend.
Yet, oh ! dear Shades, how from you shall I part ?
'Tis you've engross'd the Treasures of my Heart :
In you I've learnt what's the supremest Good,
And Heav'n I've found, amidst a silent Wood :
Their we view Nature in her gay Attire ;
And there its Author we with Joy admire.
When first great Plato did the World possess
With a true Taste of its own Happiness,
In these exterior Scenes aright he plac'd
His beauteous Thoughts, and them he also grac'd
With elevated Views to Heav'n above,
And fix'd his Footsteps in a pleasant Grove.
Great Epicurus could not cure his Mind
Without those Pleasures. Tully could not find
A Place more suiting to his learned Themes,
Than the sweet Beauties of these Nem'rous Scenes.
Virgil and Horace fill the pleasing Line,
One in his Writings, t'other his Sabine,
But both their Songs in this were full sublime. }
Here let me now my former Wish renew,
And as I've liv'd, so let me die in you.*

But,

*But, lo! alternate Thoughts that Peace does curb,
 And the sweet Musing of the Mind disturb.
 Now Hope exalts it from insulting Pain,
 But pond'rous Fear depresses it again.
 Now Joys dilate ev'n to a sweet Excess,
 But gloomy Horrors do the same compress;
 Like some toss'd Vessel in the ruffling Main,
 Up to the Skies, but quickly down again,
 Like rowling Billows, drove by furious Wind,
 So rowl the broke Idea's of the Mind.*

*Sweet Shades, adieu! here let my Dust remain,
 Cover'd with Flow'rs, free from Noise and Pain.
 Let winged Birds my Epicedium sing,
 And murm'ring Echoes distant Tidings ring.
 Let Ever-Greens the turfey Tomb adorn,
 And roscid Dews, the Glory of the Morn,
 My Carpet deck; then let my Soul possess
 The happier Scenes of an Eternal Bliss.*





An Alphabetical

I N D E X.

A.

- A**bdolonymus, *his pious Resignation in his little Garden*, Page 16. *His Answer to Alexander*, 18. *His Unwillingness to leave his Quiet Employ, describ'd by Mr. Cowley*, 96.
- Abeal *rais'd by Suckers*, 219. *Better by Laying*, 224, & seq.
- Abraham *planted a Grove at Bersheba*, 5.
- Adam *the First Man*, 3. *The innocent Employ of Eve and him in Paradise, describ'd by Milton*, 285. *by Blackmore*, 286. *Their Fall, and terrible Lamentation for their Expulsion from Paradise*, 95, 96.
- Adonis *a Royal Gard'ner*, 7.
- Aglaus *a pious obscure Arcadian, busily employ'd in his little Garden*, 92.
- Agriculture, Gardening, and Planting, *the Nobleness and Usefulness of them*, 161, &c. *Its Antiquity*, 3.
- Ahasuerus's *Entertainment in the Open Garden*, 10.
- Air, *an Essay concerning it*, 144. *The general Benefit of it*, 145. *The particular Benefits of it in Vegetation*, 146. *Of the Elastick Power of Air in Vegetation*, 147.
- V O L. I. A a Albanum

The INDEX.

- Albanum *one of Seneca's Country Villa's*, 33.
Alcinous, *his Garden describ'd from Homer, by Mr. Eufden*, 8.
Alders *rais'd of Lovers*, 224.
Anchises *the Father of Æneas, describ'd by Virgil, in the happy Abodes of a Grove and Garden*, 19, 192.
Antients, *their Mistakes in the Descension of Sap*, 16.
Anne (Queen) *an Encourager of Gardening; finish'd that at Kensington*, 77.
Anthony. (*Monsieur Boileau's Gardener*) *his Letter to him*, 45.
Apollodorus, *Gardener to Epicurus*, 13.
Arcuation, *the Method of Raising Trees by it*, 224.
Aristotle's *Opinion*, 290.
Artaxerxes Memnon, *or Artaxerxes Longimanus: vid. Ahafuerus*.
Ascension, Descension, *and Circulation of Sap enquired into*, 161, &c.
Ash *rais'd from Seed*, 207. *Its Management, from 207, to 238*.
Attraction, *what*, 134. *Solv'd by Pulsion*, *ibid.*
Augustus Cæsar, *his Endeavours to retrieve Agriculture in Italy*, 23.
Austin (St.) *his Solemn Couversion wrought under a Tree*, 197.
Avulsion, 221.

B.

- B**acon, *or Verulam (Lord) Memoirs of him*, 48.
His mistaken Opinion concerning the great Effect of Water in Vegetation, p. 118.
Beale (Dr.) *a curious Position of his in the Growth of Trees*, 62.
Beaufort *Duchess of*) *a great Lover of Botany and Exotics*, 72. *Her busie and constant Employ therein*, *ibid.*
Bedford (*Duchess of*) *quoted from Sir William Temple*, 72.

