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Silva or, a Discourse of Forest-Trees and the Propagation of Timber in His Majesty's Dominions...together with an historical account of the Sacredness and Use of Standing Groves

Evelyn, John

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Book II.

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DENDROLOGIA.

BOOK II.

CHAP. I.

Of the Mulberry.

BOOK II. I.
MULBERRY.

USES.

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

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

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

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

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

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

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

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

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

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

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

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

CHAP. I.

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

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

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

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

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

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

C H A P. II.

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

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

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

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

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

Macrob. Saturnal. iii. c. xi.

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

LOTUS.

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

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

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

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

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

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

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

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

C H A P. III.

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

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

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

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

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

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

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

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

PINE.

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

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

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

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

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

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

PINASTER.

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

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

^a *The friendly Pine the mighty Oak invites.*

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

^a Et comitem quercum Pinus amica trahit.

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

PICEA.

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

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

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

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

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

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

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

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

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

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

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

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

^a The useful Pine for Ships ———

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

* *Macrob.*
Sat. 16. cap.
9.

^b ——— The Ribs with Deal they fit :

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

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

^a ——— dant utile Lignum

Navigiis Pinos ———

Georg. ii.

^b ——— Sectaque intexunt Abiete costas.

Æn. ii.

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

————— *She prest*

A long Fir-Spear through his exposed Breast.

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

* ————— *Cujus apertum*
Adversi longā transverberat abiete pectus.

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

* Where the
LXX calls it
ἀπιδύκτα.
non dedolata;
others ligna
undulata. See
Ezek. xxvii.
5, 6.

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

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

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

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

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

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

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

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

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

C H A P. IV.

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

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

Quid tibi odorato referam sudantia ligno?

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

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

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

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

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

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

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

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

USES.

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

Notandus minio, nec Cedro Charta notantur,

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

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

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

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

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

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

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

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

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

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

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

USES.

Wood,

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

—perpetuâ nunquam moritura Cupresso.

MART. Ep. vi. 6.

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

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

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

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

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

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

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

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

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

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

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

Eng-

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

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

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

C H A P. V.

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

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

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

CORK.

P p

other

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

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

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

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

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

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

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

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

6. The

BOOK II.

ALATERNUS.

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

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

CELASTRUS.

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

PHILYREA.

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

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

MYRTLE.

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

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

* *Cato*.
Columella.
Paladius.

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

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

BOOK II.
MASTIC-
TREE.

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

OLIVE.

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

GRANATA.

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

PIPE-TREE.

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

JASMINE.

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

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

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

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

CHAP. VI.

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

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

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

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

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

Georg. i.

BOOK II. in better Order; beside, the Pleasantness of the *Verdure* is incomparable.

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

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

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

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

YEW:

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

——— *Aquilonem & frigora taxi*)

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

——— *Ityræos taxi torquentur in arcus.*

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

^a ——— non ultima belli

Arma Puellaris; Laqueos hæc nectit Amantùm,
Et venatricis disponit retia Formæ.

COULERS, Pl. Lib. vi.

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

^b How are poor Trees traduc'd?

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

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

a — Quam multa Arboribus tribuuntur crimina falsa?

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

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

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

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

a ————— 'tis here

Eternal Spring, and Summer all the Year.

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

HOLLY.

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

^a Hic ver perpetuum, atque alienis mensibus ætas.

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

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

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

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

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

Et illum nemo impune laceffit.

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

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

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

COULTELL, Pl. I. 6.

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

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

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

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

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

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

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

PYRACANTHA.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

* Carol. A-
 vanti not. in
 Cornan' Bapt.
 Fiera.

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

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

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

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

RAPINUS.

CHAP. VII.

Of the Infirmities of Trees, &c.

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

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

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

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

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

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

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

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

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

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

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

See Chap. ii.
Book i.

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

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

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

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

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

Crooked Trees are reformed by taking off or topping the *Prepon- derers*, whilst charged with *Leaves*, or *woody* and hanging *Counter- poises*.

