The Third Book Of Natural Magick

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The Proeme

We have rehearsed concerning different kinds of new living creatures. Now I shall speak of plants, which ravish with admiration the eyes and minds of those that contemplate on them, with their abundant pleasantness, and wonderful elegance. These bring more profit, and by these a natural Philosopher may seem more admirable. For use made with the earth, is more honest and honorable then with other things, and the ground never grows old or barren, but is everywhere naturally rank to receive new seed, and to produce new, and is ever unsatisfied fruitfulness, and brings perpetual increase. And if nature be always admirable, she will seem more wonderful in plants. Copulation was but of one kind, here it is almost infinite, and not only every tree can be Engrafted into every tree, but one tree may be adulterated with them all. Living creatures of diverse kinds were not easily produced. And those that come from other countries were hard to get. Here is no difficulty at all. Grafts are fetched and sent, if need be, to any part of the world. And if diversity of creatures are made in Africa, by their Copulating when they meet at the rivers, that so new creatures are always produced, here in Italy, where the air is always calm, and the climate very indulgent, strange and wild plants find a good harbor, and ground to grow in, which is the mother and nourisher of all, and so fruitful to produce a diversity of new types of plants, that it can hardly be exhausted. And we can better write of them, and know the truth more then others, because we have them still before our eyes, and an opportunity to study their effects. And if our ancestors found many new things, we by adding to theirs, have found many more, and shall produce more excellent things overpassing them, because daily by our art, or by chance, by nature or new experience, new plants are made. Diodorus writes, that the Vine at first was but one, and that was wild, but now by the help of Bacchus alone, from the quality of the ground, the nature of the climate, and the art of planting, it is varied into many kinds, that it were madness to number them up, and not worth our time. Nature brought forth but one kind of Pear tree. Now so many men's names are honored by it, that one is called Decumana, another Dolabelliana, and another is named from Decumius and Dolabella. The same thing is observed in Figs, of Livy and Pompey. Quinces are of many kinds, some called Mariana from Marius, Manliana from Manlius, Appiana Claudiana from Appius Claudius, Cestiana from Cestius. Their varieties have made the authors names immortal. What shall I say of Laurel Cherries, found in Pliny his time? What of Citrons? Which as Athenaues says, were too sharp to eat in the days of Theophrastus, and the ancestors of Plutark and Pliny, but Palladius made them to become sweet. What of the Peach, and Almond-peach nuts, fruits our fore-fathers knew not, yet now are they eaten, being pleasant and admirable? What of Clove-gilliflowers, that the gardeners art has made so dainty and sweet scented? And so of other plants I have everywhere set down in this work? Our Naples abounds so with them, that we would not go forth to see the orchards of the Hesperides, Alcinus, Semiramis, and at Memphis, that were made to hang above ground. But I shall briefly and plainly relate the History.

Chapter I

"How new kinds of Plants may be generated of Putrefaction."

S we have shown before, that new kinds of living creatures may be generated of Putrefaction, so , to

proceed in the same order as we have begun, we will now show that new kinds of plants may grow up of their own accord, without any help of feed or such like. The Ancients, questionless, were of opinion that diverse plants were generated of the earth and water mixed together, and that particular places did yield certain particular plants. We rehearsed the opinion of Diogenes before, who held that plants are generated of water Putrefied in itself, and a little earth tempered therewith. Theophrastus held, that the rain causes much Putrefaction and alteration in the earth, and thereby plants may be nourished, the Sun working upon it with his heating, and with his drying operation. They write also, that the ground when it is stirred, brings forth such kinds of plants always, as are usual in the same place. In the Isle Creta, the ground is of that nature, that if it be stirred anywhere, and no other thing, sown or planted in it, it will of itself bring forth a Cypress Tree. And their tilled lands, those that are somewhat moist, when they lie fallow, bring forth Thistles. So the Herb Laser in Africa, is generated of a kind of pitchy or clammy rain and thick dirt. And the Herb will show itself out of the earth presently after the rain is fallen. Pliny said, that the waters which fall from above, are the cause of every thing that grows upon the earth, nature showing therein her admirable work and power. And many such things they report, which we have spoken of in the books of the knowledge of plants. And I myself have often experienced, that ground dug out from under the lowest foundations of certain houses, and the bottom of some pits, and laid open in some small vessel to the force of the Sun, and watered them often with a little sprinkling, and found thereby, that a fine light earth would bring forth Herbs that had Slight stalks like a Rush, and leaves full of fine little ranges, and likewise that a rough and stiff earth full of holes, would bring forth a slight Herb, hard as wood, and full of crevices. In like manner, if I took of the earth that had been dug out of the thick woods, or out of moist places, or out of the holes that are in hollow Stones, it would bring forth Herbs that had smooth bluish stalks, and leaves full of juice and substance, such as Penny-wort, Purslane, Senegreek, and Stone-crop. We made trial also of some kinds of earth that had been far fetched, such as they had used for the Ballast of their ships, and we found such Herbs generated thereof, as we knew not what they were. Nay further also, even out of very roots and barks of trees, and rotten seeds, pounded and buried, and there Macerated with water, we have brought forth in a manner the very same Herbs, as out of an Oaken root, the Herb Polypody, and Oak-fern, and Splenewort, or a least such Herbs as did resemble those, both in making and in properties. What should I here rehearse, how many kinds of Toadstools and Puffs we have produced? Yes, of every several mixture of Putrefied things, so many several kinds have been generated. All which I would here have set down, if I could have reduced them into any method, or else if such plants had been produced, as I intended. But those come that were never sought for. But happily I shall hereafter, if God will, write of these things, for the delight, and speculation, and profit of the more curious sort. Which I have neither time nor leisure now to mention, seeing this work is rustled up in haste. But let us see,

"How Toadstools may be generated."