Belvedere,

The INDEX.

- Belvedere, *the Gardens of the great Pontiff at Rome*, 38.
- Bianum, *one of Seneca's Country Villa's*, 33.
- Blackmore (*Sir Richard*) *his Description of the Sun*, 142. *His Description of Adam in his State of Innocence*, 286.
- Blenheim Gardens, 84.
- Bobart (*Mr.*) *Professor of Botany in Oxford*, 58.
- Boileau (*Mons.*) *his sweet Thoughts on Retirement*, 45, 46. *part of his Letter to his Gardener*, 46.
- Boggy Land good for Birch, Poplar, Ash, Willow, 256.
- Bolton (*Duke of*) *a great Planter*, 85.
- Borelli, *that the Air is the principal Cause of Vegetation*, 146.
- Boyle (*Mr.*) *a great Natural Philosopher and Gardener*, 64.
- Brown (*Sir Thomas*) *Memoirs of him*, 69. *Author of The Gardens of Cyrus*, *ibid.*
- Brumpton-Park, *the noblest Nursery of the World*, 78.
- Burleigh (*Lord Treasurer*) *an early Planter of Regular Walks*, 48.

C.

- Capel (*Lord*) *his Improvements in Gardening*, p. 61.
- Carnarvan (*Earl of*) *his Gardens at Edger in Hertfordshire*, 84.
- Carlton (*Lord*) *his Gardens at St. James's*, 53.
- Cashiobury, *a noble Seat of the Earl of Essex*, 62.
- Cæsar, *his Gardens at Rome*, 35.
- Cato *the Philosopher*, *Author of a Treatise of Agriculture, under the Title de Re Rustica*, 31.
- Chalky Land, Beech, Walnut, Juniper, Elm, Ash, Oak; *but not Poplar*, 256.
- Chaplain (*Mr.*) *of Lincolnshire, his Method of Planting*, 242.
- Charles I. *King of Great-Britain, some Account of him*, 49.
- Charles II. *King of Great-Britain, a great Lover of Planting*,

The INDEX.

- Planting, 52. *A noble Expression of his, in Favour of his Country, 53.*
- Chestnut (of two kinds) rais'd of Seed, 208. *How manag'd, from 208 to 238.*
- Chesterfield (Earl of) *delighted much in Gardening,*
- Child (Sir Richard) *his Gardens at Wanstead, 84.*
- Chus: *vid. Zoroaster.*
- Claudius the Emperor a Lover of Agriculture and Gardening, 30.
- Claudius Albinus the Emperor, *his love of Fruit, 37. he wrote a Book of Georgicks, ibid.*
- Clerc (Monsieur la) *his Opinion of Springs, consider'd, 290, 292.*
- Cleopatra, *her tragical End, 72.*
- Course Ground good for most Trees, *meliorated by ploughing, &c. 256.*
- Collis Hortulorum, *or the Hill of Gardens at Rome, some Account of it, 21.*
- Columella (a Roman) *wrote a Treatise de Re Rustica, and dedicated it to Claudius, 30.*
- Cook (Mr.) *Gardener to the Earl of Essex, 78.*
- Compton (Henry Ld. Bishop of London) *a great Lover of Gard'ning, particularly Exotic Plants, 70.*
- Country Life, *the Pleasures of it describ'd by Virgil, 26, &c. By Mons. Boileau, 45, 46, 194. By Mrs. Phillips, 74. By Sir Richard Steele, 89. By Horace, 348.*
- Cowley (Mr.) *Memoirs of his Life, 37. A Passionate Admirer of Gardening, 38. His Description of the Great Dioclesian's Retirement, 67. Of Aglaus, 92. Of Abdolonymus, 96.*
- Craggy Ground *will produce Ash, Fir, and ev'n Oak, from Seed; not else, as will neither of the other two, 256.*
- Cyrus the Great, *Memoirs of his Birth and Education, 10. His noble and extensive Genius in Planting, 34. His fatal Catastrophe, ibid.*

The INDEX.

D.

DAnvers (Henry, *Earl of Danby*) *Founder of the Physick-Garden at Oxford*, p. 57.

David *King of Israel*, 5.

Deerham (*the Reverend Mr.*) *affirms from Borelli, that Air is the principal Cause of Vegetation*, 146.

Delecampius, *a Commentator on Pliny*, 19.

Devonshire (*the late and present Dukes of*) *great Encouragers of Arts and Sciences, especially Gardening*, 85.

Dews, *their Original*, 117. *And Use*, *ibid.*

Dioclesian (*the Emperor*) *his voluntary Retirement, and noble Gardens at Salona*, 37. *Poetically describ'd by Mr. Cowley*, *ibid.*

Diogenes Laertius, *his Account of Epicurus's Garden*, &c. 11, 12, 13, &c.

Domitian (*the Emperor*) *his Gardens at Rome*, 35.

