

fruit of trees planted to their hands, think much to pull up any, though they pine one another. If you or your heirs or successors would take up some great trees (past setting) where they stand too thick, be sure to do it about *Midsomer*, and leave no main Roots. I destinate the space of four and twenty yards, for trees of age and stature. More then this, you have borders to be made for walks, with Roses, Berries, &c.

And chiefly consider, that your Orchard, for the first twenty or thirty years, will serve you for many Gardens; for Saffron Licoras, Roots, and other herbs for profit, and flowres for pleasure: so that no ground need be wasted if the Gardiner be skillfull and diligent. But be sure you come not neer with such deep delving the Roots of your Trees, whose compasse you may partly discern, by the compass of the tops, if your top be well spread. And under the droppings and shadow of your Trees, be sure no herbs will like. Let this be said for the distance of Trees.

CHAP. IX.

Of the placing of Trees.

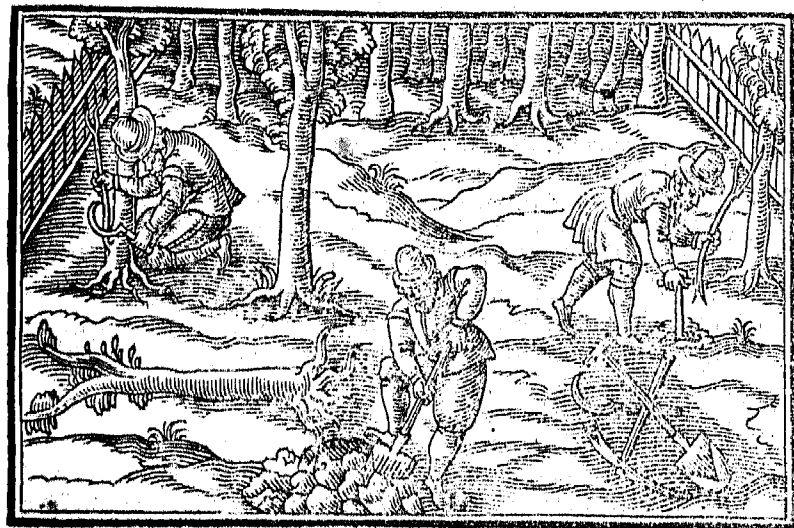
The placing of Trees in an Orchard, is well worth the regard: For although it must be granted, that any of our foresaid Trees (Chap. 2.) will like well in any part of your Orchard, being good and well drest earth; yet are not all Trees alike worthy of a good place. And therefore I wish that your Filbert, Plums, Damsons, Bulles, and such like, be utterly removed from the plain soyl of your Orchard into your fence: for there is not such fertility and easefull growth, as within: and there also they are more subject to, & can abide the blasts of *Aeolus*. The Cherries and Plums being ripe in the hot time of Summer, and the rest standing longer, are not so soon shaken as your better fruit, neither, if they suffer losse, is your losse so great. Besides that, your fences and ditches will devour some of your fruit growing in, or neere your hedges. And seeing the continuance all of these (except Nuts) is small, the care of them ought to be the lesse. And make no doubt, but the fences of a large Orchard will contain a sufficient number of such kind of Fruit Trees in the whole compass. It is not materiall, but at your pleasure, in the said fences, you may either intermingle your

your severall kinds of fruit trees; or set every kind by it selfe, order doth very well become your better and greater fruit. Let therefore your Apples, Pears, and Quinces, possesse the soyl of your Orchard, unlesse you be especially affected to some of your other kinds; and of them, let your greatest trees of growth stand further from Sun, and your Quinces at the South side or end, and your Apples in the middle: so shall none be any hindrance to his fellows. The warden tree, and Winter pear, will challenge the preeminence for stature. Of your Apple-trees, you shall find a difference in growth. A good Pippin will grow large, and a Costard tree: set them on the North side of your other Apples; thus being placed, the least will give Sun to the rest, and the greatest will shroud their fellows. The Fences and out trees will guard all.