Dioscorides, and others have written, that the bark of a White Poplar tree, and of a black, being cut into small pieces, and sowed in dug lands or furrows, will at all times of the year bring forth Mushrooms, or Toadstools that are good to be eaten. And in another place he says, that they are more particularly generated in those places, where there lies some old rusty Iron, or some rotten cloth. But such as grow near to a Serpent's hole, or any noisome plants, are very hurtful. But Tarentinus speaks of this matter more precisely. If, says he, you cut the stock of a Black Poplar piecemeal into the earth, and pour upon it some Leaven that has been steeped in water, there will soon grow up some Poplar Toadstools. He adds further, if an upland or hilly field that has in it much stubble and many stalks of Corn, be set on fire at such time as there is a rain brewing in the clouds, then the rain falling, will cause many Toadstools there to spring up of their own accord. But if, after the field is thus set on fire, happily the rain which the clouds before threatened does not fall, then, if

you rake a thin Linen cloth, and let the water drop through by little and little like rain, upon some part of the field, where the fire has been, there will grow Toadstools, but not so good as otherwise they would be, if they had been nourished with a shower of rain. Next we will show,

"How Sperage may be generated."

Dydimus, writes, that if any man would have good store of Sperage to grow, he must take the Horns of wild Ram, and beat them into very small powder, and sow them in eared ground, and water it, and he shall have his intent. There is one that reports a more strange matter, that if you take whole Ram Horn not pounded into small pieces, but only cut a little, and make a hole in them, and so set them, they will bring forth Sperage. Pliny is of Dydimus opinion, that if the Horns be pounded and dug into the earth, they will yield Sperage, though Dioscorides thinks it to be impossible. And though I have made often trial hereof, but could not find it so to be, yet my friends have told me of their own experience, that the same tender seed that is contained within the Ram Horn, has produced Sperage. The same my friends also have reported,

"That Ivy grows out of the Harts Horn,"

and Aristotle writes of an Husbandman that found such an experiment, though for my own part I never tried it. But Theophrastus writes, that there was Ivy found growing in the Hart's Horn, whereas it is impossible to think how any Ivy seed could get in there. And whereas some allege, that the Hart might have rubbed his Horn against some Ivy roots, and so some part of the Horn being soft and ready to Putrify, did receive into it some part of the root, and by this means it might there grow, this proposition carries no show of probability or credit with it. But if these things be true, as I can say or see nothing to the contrary, then surely no man will deny but that diverse kinds of plants may be generated of divers kinds of living creatures Horns. In like manner, may plants be generated of the Putrefied barks and boughs of old trees. For so is,

"Polypody, and the Herb Hyphear generated;"

for both these, and diverse other plants also do grow up in the Fir trees and Pine trees, and such other. For in many trees, near to the bark, there is a certain Phlegmatic or moist Humor, that is found to Putrify, which, when it abounds too much within, breaks forth into the outward show of the boughs and the stock of the tree, and there it meets with the Putrefied Humor of the bark, and the heat of the Sun working upon it there, quickly turns it into such kinds of Herbs.

Chapter II

"How Plants are changed, one of them Degenerating into the form of the other."

To work miracles, is nothing else (as I suppose) but to turn one thing into another, or to effect those things which are contrary to the ordinary course of nature. It may be done by negligence, or by cunning handling and dressing them, that plants may forsake their own natural kind, and be quite turned into another kind, wholly Degenerating, both in taste, and color, and size and fashion. And this I say may easily be done, either if you neglect to dress or handle them according to their kind, or else dress them more carefully and artificially then their own kind requires. Furthermore, every plant

has his proper manner, and peculiar kind of sowing or planting, for some must be sowed by seed, others planted by the whole stem, others set by some root, others Grafted by some Sprig or branch. So that if that which should be sowed by seed, that which comes up will be of a diverse kind from that which grows usually, if it be planted according to its own nature, as Theophrastus writes. Likewise if you shall change their place, their air, their ground, and such like, you pervert their kind, and you shall find that the young growing plant will resemble another kind, both in color and fashion, all which are clear cases by the books of Husbandry. Some examples we will here rehearse. If you would change,

"A White Vine into a Black, or a Black into a White,"

Sow the seed of a White Garden Vine, and that which comes of it, will be a Black Wild Vine, and so the seed of a Black Garden Vine will bring forth a White Garden Vine, as Theophrastus teaches. The reason is, because a Vine is not sowed by seed, but the natural planting of it is by Sprigs and roots. Wherefore if you deal with it otherwise then the kind requires, that which comes of it must needs be unkindly. By the like means,

"A White Fig tree may Degenerate into a Black,"

for the Stone of a Fig, if it be set, never brings forth any other but a wild or a wood Fig tree, and such as most commonly is of a quite contrary color, so that of a white Fig tree it Degenerates into a black, and contrariwise a black Fig tree Degenerates into a white. Sometimes also, of a right and noble Vine is generated a Bastard Vine, and that so different in kind often, that is has nothing of the right garden Vine, but all nearly wild. In like manner also are changed,

"The Red Myrtle and the Red Bay tree into Black,"

and cannot choose but loose their color. For these likewise Degenerate, as the same Theophrastus reports to have seen in Antandrus, for the Myrtle is not sown by seed, but planted by a Grafting, and the Bay tree is planted by a setting a little Sprig thereof that has in some part of the root, as we have shown in our discourse of Husbandry. So also are,

"Sweet Almonds and Sweet Pomegranates changed into sour ones."

for the Stones or Kernels of the Pomegranates are changed from their right blue, into a baser color, and the Pomegranate itself, though it be never so good, Degenerates into a hard, and commonly a sharp fruit. The Almond Degenerates likewise both in taste, and also in feeling, for of a soft one comes a harder. Therefore we are counseled to Grafting him when he is prettily well grown, or else to change him and shift him off. An Oak likewise will become worse. And therefore whereas the best grows in Cyprus, and many have planted the same elsewhere, yet they could never produce the like of that. In like manner, of the Kernel of the natural Olive comes a wild Olive, (and that they say that the male Cypress tree for the most part Degenerates into a female,) and in the process of time there is such a change, that it agrees in nothing with the natural Olive, but is so stark wild, that sometimes it cannot bring forth fruit to any perfection. Varro says that,

"Coleworts are changed into Rape, and Rape into Coleworts ."