Druids, *the Oak sacred to them*, 47.

Dryden (*Mr.*) *his Description of a fine Wood*, 194. *Several Translations out of Virgil, on that Subject*. 25, 26, 27, &c.

Dry, *Poor, Clear Soil, will produce Holly, Walnut, Maple, Abeal, Black Alder, Sallow, Poplar; not Willow*, 257.

Dry, *Rich Ground; Walnut, Chesnut, Oak, Beech, Hornbeam, and Lime*, *ibid.*

Dry, *Sandy, Hot Ground; Birch, Beech, and Lime, with a little Help, but not Elm to any Purpose*, *ibid.*

E.

Earth, *an Essay concerning it*, 98. *The Specifick Properties of it*, 101. *Ought to be sometimes renew'd*, 102. *Earth and Dung better mix'd, than us'd simply*, 111, &c.

Egyptians *very early Gard'ners*, 6. *Their Veneration for Kitchen Food*, 89.

The INDEX.

- Elm (of three sorts) Rais'd by Suckers, 219. *But better by Arcuation*, 224.
- Elizabeth (Queen of England) *short Memoirs of her*, 48.
- Elysium, *its Description by Virgil*, 19.
- Emplastratio, *what*, 229.
- Epicurus, *the noblest Gardener of Greece*, 11.
The first that us'd large, Extensive Rural Gardens, 12.
- Essex (Earl of) *a Lover of Gardening and Planting*, 62.
- Eve, *her solicitous and happy Toil in Paradise*, 285.
Her sorrowful Lamentation at her Expulsion out of Paradise, 95.
- Evelyn (Mr.) *his Life, Labours, and incomparable Pen in the Theory of Gard'ning*, 58, 59.
- Eusden (Mr.) *his Description of the Gardens of Alcinous, from Homer's 7th Odyss.* 8.

F.

- Ferrara (Cardinal) *his fine Gardens at Tivoli*, p. 38.
- Fat Soil *excellent for Limes, and all other sorts of Trees*, 157.
- Field (Mr.) *Gard'ner to the Earl of Bedford*, 78.
- Fir (of two Kinds) *rais'd from Seed*, 207. *How manag'd, from 207 to 238.*
- Flinty Ground; *Oak, Ash, Elm, Beech, if sow'd*, 257.
- Floralia, *or Flower-Fests in Honour of Flora, celebrated at Rome in April and May*, 71.
- Fontainbleau, *a Palace and Gardens of the King of France*, 40.
- Forest Trees, *Directions to raise them*, 191.
- Forest-Works, *described by Mr. Pope*, 344.
- Forest-work *Hangings of the Phrygian and Tyrian Dames*, 71.

Gadia-

The INDEX.

G.

- G**Adianus (*Emperor*) a great Lover of Gardening, p. 37.
- Gaditanus, the Birth-place of Columella, 30.
- Galba (*the Emperor*) his Gardens at Rome, 35.
- Gard'ning, an Employ not unbecoming the Sacred Function, as publish'd by the Reverend Mr. Lawrence, 63.
- Gardens and Gard'ning coeval with the World, 3.
- Gardens of Eden, 3. Of Babylon, 6. Of Adonis, *ibid.* The Hesperides, 7, 8. Of Alcinous, 8, 9. Of Epicurus, 11. Of Theophrastus, 15. Of Tarquinius, 20. Of Mecenas, 23. Of Caesar, 35. Of Domitian, *ibid.* Of Sergius, *ibid.* Of Sallust, *ibid.* Of Martial, *ibid.* Of Seneca, 32. Of Dioclesian, 37. Of Belvedere, 38. Of Versailles 40. Of Marli, *ibid.* Of Fontainbleau, *ibid.* Of St. Clou, *ibid.* Of Hampton-Court, 52, 76. Of Kensington, 83. Of Long-Leat, 78. Of Blenheim, 84. Of Wanstead, *ibid.*, &c.
- Gerard an eminent Botanick, 56.
- Gravel, how to be mix'd and laid in Walks, 323, 324.
- Gravelly Ground, that which is hungry, only Abeal and Dutch Elm; not Oak, Ash, English Elm, not Walnut, &c. 257. Moist Gravel, Chesnut, Elm, Oak, Pine, and Fir, Green Willow, English, Dutch, and French Elms, 256.
- Groves and Gardens, the Delights and Uses of them, 192. The Elyzium of the Antients, 19, 192, 193. The Habitation of innocent Love, 193. Influential to Poetick Raptures, 194. Influential for excitement of Penitential Expressions and Affections, 197. The Place of St. Austin's Conversion, *ibid.* Where Abraham entertained Angels, 199. The Burying-Places of the Antients, *ibid.* The Abode and Sepulchre of our Blessed Saviour, 200.

The INDEX.

H.