CHAP. X.

Of Grafting.

Now are we come to the most curious point of our faculty, curious in conceit, but indeed as plain and easie as or Caring the rest, when it is plainly shewn, which we commonly call Grafting what.



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Grafting what fing or (after some) Grafting, I cannot Etymologize or shew the original of the Word, except it come of Graving or Carving.

A Grasse. But the thing or matter is : The reforming of the fruit of one tree with the fruit of another, by an artificial transplating or transposing of a twigge, bud or leaf, (commonly called a Graft) taken from one tree of the same, or some other kind, and placed or put to, or into another tree in one time and manner.

Kinds of grafting. Of this there be divers kinds, but three or four now especially in use : to wit, Grafting, incising, packing on, grafting in the scutchion, or inoculating ; whereof the chief and most usuall, is called Grafting (by the generall name, *Catexochen* :) for it is the most known, surest, readiest, and plainest way to have store of good fruit.

Graft how. It is thus wrought ; You must with a fine, thin, strong and sharp Saw, made and armed for that purpose, cut off a foot above the ground, or thereabouts, in a plain without a knot, or as near as you can without a knot (for some stocks will bee knotty) your Stock, set, or plant being surely stayed with your foot and legg : or otherwise straight overwhart (for the Stock may be crooked) and then plain his wound smoothly with a sharp knife : that done, cleave him cleanly in the middle with a cleaver, and a knock or mall, and with a wedge of Wood, Iron, or Bone, two handfull long at least, put in the middle of that cleft, with the same knock, make the wound gape a straw breadth wide into which you must put your Grasses.

A graft what. The graft is a top twig taken from some other tree (for it is a folly to put a graft into his own stock) beneath the uppermost (and sometimes in need, the second) knot, and with a sharp knife fitted in the knot (and sometimes out of the knot when need is) with shoulders an inch downward, and so put into the stock with some thrusting (but not straining) bark to bark inward.

Eyes. Let your graft have three or four eyes for readinesse to put forth, and give issue to the sap. It is not amisse to cut off the top of your grassee, and leave it but five or six inches long, because commonly you shall see the tops of long grasses dye. The reason is this. The sap in grafting receives a rebuke, and cannot work so strongly presently,

sently and your grasses receive not sap so readily, as the naturall branches. When your grasses are cleanly and closely put in, & your wedge pulld out nimbly, for fear of putting your grasses out of frame, take well tempered mortar, soundly wrought with chaffe or horse dung, (for the dung of Catel will grow hard, and straine your grasses) the quantity of a Goose egge, and divide it Just, and therewith all cover your stock, laying the one halfe on the one side, and the other halfe on the other side of your grasses, (lest thrusting again your grasses you move them) and let both your hands thrust at once, and alike, and let your clay be tender, to yield easily ; and all, lest you move your grasses. Some use to cover the cleft of the stock, under the clay, with a Piece of barke or lease, some with a sear-cloth of waxe and butter, which as they be not much needfull, so they hurt not, unlesse that by being busie about them, you move your grasses from their places. They use also mosse, tyed on above the clay with some bryar, wicker, or other bands. These profit nothing. They all put the grasses in danger, with pulling and thrusting : for I hold this generall Rule in grafting and planting ; if your stock and grasses take and thrive, (for some will take and not thrive, being tainted by some meanes in the planting or grafting) they will (without doubt) recover their wounds safely and shortly.

General rule. The best time of grafting, from the time of removing your stock is the next Spring, for that saves a second wound, and a second repulse of sap, if your stock be of sufficient bignesse to take a graft from as big as your thumbe, to as big as an arme of a man. You may graffe less, (which I like) and bigger, which I like not so well. The best time of the year is in the last part of February, or March, or beginning of April, when the Sun with his heat begins to make the sap stirre more Rankly about the change of the Moon, before you see any great apparency of lease or flowers, but onely knots and buds, and before they be proud, though it be sooner : Cherries, Peares, Apricocks, Quinces, and Plummes would be gathered and grafted sooner.