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

Relation

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

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

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

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

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

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

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

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

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

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

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

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

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

16. The

BOOK II. 16. The blasted Parts of Trees (and so should Gum) be cut away to the Quick; and to prevent it, smoak them in suspicious Weather, by burning moist Straw with the Wind, or rather the dry and superfluous Cuttings of aromatic Plants, such as Rosemary, Lavender, Juniper, Bays, &c. I use to whip and chastise my Cypresses with a Wand, after their Winter-burnings, till all the mortified and scorched Parts fly off in Dust, as long almost as any will fall, and observe that they recover and spring the better. Mice, Moles and Pismires cause the Jaundice in Trees, known by the Discolour of the Leaves and Buds.

17. The Moles do much hurt, by making hollow Passages, which grow musty; but they may be taken in Traps, and kill'd, as every Woodman knows: It is certain that they are driven from their Haunts by Garlic for a Time, and other heady Smells, buried in their Passages.

18. Mice, Rats, with Traps, or by sinking some Vessel almost level with the Surface of the Ground, the Vessel half full of Water, upon which let there be strew'd some Hulls or Chaff of Oats; also with Bane, Powder of Orpiment in Milk, and Aconites mixed with Butter: Coperas or green Glass broken with Honey: Morfels of Sponge chopped small and fried in Lard, &c. are very fit Baits to destroy these nimble Creatures, which else soon will ruin a Semination of Nuts, Acorns and other Kernels in a Night or two, and rob the largest Beds of a Nursery, carrying them away by Thousands to their cavernous Magazines, to serve them all the Winter: I have been told that Hop-branches stuck about Trees, preserve them from these thievish Creatures.

19. Destroy Pismires with scalding Water, and disturbing their Hills, or rubbing the Stem with Cow-dung, or a Decoction of Tithymale, washing the infested Parts; and this will insinuate, and chase them quite out of the Chinks and Crevices, without Prejudice to the Tree, and is a good Prevention of other Infirmities; also by laying Soot, Sea-coal, Saw-dust, or Refuse-Tobacco where they haunt, often renewed, especially after Rain; for becoming moist, the Dust and Powder harden, and then they march over it.

20. Caterpillars, by cutting off their Webs from the Twigs before the End of February, and burning them; the sooner the better: If they be already hatched, wash them off with Water, in which some of the Caterpillars themselves, and Garlick have been bruised, or the Juice of Rue, Decoctions of Colloquintida, Hemp-seed, Wormwood, Tobacco, Walnut-shells when green, with the Leaves of Sage, Urine and Ashes, and the like Aspersions. Take of two or three of the Ingredients, of each an Handful in two Pails of Water; make them boil in it half an Hour, then strain the Liquor, and sprinkle it on the Trees infested with Caterpillars, the black Flea, &c. in two or three Times it will clear them, and should be used about the Time of Blossoming. Another, is to choak and dry them with Smoak of Galbanum, Shoefoals, Hair; and some affirm, that planting of Piony near them, is a certain Remedy; but there is no Remedy so facile, as the burning them off with small Wisps of dry Straw, which in a Moment rids you.

21. Rooks do in Time, by pinching off the Buds and Tops of Trees for their Nests, cause many Trees and Groves to decay: Their Dung propagates Nettles and Weeds, and choaks young Seedlings: They are to be shot, and their Nests demolished. The Bullfinch and Titmouse

mouse also eat off and spoil the *Buds* of *Fruit-trees*; prevented by *Clappers*, or caught in the *Wyre Mouse-trap* with *Teeth*, and baited with a *Piece* of *rusty Bacon*, also with *Lime-twigs*. But if *Cattle* break in before the *Time*, *conclamatum est*, especially *Goats*, whose *Mouths* and *Breath* is *Poison* to *Trees*, they never thrive well after; and *Varro* affirms, if they but lick the *Olive-tree*, they become immediately *Barren*. And now we have mentioned *Barrenness*, we do not reckon *Trees* to be *sterile*, which do not yield a fruitful *Burden* constantly every *Year* (as *Juniper* and some *Annotines* do) no more than of *pregnant Women*: Whilst that is to be accounted a *fruitful Tree* which yields its *Product* every *second* or *third Year*, as the *Oak* and most *Foresters* do; no more may we conclude that any *Tree* or *Vegetable* are destitute of *Seeds*, because we see them not so perspicuously with our *naked Eyes*, by reason of their *Exility*, as with the nicest *Examination* of the *Microscope*.