Old seed is of so great force in some things, that it quite changes the nature, for the old seed of Coleworts being sown, brings forth Rape, and contrariwise, old Rape-seed Degenerates into Coleworts , by labor also and dressing,

"The Corn Typha, and Spelt, are changed into Wheat, and Wheat into them,"

for this may be done, if you take them being of a thorough ripeness, and Knead them, and then plant them, but this will not so prove the first nor the second year, but you must expect the proof of it in the third year, as Theophrastus shows. Pliny writes, that the Corn Siligo is changed into Wheat the second year. So all seeds, either by reason that they are neglected, or because there is some indisposition either in the earth, or the air where they are, do often Degenerate from the excellency and goodness of their kind, and become worse. Virgil has observed it. I have seen, says he, the best and choicest things that were most made of, at length yet to Degenerate, unless mans industry did yearly supply them with his help. So fatal it is for all things to wax worse and worse, and still to have need to be renewed. Galen's father, a man very studious of Husbandry, especially in his old age, bestowed great pains and diligence to find out, whether the annoyances of fruits, that which mars their pure goodness, did spring up of itself, or arise out of any seeds of the fruits themselves, which did Degenerate into other kinds. Wherefore he took the purest and the cleanest Wheat and Barley that he could get, and having picked out all other seed whatsoever, sowed them in the ground. And when he found much Tares growing in the Wheat, but very little in the Barley, he put the same experiment in other grain practice, and at last found in Pulse a hard and round Fetch, and moreover, that the Herb Axesceed did grow among Pulse , by a kind of Degeneration of the Pulse into Axesceed. So, unless it be prevented by skill and pains,

"The Herb Ballamint will turn into a Mint,"

Wherefore it must be often shifted and translated from place to place, left it so Degenerate, as Theophrastus counsels, for when a man does not look to it and dress it, the roots thereof will grow very large, and thereby the upper part being weakened, losses the rankness of his favor, and that being lost, there remains in it but a weak smell, the very same in manner that is in a common Mint. I myself have sowed Mint seed, and it has been changed into wild Pennyroyal, I mean, in favor only. For the fashion of the Mint remained still in it. Martial writes, that,

"Basil-royal Degenerates into wild Betony,"

if it be laid open to the Sun's hottest and greatest force. For then it will bring forth sometimes purple flowers, sometimes white, and sometimes of a rosy color. And it will not only Degenerate into Betony, but into Ballamint also. Likewise the boughs of the shrub Casia, as Galen reports, will Degenerate into Cinnamon. Likewise,

"Cloves, Roses, Violets, and Gilli-flowers, of purple, will become white,"

either by reason that they are old, or else if they be not well looked unto. For Theophrastus records, that Violets, Roses, and Gilli-flowers, if they be not well heeded, in three years will wax white, and the experience thereof I myself have plainly seen. Neither yet will plants Degenerate one into another, only in such case as where there is kind of vicinity and likeness of nature, but also where there is not such vicinity, one plant may be changed into another of a quite different kind. For,

"An Oak may be changed into a Vine."

Albertus reports, (if the thing be as true as it is strange, but let the truth thereof lie upon his credit) he reports, I say, that Oak or Beech boughs being Grafted into the Tree Myrica, is quite changed into it, and so into the tree called Tremisca, which is a baser kind of wood. And likewise if Oak boughs be

set in the ground of Allummun, a place so called, they will be quite altered into right Vines, such as their Grapes yield good Wine, and sometimes the old Oaks, if they be pared, Degenerate into Vines. But we must not think that this change is made while those trees or boughs last, but when once they are Putrefied, and the nature of the ground works into them, and changes them into Vines.

Chapter III

"How to make one Fruit Compounded of many."

As we heard before of diverse living creatures, that they might be mingled into one, by Copulation, so now we will show also how to contrive diverse kinds of fruits, by Grafting into one fruit. For Grafting is in plants the same that Copulation is in living creatures. Yet I deny it not, but there are other means whereby this may be effected, as well as by Grafting. But above all other, Grafting is most praiseworthy, as being the best and fittest means to incorporate one fruit into another, and so of many to make one, after a wonderful manner. And whereas it may be thought a very toilsome, and indeed impossible matter, here the excellent effect of the work must sweeten all thy labor, and thy painful diligence will take away the supposed impossibility of the thing, and perform that which a man would think were not possible to be done. Neither must thou suffer thyself to be discouraged herein by the sayings of rude Husbandman which have attempted this thing, but for want of skill could not perform it, seeing experience teaches you that it has been done. Wherefore against such discouragement's, you must arm yourself with a due consideration of such experiments as the Ancients have recorded. As for example, that the Fig tree may be incorporated into the Plane tree, and the Mulberry tree, and likewise the Mulberry tree into the Chestnut tree, the Turpentine tree, and the White Poplar, whereby you my procure White Mulberries, and likewise the Chestnut tree into a Hazel, and an Oak, and likewise the Pomegranate tree into all trees, for that it is like to a common Whore, ready and willing for all comers, and likewise the Cherry tree into a Turpentine tree. And to conclude, that every tree may be mutually incorporated into each other, as Columella supposes. And this is the cause of every composition of many fruits into one, of every adopted fruit which is not the natural child, as it were, of the tree that bore it. And this is the cause of all strange and new kinds of fruits that grow. Virgil makes mention of such a matter, when he says, that Dido admired certain trees which she saw, that bare new kinds of leaves, and Apples that naturally were not their own. And Palladius says, that trees are joined together as it were, by carnal Copulation, to the end that the fruit thereof might contain in it, all the excellencies of both the parents. And the same trees were garnished with two sorts of leaves, and nourished with two sorts of juices, and the fruit had a double Relish, according to both the kinds whence it was Compounded. But now, as we did in our tract of the Commixtion of diverse kinds of living creatures, so here also it is met to prescribe certain rules, whereby we may cause those diverse plants which we would intermingle, to join more easily, and to agree better together, for the producing of new and Compounded fruits. First therefore, we must see that either of the trees have their bark of one and the same nature. And both of them must have the same time of growing and shooting out of their Sprigs, as was required in living creatures, that both of them should have the same time of breeding their young ones. For if the Graft has a dry or hard bark, and the stock has a moist or soft bark, or that they be in anyway contrary to each other, we shall labor in vain. Then we must see that the Grafting be made in the purest and soundest place of the stock, so that it neither has any Tumors or knobs, or any scars, neither yet has been Grafted. Again, it is very material, that the young Grafts or shoots be brought from the most convenient place or part of the trees, namely, from those boughs that grow toward the east, where the Sun is want to