The grasses may be gathered sooner in February, or any time within a month, or two before you graffe, or upon the same grasses. day (which I commend) if you get them any time before : for I

Graftes of old trees.

have known graftes gathered in *December* and do well, take heed of drought, I have my self taken a burke not of a Tree, and the same day when he was laid in the earth about mid *February* gathered grafts and put in him, and one of those graftes bore the third year after, and the fourth plentifully; Graftes of old Trees would be gathered sooner then of young Trees, for they sooner break and bud. If you keep graftes in the earth, moisture with the heat of the Sun will make them sprout as fast, as if they were growing on the Tree. And therefore seeing, keeping is dangerous, the surest way (as I judge) is to take them within a week of the time of your grafting.

Where taken.

The grafts would be taken not of the proudest twigs, for it may be your stock is not answerable in strength. And therefore (say I) the grafts brought from South to us in the North, although they take and thrive, (which is somewhat doubtfull, by reason of the difference of the clime and carriage) yet shall they in time fashion themselves to our cold Northern soile, in growth, taste, &c.

Nor of the poorest; for want of strength may make them unready to receive sap, (and who can tell but a poor graft is tainted) nor on the outside of your Tree, for there should your Tree spread, but in the middest: for there you may be sure your Tree is no whit hindered in his growth or form. He will still recover inward, more then you would wish. If your clay clift in Summer with drought, look well in the Chinkes for Emmets and Earwigs, for they are cunning and close theeves, about grafts; you shall find them stirring in the morning and evening, and the rather in the moist weather: I have had many young buds of Grafts, even in the flourishing, eaten with Ants. Let this suffice for grafting, which is in the faculty counted the chiefe secret, and because it is most usuall, it is best known.

Emmits.

Grafts are not to be disliked for growth, till they wither, pine, and die. Usually before *Midsummer* they break, if they live. Some (but few) keeping proud and green, will not put till the second year, so is it to be thought of Sets.

The first shew of putting is no sure signe of growth, it is but the sap the grafte brought with him from his Tree.

So soon as you see the graft put forth growth, take away the clay, for then doth neither the stock nor the graft need it, (put a little

little fresh well tempered clay in the hole of the stock) for the clay is now tender, and rather keeps moisture then drought.

The other waies of changing the naturall fruit of Trees, are more curious then profitable, and therefore I mind not to bestow much labour or time about them; only I shall make known what I have proved, and what I do think.

And first of incising, which is the cutting of the back of the boale, a Rine or branch of a Tree at some bending or knee, shoulderwise with two gashes, onely with a sharp knife to the wood: then take a wedge, the bigness of your graft, sharp ended, flat on the one side, agreeing with the Tree, and round on the other side, and with that being thrust in, raise your bark, then put in your grafte, fashioned like your wedge just: and lastly, cover your wound, and fast it up, and take heed of straining. This will grow but to small purpose, for it is weak hold, and lightly it will be under growth. Thus may you graft betwixt the bark and the Tree of a great stock that will not easily be clifted. But I have tryed a better way for great trees, *viz.* First cut him off straight, and cleanse him with your knife, then cleave him into four quarters equally with a strong cleaver: then take for every clift two or three small, (but hard) wedges, just of the bignesse of your grafts, and with those wedges driven in with a hammer, open the four clifts so wide. (but no wider) that they may take your four grafts with thrusting, not with straining: and lastly, cover and clay it closely, and this is a sure and good way of grafting: or this, clift you stock by his edges twice or thrice with your cleaver, and open him with your wedge in every clift one by one, and put in your graftes and then cover them. This may do well.

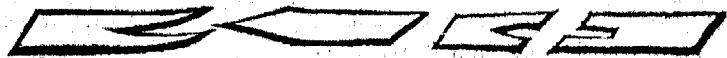
A great stock.

Packing thus.