22. Another *Touch* at the *Winds*; for though they cannot properly be said to be *Infirmities* of *Trees*; yet they are amongst the principal *Causes* that render *Trees* infirm. I know no surer *Protection* against them, than (as we said) to *shelter* and *stake* them whilst they are *young*, till they have well established *Roots*; and with this *Caution*, that in case any goodly *Trees* (which you would desire especially to preserve and redress) chance to be prostrated by some impetuous and extraordinary *Storm*; you be not over-hasty to carry him away, or despair of him; (nor is it of any *ominous* Concern at all, but the contrary) *fausti ominis*, as *Pliny* says; and gives many *illustrious* Instances: And as to other strange and unusual *Events* following the accidental *Subversion* of *Trees*; concerning *Omens*; and that some are *portentous*, others *fortunate*, of which see * *Pierius*, speaking of a * *Hierog. l. 56* *Garden* of the *Duke* of *Tuscany*, belonging to a *Palace* of his at *Rome*, a little before the *Death* of *Pope Leo*; and before this, about the *Time* of our *Country-man*, *Pope Adrian* the *IVth*. First then, let me persuade you to *poll* him close, and so let him lie some *Time*; for by this *Means*, many vast *Trees* have *raised* themselves by the *Vigour* only of the remaining *Roots*, without any other *Assistance*; so as *People* have pronounced it *miraculous*, as I could tell you by several Instances, besides what *Theophrastus* relates, *Lib. v. Cap. xix.* of that huge *Platanus*, which rose in one *Night* in his *Observation*; which puts me in *Mind* of what I remember the very learned *Critic Palmarius* affirms of an *Oak*, subverted by a late *Tempest* near *Breda* (where this old *Soldier* militated under *Prince Maurice*, at the *Town* when besieged by the famous *Marq. Spinola*) which *Tree*, after it had lain prostrate about two *Months* (the *Side-Branches* pared off) rose up of itself, and flourished as well as ever. Which *Event* was thought so extraordinary, that the *People* reserved *Sprigs* and *Boughs* of it, as sacred *Reliques*; and this he affirms to have seen himself. I take the more *Notice* of these *Accidents*, that none who have *Trees* blown down, where it may cause a deformed *Gap* in some *Avenue* near their *Seats*, may not altogether despair of their *Resurrection*, with *Patience* and timely freeing them. And the like to this I find happened in more than one *Tree* near *Bononia* in *Italy*, *Anno 1657.* when of late a turbulent *Gust* had almost quite eradicated a very large *Tract* of huge *Poplars*, belonging to the *Marchioness Elephantucca Spada*, that universally erected themselves again, after they were beheaded, as they

Book II. lay even prostrate. * What says the *Naturalist*? *Prostratas restitui*
plerunque, & quadam terræ cicatrice reviviscere, vulgare est:
 * See Cap. iv. Tis familiar (says *Pliny*) in the *Platanus*, which are very obnoxious
 Lib. ii. of a Cypress. to the *Winds*, by reason of the Thickness of their Branches, which
 being cut off and discharged, restore themselves. This also frequently
 happens in *Walnuts*, *Olive-trees*, and several others, as he affirms,
Lib. xvi. Cap. xxxi. But we have farther Instances than these, and
 so very lately as that dreadful *Storm* happening 26 Nov. 1703. when
 after so many thousand *Oaks*, and other *Timber-trees* were quite sub-
 verted, a most famous and monstrous *Oak*, growing at *Epping* in *Essex*
 (blown down) raised itself, and withstood that *Hurricane*. These
 (amongst many others) are the *Infirmities* to which *Forest-trees* are
 subject, whilst they are standing; and when they are fell'd, to the
Worm; especially if cut before the *Sap* be perfectly at rest: But to
 prevent or cure it in the *Timber*, I commend this *Secret* as the most
 approv'd.