rise in the summer time. Again, they must be of a fruitful kind, and be taken off from young plants, such as never bore fruit before. They must also be taken in their prime, when they are beginning first to bud, and such as are of two years growth, and likely to bear fruit in their second year. And the stocks into which they are to be Grafted, must likewise be as young as may be Grafted into, for if they be old, their hardness will scarce give any entertainment to strange shoots to be planted upon them. And many such observations must be diligently looked into, as we have shown in our books of Husbandry. But we must not here omit to speak of the Loam, or that clammy Mortar, which makes

"The Graft and the Stock to close more easily together."

for it is very helpful to glue or fasten the skins of both the barks one into the other. And if the barks be of a diverse nature, yet by this Loam they may be so bound into one, that they will easily grow together. And surely it is commodious in many respects. First, because, as in mans body, the flesh being wounded or pierced into, is soon closed up again with stiff and clammy plasters, applied on them; so the bark or the boughs of trees being cut or rent, will close together again very speedily, by the applying of this Mortar. For if you pull the bark off from a tree, or slip off a little Sprig from a bough, unless you close it up so cunningly, that it may stick as fitly every way in the Grafting as while it grew, it will soon wither, and fade, and lose the natural juice and moisture, which inconvenience this Loam will prevent, and fit them one into another. Moreover, if there be any open chink between the bark and the tree, presently the air will get in, and will not suffer them to close, therefore to make it sure that they may close without fail, this Loam is needed. And whereas there are some trees which cannot away to be harbored in any of another kind, this Loam will knit them so strongly into the stock, that they cannot but bud and blossom. But here we must observe, that this Glue or Mortar must be as near of the nature of the thing Grafted as may be, for then it will perform this duty more kindly. If you be diligent herein, you may do many matters. We will give you a taste of some, that by these you may learn to do the like. Pull off the bark of Holly, and make a pit in some moist ground, and there bury your Holly Vines, and let them there Putrify, which will be done in twelve days. then take them forth, and stamp them till you see they are become a clammy slime. This is also made of the fruit Sebesten in Syria, and likewise it may be made of ordinary Birdlime. But the best of all is made of the Rinds of Elm roots stamped together, for this has a special quality, both to fasten and also to cherish. But let us return to Grafting, which is of such great force, that it has caused a new kind of a Bastard fruit that was never heard of before, namely

"An Apple Compounded of a Peach-apple, and a Nut-peach,"

which kind of Compound generation, was never seen, nor heard of, nor yet thought upon by the ancient. This is to be done by a kind of Grafting which they call Emplastering. Take off two young fruitful Sprigs, one form a Peach-apple Tree, and the other from the Nut-peach Tree, but they must be well grown, and such as are ready to bud forth. Then pare off the bark of them about two fingers breadth in compass, so that the bud to be Grafted may stand fitly in the midst between them both, but you must do it quickly, lest you perish the wood. Then cleave them through the middle a little way, that they may be let one into another, and yet the cleft not seen, but covered with the bud. Then take off a bud, and set it into the midst of the boughs which we spoke of before, and so Graft them together into the other tree, having first cut out a round fit place for them therein. They must be Grafted in that part of the tree, which is most neat and fresh-colored, the Sprigs that grow about that place must be cut off, lest they draw the nourishment from the Graft, which requires it all for itself. And when you have so done, bind it about gently, that you hurt it not, and cover it with something, so the rain does not fall down upon it, but especially take heed to the cleft, and place where you pulled off the bark, that you plaster it up well with Mortar. Thus if you do, the Graft will very kindly prosper, and the bud grow forth into a fruit that is Compounded of both kinds, and it shall carry the

hue both of the Peach-apple and the Nut-peach by equal proportion, such as was never seen before. By this means also we may procure the bring forth

"of a Fig half white and half black,"

for if we take the buds of each of them, paring them off together with the bark round about them, and then cut them in the middle, and put the half of one, and the half of the other together, and so Emplaister them into the tree, as we spoke of before, the fruit thereof will be a Fig half white and half black. So also,

"Pomegranates may be brought forth, which will be sweet on the one side, and sour on the other,"

If you take either the shoots or the buds of each of them, and after you have divided them in the middle, put the half of each together, as before was spoken. But this may be done best upon the shoots or Sprigs, for the bud can hardly be pared off, nor well divided, because the bark is so weak, and so thin, and slender, that it will not endure to be much or long handled. Likewise,