- H** Adrian (*Emperor*) *discoursing in his Garden*,
p. 36.
Hallifax (*Earl of*) *his Rural way of Gard'ning*, 87.
Halley (*Mr.*) *his Opinion of the Original of Springs*,
doubted, 291.
Hampton-Court Gardens, *when made and alter'd*,
76.
Heat, *the chief Agent in Attraction or Pulsion*, 137.
Hesiod, *a Græcian Author of Agriculture*, 8.
Hesperides, (*the Gardens of*) *described by Mr.*
Rowe, 7.
Holly rais'd by Seed, 207. *How manag'd, from 207*
to 238.
Homer, *a Transl. from him of Alcinous's Gardens*, 8.
Horace, *his Love for Husbandry and Gard'ning*,
28. *His Epistle to his Steward on a Country-*
Life, 28, 29.
Hornbeam rais'd of Seed, 207. *It's Management,*
from 207 to 238.
Horti Penfiles of Babylon, 6, 12.

J.

- J**ames I. (*King of Great Britain*) *Memoirs of him*,
p. 48.
James II. (*King of Great Britain*) *a short Account*
of him, 55.
Jesus Christ (*our Blessed Saviour*) *his Oratory and*
Burial in a Garden, 200.
Inoculation, *what*, 229. *Confounded with Emplastra-*
tion, ibid.
Julius Cæsar *his Gardens*, 22.
Justus Lipsius *his Account of Seneca*, 32.
Juvenal *his Account of the Gardens of Seneca*, 33.
Of Solitude, 193.

The INDEX.

K.

- K**ent (*Duke of*) a great Planter, and Encourager thereof, p. 85.
Kew, a Seat of the Lord Capel's, 61.

L.

- L**aertes (*King*) a Planter and Pruner, in Homer, p. 11.
Lamoignon (*Monsieur*) address'd to by Boileau, 45, 46.
Land (*Heavy*) a proper Compost for it, 104.
Land (*Light*) a proper Compost for it, 109.
Land (*Worn out*) how to repair it, 110.
Lewis XIV. King of France, a great Admirer and Encourager of Gard'ning, 39.
Licinius Crassus, Consul of Rome, 23.
Life (*Country*) the Pleasures of it, by Virgil, 26, 27, 29. By Monsieur Boileau, 45, 46, 194. By Mrs. Phillips, 74, 75. By Sir Richard Steele, 89, 90. By Mr. Cowley, 349, 356.
Life (*the Principle of it*) in Trees, 154. The Use of it in Vegetation, &c. 155.
Lime rais'd by Laying, 224. Its Management, from 224 to 238.
Lindsey (*Countess of*) a Lover of Planting, 73.
Lives or Memoirs of the most eminent Virtuoso's in Gardening, viz. Adam, 3. Noah, 5. Zoroaster, *ib.* Abraham, *ibid.* Solomon, *ibid.* Semiramis, 6. Nebuchadonozor, *ibid.* Adonis, 7. The Hesperides, *ibid.* Homer, 8. Hesiod, *ibid.* Alcinous, *ibid.* Cyrus, 10. Ahasuerus, *ibid.* Laertes, 11. Epicurus, 11, 12, 13. Pisistratus, *ibid.* Theophrastus, 14, 15. Abdolonymus, 16. Thraseas, 20. Tarquinius Superbus, 20. Quintus Cincinnatus, 22. Julius and Augustus Caesar, *ibid.* Virgil, 22, &c. Vitruvius, 28. Horace, *ibid.* Claudius, 30. Cato, Varro, Columella, 30. Palladius, 31. Pliny, *ibid.* Seneca, 32. Dioctesian, 37. Duke of Orleans, 40. Monsieur de la

The INDEX.

la Quintinye, 41. *Rapin*, 44. *Mons. Boileau*, 45.
Queen Elizabeth, 48. *Lord Treasurer Burleigh*,
ibid. *King James I.* *ibid.* *Lord Verulam*, *ibid.* *Sir*
Henry Wootton, 49. *Sir Hugh Plat*, *ibid.* *King*
Charles I. *ibid.* *Milton*, 50. *King Charles II.* 52.
Mr. Waller, 53. *Mr. Evelyn*, 58. *Sir William*
Temple, 60. *Lord Capel*, 61. *Earl of Essex*, 62.
Malpighius, *ibid.* *Dr. Grew*, *ibid.* *Mr. Boyle*, *ibid.*
Dr. Beale, *ibid.* *Dr. Woodward*, 63. *Mr. Ray*,
ibid. *Lord Ruffel*, 65. *Mr. Cowley*, 67. *Mr. Rose*,
68. *Sir T. Brown*, 69. *Compton (Lord Bishop of*
London) 70. *Duchess of Bedford*, 72. *Duchess of*
Beaufort, *ibid.* *Countess of Lindsey*, 73. *Mrs. Phil-*
lips, 74. *King William III. and Queen Mary*, 75.
Mr. London, 79, &c. *Queen Anne*, 83.