Packing on, is when you cut aslope a twig of the same bignesse with your graft, either in or besides the knot, two inches long, and make your graft agree jump with the cyon, and gash your graft and your cyon in the middest of the wound, length-way, a straw breadth deep, and thrust the one into the other, wound to wound, sap to sap, barke to barke, then tye them close and clay them. This may do well. The fairest graft I have in my little Orchard, which I have planted, is thus packt on, and the branch whereon I put him, is in his plentifull Root.

To be short in this point, cut your graft in any sort or fashion

two inches long and joyned him cleanly, and close to any other sprig of any Tree in the latter end of the time of grafting, when sap is somewhat rise, and in all probability, they will close and thrive: thus.



The sprig. The graft. The twig. The graft.

Or any other fashion you think good.

Innoculating.

Innoculating is an eye or bud, taken bark and all from one Tree, and placed in the room of another eye or bud of another; cut both of one compass, and their bound. This must be done in Summer, when the sap is proud.

Grafting in Scutchion.

Much like unto this, is that they call grafting in the scutchion, they differ thus: That here you must take an eye with his leaf, or (in mine opinion) a bud with his leaves. (Note that an eye is for a scion, a bud is for flowers and fruit) and place them on an other Tree, in a plain (for they so teach:) the place or bark where you must set it, must be thus cut with a sharp knife, and the bark raised with a wedge, and then the eye or bud put in and so bound up, I cannot deny but such may grow. And your bud if he take will flower, and bear fruit in that year: as some grafts and sets also, being set for bloomes. If these two kinds thrive, they reform but a spray, and an under growth. Thus you may place Roses or Thorns, and Cherries on Apples, and such like. Many write much more of grafting, but to small purpose. Whom we leave to themselves, and their followers, and ending this secret, we come in the next Chapter to a point of knowledge, most requisite in an Arborist, as well for all other woods as for an Orchard.

CHAP. II.

Of the right dressing of Trees.

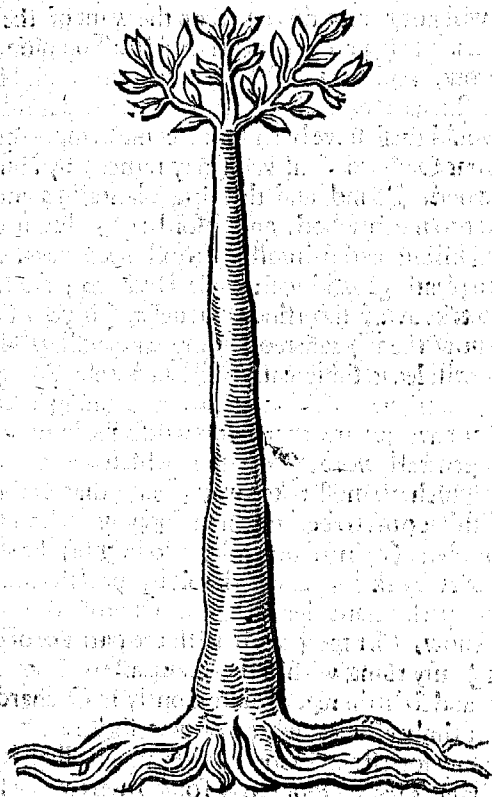
Necessary of dressing trees.

If all these things afore-said were indeed performed, as we have shewed them in words, you should have a perfect Orchard nature and substance, begun to your hand: And yet are all these things nothing, if you want that skill to keep and dress your Trees. Such is the condition of all earthly things, whereby a man receiveth profit or pleasure, that they degenerate presently