"Oranges Compounded of divers kinds, and such as are half Lemons , as also lemons half sweet, and half sour, may be produced,"

if we mix them after the same manner as we spoke before, for these are very fit to be Grafted by Emplastering, and these kinds of Compound Oranges and Lemons are very commonly to be seen in many orchards in Naples. In like manner we may mingle and Compound,

"A Peach of the white and the Red Peach,"

if we put those two kinds together, by such Emplastering. For there are of this Compound fruit to be found in Naples at this day. Likewise we may procure,

"A Grape that has a Kernel or Stone half black, and diversely colored,"

We must deal by the shoots of Vines, as we showed before was to be done by the buds of other trees, cleave them in the middle, and bind two shoots or more of diverse sorts of Vines handsomely together, that they may grow up in one, and Graft them into a fruitful Vine of some other kind. And the same which we have shown concerning fruits, may be as well practiced also upon flowers. As for example, If we would produce,

"Roses that are half white and half red,"

we must take the Sprigs of a white Rose, and of a red, and pare off the buds of each of them, and having cut them asunder in the middle, put the halves of each together, as we spoke of before, and Graft them artificially into the bark, and then have a diligent care still to cherish them, the Compound bud will in due season bring forth Roses which will be white of the one side and red of the other. But if you would make trial hereof of Clove-gilli-flowers, and desire,

"To produce some that are half red,"

seeing they have no buds at all, you must practice this experiment upon their root. You must take two roots of them, and cleave them in the middle, and match them fitly together, that they may grow each to other, and bind them up well, and then will they yield Compound Clove-gilli-flowers. Of

which kind we have great store, and they are common among us everywhere, and they do not only bring forth party-colored flowers, but the same bough, and one and the same Sprig, will bear white ones and red ones, and such as are wrought and as it were embroidered with diverse goodly colors, most pleasant to be seen.

Chapter IV

"Of a second means whereby fruits may be mingled and Compounded together"

There is also a second way of compounding diverse kinds of fruits together, namely, by another manner of Grafting. As for example, if we would produce,

"Pomegranates Compounded of diverse kinds,"

Theophrastus shows us how to do it. We must take the young slips or branches of divers kinds, and bruise them with a Beetle, so that they may stick and hang together, and then bind them up very hard each to other, and set them in the ground. And if they be well laid together, all those slips will grow up jointly into one tree, but so, that every one of them retains his own kind, and receives his several nourishment from itself, and severally digests it. And the chief community which they have all together, is their mutual embracing each of other. The same Theophrastus teaches us in the same place,

"How one and the same Vine branch may bring forth a black and a white Grape both together, and how in the same Grape may be found a white and black Stone hanging together."

Take the branch of a white Vine, and another of the black, and the uppermost half of either of them must be bruised together, then you must match them equally and bind them up together, and plant them. For by this means they will grow up both into one joint, for every living thing may be matched with another, especially where one is of the same or the like kind with the other. For then if they be dissolved, as these are in some sort when they are bruised, their natures will easily close together, and be compact into one nature. But yet either of these branches has his several nourishment by itself, without confusion of both together, whereby it comes to pass, that the fruit arising from them is of a diverse nature, according as either of the Sprigs requires. Neither ought this to seem strange, that both of them concurring into one, should yet retain each of them their several kind, seeing the like hereof may be found in certain rivers which meet together by confluence into one and the same channel, and yet either of them keeps his own several course and passage, as do the rivers Cephisus and Melas in Boeotia. Columella teaches us to do this thing on this manner. There is, says he, a kind of Grafting, whereby such kind of Grapes are produced, as have Stones of diverse kinds, and sundry colors, which is to be done by this means. Take four or five, or more (if you will) Vine branches of diverse kinds, and mingle them together by equal proportion, and so bind them up. Afterward put them into an earthen pipe or a horn fast together, but so, that there may be some parts of them seen standing out a both ends, and those parts so standing forth, must be dissolved or bruised. And when you have so done, put them into a trench in the ground, covering them with Muck, and watering them till they begin to bud. And when the buds are grown fast together, after two or three years, when they are all knit and closed into one, then break the pipe, and near about the middle of the stalk beneath the sprouts, there where they seem to have most grown together, cut

off the Vine, and heal that part where it is so cut, and then lay it under the ground again about three fingers deep. And when that stalk shall shoot up into Sprigs, take two of the best of them, and cherish them and plant them into the ground, casting away all the other branches, and by this means you shall have such kinds of Grapes as you desire. This very same experiment does Pliny set down, borrowing it from Columella. But Didymus prescribes it in this manner. Take two Vine branches of diverse kinds, and cleave them in the middle, but with such heedful regard, that the cleft go as far as the bud is, and none of the Pith or juice be lost, then put them each to other, and close them together, so that the bud of either of them meet right one with the other. And as much as possibly may be, let them touch together, whereby both those buds may become as one. Then bind up the branches with paper as hard together as you can, and cover them over with the Sea-onion, or else with some very stiff clammy earth, and so plant them, and water them after four or five days, so long till they shoot forth into a perfect bud. If you would produce,

"A Fig, that is half white and half red,"

Leontinus teaches you to do it after this manner. Take two shoots of diverse kinds of Fig trees, but you must see that both the shoots be of the same age, and the same growth as near as you can. Then lay them in a trench, and put Dung on them, and water them. And after they begin to bud, you must rake the buds of each, and bind them up together, so that they may grow up into one stalk. And about two years after, take them up, and plant them into another stock, and thereby you shall have Figs of two colors. So then by this means,

"All fruits may be made to be party-colored,"

and that not only of two, but of many colors, accordingly as many kinds of fruits may be Compounded together. And surely these experiments are very true, though they be somewhat hard to be done, and require a long times practice, as I myself have had experience. The like experiment to these is recorded by Palladius, and by other Greek writers, who show the way,

"How a Vine may bring forth clusters of Grapes that are white, but the Stones of the Grapes black."