M.

- M** *Agdalen Coll. in Oxford, its noble Walks*, p. 58.
Malpighius (Seignior) his excellent Anatomy
of Plants, 62.
Maple Rais'd of Seed, 207. *Its Management, from*
207 to 238.
Marius (a Roman Worthy) his Villa, 35.
Marli, a Palace and Gardens of the French Kings, 40.
Martial (the Poet) his Gardens at Rome, 22
Mecenas a Lover of Agriculture and Gard'ning, 35.
Address'd to by Virgil, 35.
Milton, Gard'ning recommended by his incomparable
Poem, 50. *His Description of Adam and Eve's*
Lamentation at their Expulsion out of Paradise,
95, 96. *Of Adam just entring on his Existence*, 196.
Of the busy and innocent Employ of a Gard'ner, 63.
Mizraim: vid. Zoroaster.
Montague (Duke of) his Gardens at Boudon, Nor-
thamptonshire, 85.
Mortimer (Mr.) and other Rustick Authors, 63.

The INDEX.

N.

NEbuchadonozor, *Founder of the Hanging Gardens of Babylon*, p. 6. *His vain Exultation and terrible Doom*, *ibid.*

Nebula, *what*, 116.

Nitre *not essential to the Growth of Plants*, 170.

Noah *an early Vintager*, 5.

Nomentanum *one of Seneca's Country Villa's*, 33.

Nubis, *what*, 116.

O.

OAK *raised of Seed*, p. 207. *Of the Seed, and when to be sown*, *ibid.* *How to be manag'd the first Year from the Seed*, 212. *How to be manag'd the second Year, and so on*, 214. *How to be planted out and manag'd in the Open Nursery*, 231. *The hardest Tree of all the Forest-kind to train up by Art*, 325. *Ought to be planted out where he is to stand always, before eight Years old*, 244. *Not good to plant Oaks large, or out of the Woods*, *ibid.* *More Directions in Raising this valuable Tree*, 326.

Orleans (Duke of) *his Gardens at St. Clou*, 40.

Otway's (Mr.) *beautiful Description of a Grove*, 193.

Oxford, *its Physick-Garden*, 56. *Excelling in the Beauty of its Walks and Groves the most famous Academies of Greece or Rome*, 57.

Ozell (Mr.) *his commendable Translations of Boileau*, 45, 46, 194, 195.

P.

PAcuvius *his Account of Air*, p. 145. *Taken from the Doctrine of Epicurus*, *ibid.* & *seq.*

Palladius *a Husbandman, and Author of a Book de Re Rustica*, 31, 32.

Panegyricks *might have been quoted of Xenophon, Maximus Tyrius, &c. which would still have more imbellish'd this History*, 88.

Paradise,

The INDEX.

- Paradise, *its local Situation*, 4. *A Pattern, as is supposed, to the Horti Penfiles of Babylon, ibid.*
An excellent Description of it by Milton, 345.
Park (*St. James's*). *Mr. Waller's Poem on it*, 54.
Parkinson (*Mr.*) *an eminent Botanick*, 56.
Pausanias's *Account of Epicurus's Gardens*, 13.
Perrault (*Monsieur*) *wrote the Life of Monsieur de la Quintinye*, 43.
Phillips (*Mrs. Catherine*) *her seraphick Description of Retirement*, 75.
Pisistratus *an Author of Pliny's*, 14.
Piso *a Noble Roman Worthly, his Villa*, 35.
Plat (*Sir Hugh*) *Author of The Garden of Eden*, 49.
Platanus (*of two sorts*) *rais'd by Layers*, 224.
Pliny Novocomensis *a laborious Philosopher and Gardener*, 31. *His Natural History, dedicated to the Emperor Vespasian, ibid.*
Pliny junior, 32.
Pompeius Magnus *Consul of Rome*, 23.
Poplar (*of three kinds*) *rais'd of Suckers*, 219.
Pope (*Mr.*) *his beautiful Description of a Forest*, 344.
Primogenial Parents *in their Untainted State of Innocence, describ'd by Mr. Milton*, 51, 52.
Pulsion, *heretofore suppos'd to be Attraction*, 135.

Q.

- Quintinye (*Monsieur de la*) *his Birth and Education, p. 41. His Progress and Discoveries in Philosophy and Gardening*, 42. *His Method of Pruning the Roots of a Tree, when to be follow'd, and when not*, 240. *The French King's Sorrow at his Death*, 44.
Quintus Cincinnatus *Dictator*, 22.
Quintus Hortensius, *his Villa*, 35.

R.

- Rain-Water, *its Qualities, p. 114. How gender'd*, 115. *How suspended in the Air, ibid. The Manner of its Distillation*, 116.

Rapin

The INDEX.