23. Let common yellow *Sulphur* be put into a *Cucurbit-Glass*, up-
 on which pour so much of the strongest *Aqua-fortis*, as may cover it
 three Fingers deep: *Distil* this to Dryness, which is done by two or
 three *Rectifications*: Let the *Sulphur* remaining in the Bottom (being
 of a blackish or sad-red Colour) be laid on a *Marble*, or put into a
Glass, where it will easily dissolve into *Oil*: With this *anoint* what
 is either infected, or to be preserved of *Timber*. It is a great and ex-
 cellent *Arcanum* for tinging the *Wood* with no unpleasant Colour, by
 no Art to be washed out; and such a Preservative of all manner of
Woods, nay, of many other Things, as *Ropes*, *Cables*, *Fishing-nets*,
Masts of *Ships*, &c. that it defends them from *Putrefaction*, either in
Waters under or above the Earth, in the *Snow*, *Ice*, *Air*, *Winter* or
Summer, &c. It were superfluous to describe the *Process* of the *Aqua-*
fortis; it shall be sufficient to let you know, that our common *Coperas*
 makes this *Aqua-fortis* well enough for our Purpose, being drawn
 over by a *Retort*: And for *Sulphur*, the *Island* of *St. Christophers*
 yields enough (which hardly needs any *refining*) to furnish the whole
World. This *Secret* (for the *Curious*) I thought fit not to omit;
 though a more compendious, three or four *Anointings* with *Linseed-*
oil, has proved very effectual: It was experimented in a *Walnut-Ta-*
ble, where it destroyed Millions of *Worms* immediately, and is to be
 practised for *Tables*, *Tubes*, *Mathematical-Instruments*, *Boxes*, *Bed-*
steads, *Chairs*, *Rarities*, &c. *Oil* of *Walnuts* will doubtless do the
 same, is sweeter, and a better *Varnish*; but above all is commended
Oil of *Cedar*, or that of *Juniper*; whilst *Oil* of *Spike* does the Cure
 as effectual as any.

But after all these sweeping *Plagues* and *Destructions* inflicted on
Trees (braving all *human Remedies*) such *Frosts* as not many Years
 * 1683. since happened, left such *Marks* of their deadly Effects, not sparing
 the goodliest and most flourishing *Trees*, *Timber*, and other of the
 stoutest Kind, as some *Ages* will hardly repair: Nay, 'twas observed,
 that the *Oak* in particular (counted the most Valiant and Sturdy of the
 whole *Forest*) was more prejudiced with this excessive *Cold*, and the
Drowth of the Year ensuing, than any of the most nice and tender
Constitution: Always here *excepting* (as to a *universal Strages*) the
Hurricane of *Sept. 1703.* which begins the *Epocha* of the *Calamities*
 * 1715. which have since followed, not only by the late *Tempest* about *August*
 last,

last, but by that surprizing *Blast*, accompanied doubtless with a fiery *Spirit*, which smote the most flourishing *Foresters* and *Fruit-trees*, burning their *Buds* and *Leaves* to *Dust* and *Powder*, not sparing the very *Fruit*. This being done in a *Moment*, must be looked upon as a *Plague* not to be prevented: In the mean *Time*, that the *Malignity* proceed no farther, it may be advisable to cut, and top the *Summities* of such tender *mural* *Trees*, rare *Shrubs*, &c. as have most suffered, and are within *Reach*, rubbing off the *Scorchings* in order to new *Spring*.

There was in my Remembrance, certain *Prayers*, *Litanies* and *Collects*, solemnly used by the *Parish-Minister* in the *Field*, at the *Limits* of their *Perambulations* on the *Rogation-days*, from an antient and laudable *Custom* of above one thousand *Years*, introduced by *Avitus*, the pious *Bishop* of *Vienna*, in a great *Dearth*, unseasonable *Weather*, and other *Calamities* (however in *Tract* of *Time* abused by many gross *Superstitions* and insignificant *Rites*, in Imitation of the Pagan *Robigalia*) upon which *Days* (about the *Ascension* and beginning of *Spring* especially) *Prayers* were made, as well *deprecatory* of *epidemical Evils* (amongst which *Blasts* and *Smut* of *Corn* were none of the least) as *Supplications* for propitious *Seasons*, and *Blessings* on the *Fruits* of the *Earth*. Whether there was any peculiar *Office* (besides those for *Ember-Weeks*) appointed, I do not know: But the pious and learned *Bishop* of *Winchester* [*Andrews*] has, in his *Devotions*, left us a *Prayer* so apposite and comprehensive for these *Emergencies*, that I cannot forbear the *Recital*.