If white and black Vines grow near together, you must shred the branches of each, and presently clap them together so, that the bud of either may meet right together, and so become one. Then bind them up hard in paper, and cover them with soft and moist earth, and so let them lie three days or thereabouts. After that , see that they be well and fitly matched together, and then let them lie till a new bud come forth of a fresh Head. And by this means you shall procure in time, diverse kinds of Grapes, according to the diverse branches you put together. I myself have cleft or cut them off in that place where the buds were shooting forth, leaving the third part of the bud upon the branch, I fastened them together, and bound them up into one very fast, left when the buds should wax greater, one of them might fly off from the other. I fitted them so well, branch with branch, and bud with bud, that they made but one stalk, and the very same year they brought forth Grapes that had cloven Kernels or Stones. This shoot so springing up, I put to another, and when that was so sprung up, I put that also to another, and by this continual fitting of diverse springs one to another, I produced clusters of diverse-colored and diverse-natured Grapes. For one and the same Grape was sweet and unsavory, and the Stones were some long, some round, some crooked, but all of them were of diverse colors. Pontanus has elegantly shown ,

"How Citron-trees may bear diverse kinds,"

namely, by joining two sundry boughs together, after the bark has been pared away, and fastening

each to other with a kind of glue, that they may grow up one as fast as the other, and when they are Grafted into one stock, they must be very carefully covered and looked unto, and so one and the same branch will bring forth fruit of diverse kinds. So you may procure,

"An Orange Tree to bring forth an Apple half sweet and half sour."

And this kind of commixtion was invented by chance, for there were Grafted two boughs of Orange trees, one brought forth a sweet, and the other a sharp fruit. When occasion served to transplant and remove the tree, it was cut off in the middle, according as husbandmen are found to do when they plant such trees after they are grown old, and by great chance, it was cut off there were the two boughs had been before Grafted. And so when the stock budded afresh, there arose one bud out of the sharp and sweet branches both together as they were left in the stock, and this one bud brought forth apples or fruit of both Relishes. Wherefore no question but such a thing may be effected by art, as well as it was by chance, if any man have a mind to produce such kind of fruits.

Chapter V

"Of a third way, whereby diverse kinds of fruits may be Compounded together."

We will also set down a third way, whereby we may mingle and Compound diverse kinds of fruits together. A way which has been delivered unto us by the Ancients, though for my own part I think it to be not only a very hard, but even an impossible matter. Notwithstanding, because grave ancient writers have set it down, I cannot scorn here to rehearse it. And though I have put it in practice, but to no purpose, for it has not so fallen out as they write, yet I will not discourage any man that has a mind to make trial hereof, for it may be that fortune will second their endeavors better then she did mine. The way is this, to gather many seeds of sundry trees and fruits, and wrapping them up together, so to sow them. And when they are grown up into stalks, to bind all the stalks together, that they may not lie asunder, but rather grow up all into one tree, and this tree will bring forth diverse kinds of fruits, yes and one and the same fruit will be mingled and Compounded of many. It should seem that the authors of this experiment, learned it first out of Theophrastus, who writes, that, if you sow two diverse seeds near together within a hands breadth, and then sow two other diverse seeds a little above them, the roots which will come of all these seeds will lovingly embrace and wind about each other, and so grow up into one stalk, and be incorporated one into another. But special care must be had how the seeds be placed, for they must be set with the little end upward, because the bud comes not out of the low and hollow parts, but out of the highest, and there are four seeds required, because so many will easily and fitly close together. A matter, which if it were true, it might be a very ready means which would produce exceeding many and wonderful experiments, By such a means,

"Berries that are party-colored may be produced."

If you take a great many berries, white, and black, and red, one amongst another, and sow them in the earth together, and when they are shot up, bind all their stalks into one, they will grow together, and yield party colored berries. Pliny writes, that this way was devised from the birds. Nature, says he, has taught how to Graft with a seed. For hungry birds have devoured seeds, and having moistened and warmed them in their bellies, a little after have Dunged in the forky twists of trees, and

together with their Dung excluded the seed whole which erst they had swallowed. And sometimes it brings forth there where they Dung it, and sometimes the wind carries it away into some chinks of the barks of trees, and there it brings froth. This is the reason why many times we see a Cherry tree growing in a Willow, A Plane tree in a Bay tree, and a Bay in a Cherry tree, and withal, that the berries of them have been party-colored. They write also, that the Jackdaw hiding certain seeds in some secret chinks or holes, did give occasion of this invention. By the selfsame means we may produce,

"A Fig that is partly white and partly red."

.Leontinus attempts the doing of this, by taking the Kernels or Stones that are in a Fig somewhat inclinable to this variety, and wrapping them up together in a Linen cloth, and then sowing them, and when need requires, removing them into another place. If we would have,

"An Orange or Citron Tree bear diverse Apples of diverse Relishes,"

Pontanus, our country-man, in his work of gardening, has elegantly taught us how to do it. We must take sundry seeds of them, and put them into a pitcher, and by this means they will grow up into one stock, and shroud themselves all under one bark. But you must take heed that the wind does not come at them to blow them asunder, but cover them over with some wax, that they may stick fast together, and let them be well plastered with Mortar about the bark. And so shall you gather from them in time very strange Apples of sundry Relishes. Likewise we may procure,

"A Damosin, and an Orange or Lemon to be mixed together."