- R^{ay}in (*Mons.*) his excellent Poem on Gardening, 44.
R^{ay} (*Mr.*) his Tracts on Experimental Philosophy, 63.
Roots of Trees, how to prune them, 239, 240.
Rofania invited into the Country, by Mrs. Phillips, 74.
Retirement, by Mrs. Phillips. *Vid.* Solitude, &c.
Rochester (*Earl of*) a great Encourager of Gardening and Arts in general, 85.
Roscommon (*Earl of*) his pious Reflexions on the Benefits of the Sun, 141.
Roman Kings actual Tillers and Dressers of their Gardens, 18, 19. The People liv'd in their Open Gardens, *ibid.*

S.

- Sabinum a Villa of Horace's, p. 28.
Sallow rais'd by Cuttings, 222; by Laying, 224.
Salmasius, his Opinion concerning the raising Elms from Chips, 220; examin'd, and in some measure agreed to, 221.
Sap, concerning its Ascension, 161. Does not descend into the Roots in the Winter, as the Antients have suppos'd, *ibid.* Does not circulate as Blood in the Body, 162. A great Objection against Descension of Sap into the Roots, Answer'd, 163.
Savoury (*Mr.*) his Engine, a Demonstration that what the Antients call'd Attraction, is now solv'd by Pulsion, 136.
Scarborough (*Earl of*) a Lover of Planting, &c. 85.
Scipio Africanus, his happy Retirement from the Ingratitude of his Country, 35.
Semiramis, the supposed Founder of the Babylonish Gardens, doubted whether or no, 6.
Seneca, the Grandeur of his Villa's and Gardens, 32.
Sergius, his Gardens at Rome, 35.
Servilius a Nobleman of Rome, his Retirement from Tiberius Cæsar, 35.
Solitude and Shade, the Sweetness of it, describ'd by Sir Richard Steele, 89; by Mrs. Phillips, 75; by *Mons.* Boileau, 45, 46; by Mr. Tickel, 287.
Solomon

The INDEX.

- Solomon an eminent Botanick and Gardener, 6.
Snow, its Virtues to Planting, 131.
Spectator, his beautiful Description of Solitude and Retirement, 89; on the Benefits of Planting, 278, &c. on Rural and Natural Gardening, *ibid.*
Spontaneous Production of Trees, consider'd and vindicated, 205.
Springs, their Original, 288. Mr. Halley's Opinion consider'd, 291. Monsieur la Clerc's, *ibid.* A late anonymous Author, 295. how convey'd and us'd, 301, 304, & seq.
Of Statues, 310.
Steele (Sir Richard) his curious Paper on Retirement, &c. *Vid.* Spectator.
Subterraneous Fires of no Use in Vegetation, 156.
Suetonius's Account of Claudius, 30.
Suidas's Account of Epicurus, 12.
Sun, an Essay concerning its Virtues, 133. Its Attractive Power, what, 134. Diffusive Power, 138. The general Benefit of it, 140. Fed by Air, *ibid.* Seraphickly describ'd by the Earl of Roscommon, 141. By Lucretius and Creech, 142. By Mr. Johnson, *ibid.* By Sir Richard Blackmore, *ibid.* By the Divine Psalmist, 143.
Sunderland (Earl of) a great Planter, in the Reign of King William and Queen Mary, 85.
Sycamore Tree rais'd of Seed, 207. Its Management, from 207, to 238.

T.

- T**Arquinius, some Account of his Gardens, 20.
Temple (Sir William) Memoirs of his Writings and love to Gardening, 60.
Theophrastus, an excellent Botanick and Gardener, 15. A short Account of his Works, *ibid.*
Tiburinum, a Villa of Horace's, 28.
Trees (Forest) their spontaneous Production, 204. How rais'd by Seed, 206. By Suckers, 219. By Arcuation or Laying, 224. By Cuttings or Setts,

The INDEX.

228. *By Inoculation*, 229. *Of Planting and the Care that is to be taken of them in Open Nurseries*, 231. *In the open Park*, 239. *Of the several Soils proper for each of them*, from 248 to 258. *Come the best when set or sow'd young*, 243, 261. *Little Success to be expected from those that are taken large out of Woods*, *ibid.*

V.

V Apours, Rains, &c. p. 297, & seq.

Varro a Roman Author of Husbandry, writ a Book de Re Rustica, 30.

Vegetation, the innumerable Momenta's in it, from 115 to 190.

Vegetables not fram'd of Water, but of a Terrestrial Matter therein, 179, & seq.

Verfailles, the King of France's Gardens, 40.

Verulam (Lord) a Restorer of Philosophy, 48.

Vespasian (the Emperor) a Patron to Pliny's Philosophy and Gard'ning, 31.

Villa of Horace, 28. Of Seneca, 32. Of Quintus Hortensius, 35. Of Piso, *ibid.* Of Marius, *ibid.* Of Caesar, *ibid.* Of Servilius, *ibid.* Of Scipio Africanus *ibid.* The Tusculum, or Villa Academica of Cicero, *ibid.* & seq.