ly without good ordering. Man himself left to himselfe, growes from his heavenly and spirituall generation, and becometh beastly, yea, devilish to his own kind, unlesse he be regenerate. No marvell then, if Trees make their shoots, and put their sprays disorderly. And truly, (if I were worthy to judge) there is not a mischief that breedeth greater and more generall harme to all the Orchard, (especially if they be of any continuance) than ever I saw, (I will not except three) then the want of the skilfull dressing of trees. It is a common and unskillfull opinion, and saying, Let all grow, and they will bear more fruit: and if thou lop away superfluous boughs, they say, what a pity is this? how many Apples would these have born? not considering, there may arise hurt to your Orchard, as well (nay rather) by abundance as by want of wood. Sound and thriving plants in a good soile will ever yield too much wood, and disorderly, but never too little. So that a skilfull and painfull Arborist need never want matter to effect a plentiful and well dressed Orchard; for it is an easie matter to take away superfluous boughs, (if your Gardner have skill to know them) whereof your plants will yield abundance, and skill will leave sufficiently well ordered. All ages both by rule and experience do consent to a pruning and lopping of Trees: yet have not any that I know described unto us, (except in dark and generall words) what or which are those superfluous boughs, which we must take away, and that is the chiefe and most needfull point to be known in lopping. And we may well assure our selves, (as in all other Arts, so in this) there is a vantage and dexterity by skill, and an habit by practice out of experience, in the performance hereof, for the profit of mankind; yet do not I know, (let me speak it with the patience of our cunning Arborists) any thing within the compass of human affaires so necessary, and so little regarded, not onely in Orchards, but also in all other timber Trees, where, or whatsoever.

How many forrests and woods wherein you shall have for one Timber wood, lively thriving Tree, four (nay sometimes twenty four) evill evill dressed, thriving, Rotten and dying Trees, even while they live? and in stead of trees, thousands of bushes and shrubs. What rottenness, what hollownesse, what dead armes, withered tops, curtailed trunks, what loads of mosses, drooping boughs? and dying branch-

branches you shall see every where? And those that are like in this sort are in a maner all unprofitable boughs, cankered armes, crooked, little and short boals; what an infinite number of bushes, shrubs, and skrogs of hazels, thornes, and other profitable wood, which might be brought by dressing to become great and goodly trees? Consider now the cause: The lesser wood hath been



The cause of
hurts in woods

Imagine the Root to be spread far wider, spoiled with carelesse, unskillfull, and untimely frowing, and much also of the great wood. The greater trees at the first rising have filled and over-laden themselves with a number of wastfull boughs

boughes and suckers, which have not only drawn the sap from the boale, but also have made it knotty, and themselves and the boale mossie for want of dressing, whereas if in the prime of growth they had been taken away close, all but one top (according to this pattern) and clean by the bulke, the strength of all trees how the sap should have gone to the bulke, and so he would have recovered and covered his knots, and have put forth a faire long and straight body, (as you see) for timber profitable, huge, great of bulke, and of infinite last.

If all Timber Trees were such (will some say) how should we have crooked wood for wheels, &c?

Ans. Dresse all you can, and there will be enough crooked for those uses.

More then this, in most places, they grow so thick, that neither themselves, nor earth, nor any thing under or neer them can thrive, nor Sun, nor Rain, nor Aire can do them; nor any thing neer or under them, any profit or comfort.

I see a number of Hags, where, out of one Root you shall see three or four, (nay more, such is mens unskillfull greedinesse, who desiring many, have none good) pretty Okes or Ashes straight and tall, because the Root at the first shoot gives sap a-maine: but if one onely of them might be suffered to grow, and that well and cleanly pruned, all to his very Top, what a Tree should we have in time? And we see by those Roots continually and plentifully springing, notwithstanding so deadly wounded, what a commodity should arise to the owner, and the Commonwealth, if wood were cherished, and orderly dressed.

The waste boughs closely and skilfully taken away, would give us store of fences and fuel, and the bulk of the Tree in time dressed, would grow of huge length and bignesse. But here (me-thinks) I hear an unskillfull Arborist say, that Trees have their severall forms, even by nature, the Peare, the Holly, the Aspe, &c. grow long in bulk with few and little armes, the Oke by nature broad, and such like. All this I grant, but grant me also, that there is a profitable end and use of every Tree, from which if it decline, (though by nature) yet man by art may, (nay must) correct it. Now other end of Trees, I could never learn, then good Timber; fruit much and good, and pleasure, uses physycall hinder nothing a good form.

Nei-