In our books of Husbandry, we have shown at large, but many reasons alleged to and fro, that sundry seeds could not possibly grow into one, but all that is written in favor of this practice, is utterly false, and altogether impossible. But this experiment we ourselves have proved, whereby diverse kinds of Damosins are mixed together. While the Damosin trees were very tender and dainty, we fastened two of them together, which were planted near to each other, as sailors plat and tie their cables. But first we pared off the bark to the inmost skin, in that place where they should touch each other, that so one living thing might the more easily grow to the other. Then we bound them up gently with thin lifts, made of the inner bark of elm, or such like stuff that is soft and pliable fur such a purpose, lest they should be parted and grow asunder, and if any part of them were so limber that it would not stick fast, we wedged it in with splints, yet not too hard, for fear of spoiling it. Then we rid away the earth from the upper roots, and covered them with Muck, and watered them often, that by this cherishing and tilling on, they might grow up the better. And thus after a few years that they were grown together into one tree, we cut off the tops of them about that place where they most seemed to be knot together, and about those tops there sprung up many buds, whereof, and the rest we cut away, and by this means we produced such kind of fruit as we speak of, very goodly, and much commended. And concerning lemons, I have seen some in the noblemen gardens of Naples, which, partly by continual watering at seasonable times, and partly by reason of the tenderness and the rankness of the boughs, did so cling and grow together, that they became one tree, and this one tree brought forth fruit Compounded of either kind. We may also conveniently cherish up with continual watering, and perform other services towards them which are necessary for their growth. And as it may be done by lemons, so we have seen the same experiment practiced upon mulberry trees, which growing in moist and shadowed places, as soon as their boughs closed one with another, presently they grew into one, and brought forth berries of sundry colors. If we would procure that,

"A Lettuce should grow, having in it Parsley, and Rotchet, and Basil-gentle,"

or any such like commixtion, we must take the Dung of a Sheep or a Goat, and though it be but a small substance, yet you must make a shift to bore the Truttle through the middle, and as well as you can, get out the inmost Pith, and instead hereof put into it those seeds which you desire to have mingled together, packing them in as hard as the Truttle will bear it. And when you have so done, lay it in the ground about two handful deep, with Dung and hollow near, both under it, and round about it, then cover it with a little thin earth, and water it a little and a little, and when the seeds also are sprung forth, you must still apply them with water and Dung, and after they are grown up into a stalk, you must be more diligent about them, and by this means at length there will arise a lettuce, mixed and Compounded with all those seeds. Palladius prescribes the same more precisely. If you take, says he, a Truttle of Goats Dung , and bore it through, and make it hollow cunningly with a Bodkin, and then fill it up with the seed of Lettuce, Cresses, Basil, Rotchet, and Radish, and when you have so done, lap them up in more of the same Dung, and bury them in a little trench of such ground as is fruitful and well manured for such a purpose, the Radish will grow downward into a root, the other sees will grow upward into a stalk, and the Lettuce will contain them all, yielding the several Relish of every one of them. Others effect this experiment on this manner. They pluck off the Lettuce leaves that grow next to the root, and make holes in the thickest substance and veins thereof, one hole being a reasonable distance from the other, where they then put in the before mentioned seeds, all but the Radish seed, and cover them about with Dung, and then lay them under the ground, whereby the lettuce grows up, guarded by the stalks of so many Herbs as there were seeds put into the leaves. If you would procure,

"Party-colored flowers to grow,"

you may effect it by the same ground and principle. You must take the seeds of diverse kinds of flowers, and when you have bound them up in a Linen cloth, set them in the ground, and by the commixtion of those seeds together, you shall have flowers that are party-colored. By this means, it is thought that Daisies of diverse kinds were first brought forth, such as are to be seen with golden leaves, reddish about the edge, nay, some of them are so meddled with diverse colors, that they resemble little shreds of silk patched together.

Chapter VI

"How a double fruit may be made, whereof the one is contained within the other."

There is also another way of composition, whereby fruits may be so meddled together, not as we have shown before, that one part of it should be of one fruit, and the other part of another kind, nor yet that one and the same bough shall at once bear two or three kinds of fruits, but that one and the same fruit shall be double, containing in itself two kinds, as if they were but one, whereof I myself have first made trial. But let us see how the Ancients have effected this. And first,

"How to make an Olive-Grape."

Diophanes shows that the Olive being Grafting into the Vine, brings forth a fruit called Elaeo-staphylon, that is to say, an Olive-grape. But Florentinus in the eleventh book of his Georgicks, has shown the manner how to Graft the Olive into a Vine, that so it shall bring forth not

only bunches or clusters of Grapes, but an Olive fruit also. We must bore a hole through the Vine near to the ground, and put into it the branch of an Olive tree, that so it may draw and receive both from the Vine, sweetness, and also from the ground, natural juice and moisture, whereby it may be nourished. For so will the fruit taste pleasant. And moreover, if, while the Vine has not yet born fruit, you take the fruitful spring thereof, and plant them elsewhere, these Sprigs will retain the mixture and composition of the Vine and the Olive tree together, and bring forth one fruit that shall have in it both kinds, which therefore is called by a name Compounded of both their names, Elaeo-staphylon, and Olive-grape. He reports that he say such a tree in the orchard of Marius Maximus, and tasting the fruit thereof, he thought with himself that he felt the Relish of an Olive berry and a Grape Kernel both together. He writes also that such plants grow in Africa, and are there called by a proper name in the country language Ubolima. But we must set props under them, to bear up the weight and burden of the boughs. Though if we Graft them any other way but this, we shall need no poles at all. I suppose also that by this self-same means it may be effected,

"That a Grape should have Myrtle in it."