Virgil (the incomparable Poet) a great Husbandman and Gard'ner, 22. His Address to Mecenas, 25. His Encomium on a Country Life, and the Shades, Innocencies, and Solitudes thereof, 26, 27.

Vitruvius a great Architect and Gard'ner amongst the Romans, 28.

W.

W Aller (Mr.) Memoirs of him and his elegant Poem on the Repairing of St. James's Park, p. 34, 54.

Walnut rais'd of Seed, 207. How managed, from 207 to 238.

Water,

The INDEX.

- Water**, an *Essay on it*, from 114 to 132. *Spring and Rain Water have an equal Share of Terrestrial Matter*, 181. *That Terrestrial Matter that nourishes Plants*, 168. *Itself only a Vehicle to carry up that Terrestrial Matter*, 183. *Does not perform that Office without the Heat of the Sun and Air*, 187.
- Watering of Trees in large Plantations**, a great *Expence*; how entirely to avoid that *Expence*: See *Rain*, &c.
- White Thorn rais'd of Seed**, 207. *How manag'd*, from 207 to 238. *Of excellent Use to the Country Planters*, 207, &c.
- William III.** (*King of Great Britain*) a great *Judge of Gard'ning*, 75, &c.
- Willows rais'd by Cuttings or Setts**, 228. *By Laying*, 224.
- Woodward (Dr.)** his *curious Essay on Vegetation*, 47, and from 119 to 130.
- Wootton (Sir Henry)** an *English Gentleman*, early in *Gardening*, 48. *Much improv'd by his Travels Abroad*, 49.

Y.

YEW rais'd of *Seed*, p. 207. *How managed*, from 207 to 238.