REMEMBER, O Lord, to renew the Year with thy Goodness, and the Season with a promising Temper: For the Eyes of all wait upon thee, O Lord: Thou givest them Meat; thou openest thy Hand, and fillest all things living with thy Bounty. Vouchsafe therefore, O Lord, the Blessings of the Heavens, and the Dewes from Above: The Blessings of the Springs, and the Deep from Beneath: The Returns of the Sun, the Conjunctions of the Moon: The Benefit of the rising Mountains, and the lasting Hills: The Fulness of the Earth, and all that breed therein.

A Fruitful Season,
Temperate Air,
Plenty of Corn,
Abundance of Fruits,
Health of Body, and
Peaceable Times,
Good, and wise Govern-
ment,
Prudent Counsels,

Just Laws,
Righteous Judgments,
Loyal Obedience,
Due Execution of Justice,
Sufficient Store for Life,
Happy Births,
Good, and Fair Plenty,
Breeding and Institution of Chil-
dren:

That our Sons may grow up as the young Plants, and our Daughters may be as the polished Corners of the Temple: That our Garners may be full and plenteous with all manner of Store: That our Sheep may bring forth Thousands: That our Oxen may be strong to labour: That there be no Decay; no leading into Captivity; no complaining in our Streets: But that every Man may sit under his own Vine, and under his own Fig-tree, in Thankfulness to Thee; Sobriety and Charity to his Neighbour; and in whatsoever other Estate thou wilt have

BOOK III. have him, therewith to be contented: And this for JESUS CHRIST his sake, to whom be Glory for ever, AMEN.

24. Thus hitherto I have spoken of *Trees*, their *Kinds*, and *Propagation* in particular; with such *Prescriptions* for the *Cure* and *Healing* their *Infirmities*, as from long and late *Experience* have been found most effectual. Now a *Word* or two concerning the *Laws* relating to *Forest-trees*, casting such other accidental *Lessons* into a few *Aphorisms*, as could not well be more regularly inserted.

Lastly, I shall conclude with some more serious *Observations*, in reference to the main *Design* and *Project* of this *Discourse*, as it concerns the *Improvement* of the *Royal Forests*, and other *Timber-trees*, for the *Honour*, *Security*, and *Benefit* of the whole *Kingdom*; with an *Historical Account* of *Standing-Groves*, which will be the *Subject* of the next *Books*.



DENDROLOGIA.

BOOK III.

CHAP. I.

Of Coppices.

1. *Sylva Cedua* is (as *Varro* defines it) as well *COPPICE* to cut for *Fuel* as for use of *Timber*; and we have already shewed how it is to be raised, both by *sowing* and *planting*. I shall only here add, that if in their first *Designation*, they be so laid out, as to grow for several *Falls*; they will both prove more *profitable* and more *delightful*: More *profitable*, because of their annual *Succession*; and more *pleasant*, because there will always remain some of them *standing*; and if they be so cast out, as that you leave straight and even *Intervals*, of eighteen or twenty *Foot* for *Grass*, between *Spring-wood* and *Spring-wood*, securely *fenced* and preserved; the *Pastures* will lie both *warm*, and prove of exceeding *Delight* to the *Owner*. These *Spaces* are likewise useful, and necessary for *Cart-way*, to fetch out the *Wood* at every *Fall*. There is not a more noble and worthy *Husbandry*, than is this, which rejects no sort of *Ground* nor *Situation* (though facing the *East* is esteemed best for both *Timber* and *Under-wood*) as we have abundantly shewed; since even the most *boggy* Places, may so be *drain'd* and cast, as to yield their Increase by planting the *drier* Sorts upon the *Ridges* and *Banks* which you cast up, where they will *thrive* exceedingly: And then *Willow*, *Sallow*, *Alder*, *Poplar*, *Sycamore*, *Black-Cherry*, &c. will shoot tolerably well on the lower and more *uliginous*; with this *Caution*, that for the *first two Years* they be kept diligently *weeded* and *cleansed*, which is as necessary as *fencing* and guarding from *Cattle*. Our ordinary *Coppices* are chiefly upon *Hassle*, or the *Birch*; but if amongst the other *Kinds*, store of *Asb* (which I most prefer, a speedy and erect Growth)