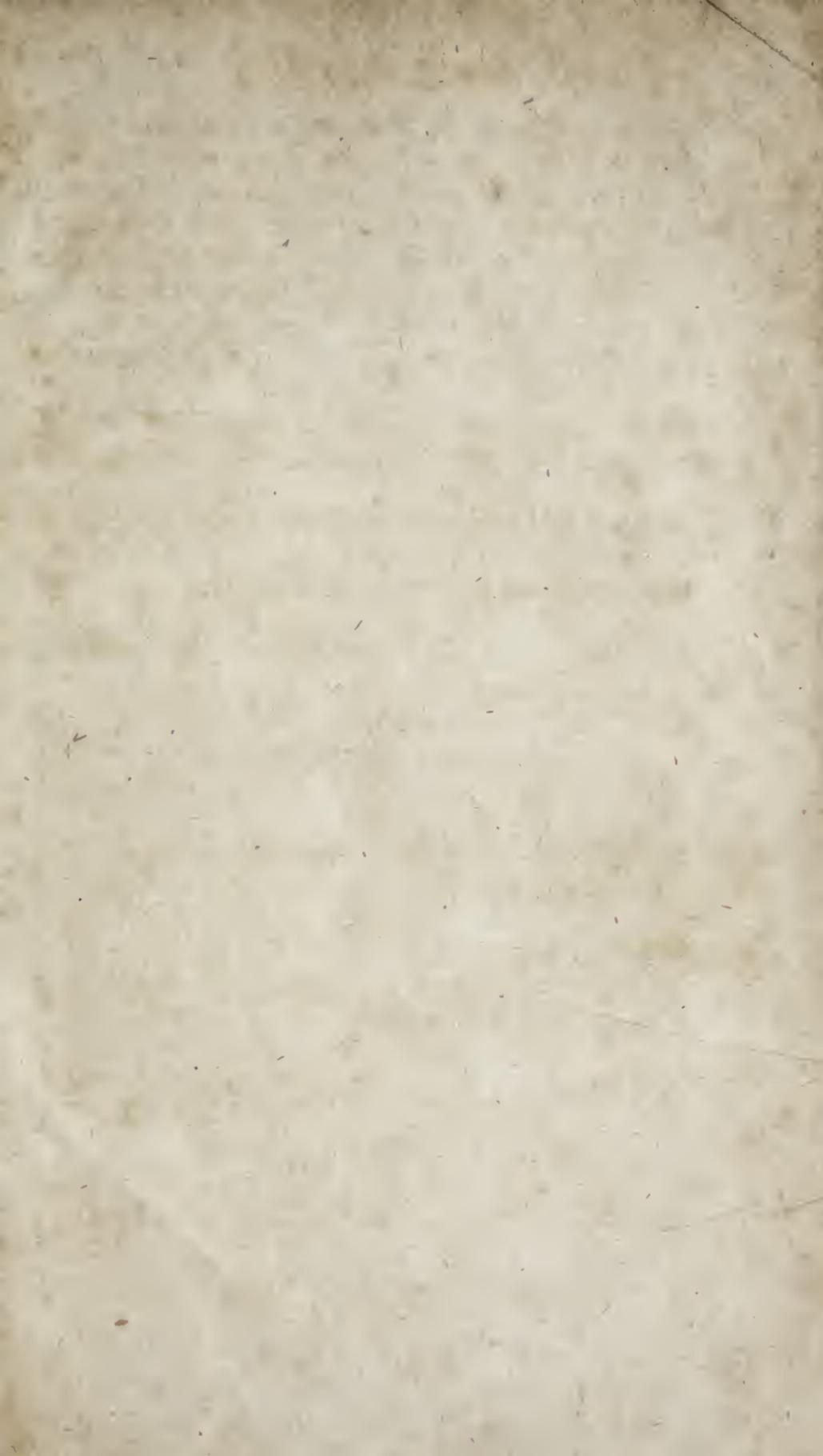
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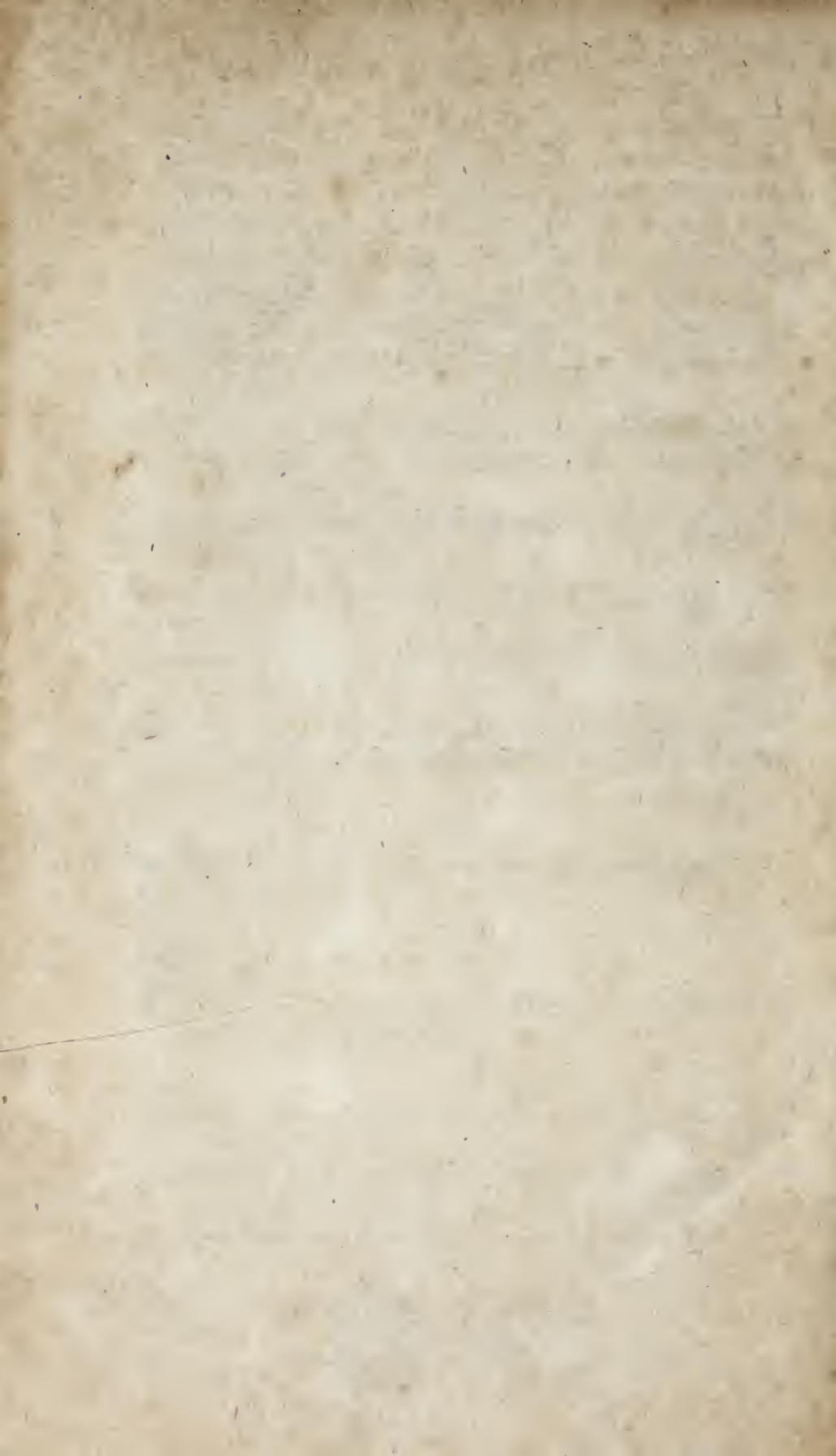
ZENO, p. 2.

Zoroaster, an *early Practitioner*, and wrote a *Book of Husbandry*, &c. 5.

The END of the FIRST VOLUME.











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