Tarentinus writes, that the Vine may be Grafting into the Myrtle tree, and the Vine branches thereon Grafted, will bring forth Grapes that have myrtle berries growing underneath them. But the manner of these Grafting he has not set down. If you Graft the Vine branches in the higher boughs or arms of the Myrtle, then they will bring forth Grapes after their ordinary manner, not having any myrtle in them. But if you Graft them as he showed before, near to the ground, as the Olive tree must be into the Vine, then you may produce Myrtle Grapes, though not without some difficulty. We may likewise produce,

"Damosins that shall be of the color of Nuts."

for such kind of fruit were produced by the Ancients, and called Nucipruna, that is, Nut-damosins, as Pliny reports. It is a peculiar property of these fruits that are Grafted into Nut trees, that they are in color like to their own kind, but in taste like unto Nuts, being therefore called by a mixed name, Nucipruna. So there may be produced, as the same Pliny writes,

"Damosins that have sweet Almonds within them."

There is, says he, in this kind of fruit an Almond Kernel, neither can there be any prettier double fruit devised. The same Pliny reports also, that there is a kind of

"Damosin that has in it the substance of an Apple,"

which of late was called by the Spaniards Malina, which come of a Damosin Grafted into an Apple tree. There is also a kind of fruit called by the Apothecaries, Sebesten,

"Mixa, which has in it a sweet Almond."

This same Mixa is a kind of Damosin, which differs from all others, for whereas others have a bitter Almond or Kernel within their Stone, this only has a sweet Kernel. It is a plant peculiar to Syria and Egypt, though in Pliny's time it was common in Italy, and was Grafted in the Service tree, whereby the Kernel was pleasanter. They Grafted it into the Service tree, likely for this cause, that whereas the fruit of itself would make a man Laxative, the sharp taste of the Service tree being mixed with it, might cause it to be more binding. But now we will show,

"How to produce an Almond-peach, which outwardly is a Peach, but with has an Almond Kernel."

The former means producing double fruits, which the Ancients have recorded, are but vain fables, not only false matters, but indeed impossible to be so done, for, we have shown in the book of Husbandry, if you Graft the Vine into the Myrtle, there will be no such fruit brought forth after that manner. Besides, it is impossible to Graft the Olive tree into the Vine, or it were Grafted, yet would it not bring forth any such Grapes. Pliny speaks of Apple-damosins, and Nut-damosins, but he showed not the manner how they may be produced, happily, because it was never seen nor known. But we will demonstrate the manner of it to the whole world, by this example. This fruit is called and Almond-peach by the late writers, because it bears in it self the nature, both of the almond and the Peach Compounded together. And it is a new kind of adultery or commixtion, wrought by skill and diligence used in Grafting, such a fruit as was never heard of in former ages, partaking both of the shape, and also of the qualities of either parent. Outwardly it resembles the Peach both in shape and color, but inwardly it has a sweet Almond with the Kernels that both looks and tastes like an Almond, and so is the tree also a middle between the Almond tee and the Peach tree. The manner of Grafting is, by clapping the bud of one upon the bud of another, either upon one of the trees that bare one of the buds, or else setting them both into a third tree, as we have done when the trees have been old. We may also go farther, and upon that branch wherein those two buds grow up together, we may set a third bud, and so the fruit will be threefold. These trees we had growing in our own orchards many years together. By this self same means we my produce a very strange Apple, the wonderfullness will ravish our senses and our thoughts, namely

"A Citron that has a Lemon in the inn parts,"

and this, I say, we may produce by laying the bud of a Citron upon the bud of a Lemon. And the most of those kinds are to be found among the Brutii, a people dwelling near Naples, and the Surrentines in Campania, and these fruits proceed from the tart juice that is within the branch. In like manner,

"A double Orange may be produced,"

which kind of fruit is common with us, wherein are double ranks of Kernels in such rare proportion, that you would wonder and be amazed to see.

Chapter VII

"Of another device, whereby strange fruits may be generated, and made either better or worse."

Concerning the praises and excellency of Grafting, we have spoken elsewhere more at large. Here it shall suffice only to show, that by Grafting, new fruits may be produced, some better, and some worse then their ordinary kinds. We will relate some experiments of our own, and some which the Ancients have found out. And first,

"How to produce a Chestnut of the best."

There is one rare example hereof not to be omitted. Corellius, a nobleman of Rome, born at the city

of Areste, Grafted a Chestnut upon a Chestnut branch in the country of Naples, and so produced a Chestnut called Corelliana, after his name. After that, his heir, whom he made a free-man, Grafted the same Corelliana upon another tree. The difference between them both is this, that the former is a larger Chestnut, but this latter is a better fruit. These things have been done by the Ancients. And the good that comes by Grafting is such, as that if anything be Grafted into the stock or branch of its own kind, the fruit will thereby be made better. The cherry tree is very kindly to be Grafted. And you shall scarce ever have a good and a sweet Cherry, unless it be by Grafting upon some other tree, as Pamphilus reports. By the precedent of this example, we have endeavored to change,

"The Barbery Tree into the tree called Tuber."

for I take it, that the Oxyacantha, or the Barbery Tree, is nothing else but a Bastard, or a wild Tuber. and therefore if a man follow that example of Corellius, and Graft the Oxyacantha often into the branch or stock, it will be much bettered, and become the Tuber tree. As also on the other side, the Tuber tree, if it be not dressed and looked unto, does Degenerate into the Barbery Tree. I myself have Grafted it three or four times into the branches of its own kind, in my own orchard, and if I live so long, I will still Graft it so, till it does bring forth tubers, for I find that it brings forth already, both greater and sweeter berries. Now we will speak of such fruits, as are Grafted not into their own branches, but into branches of another kind, which contain in them both the fashion and the properties of either kind. And we will teach the manner how to Compound a new kind of fruit lately devised, namely,

"A Peach-nut, mixed of a Nut and a Peach."

There is a kind of Peach called a Peach-nut, which the Ancients never knew of, but has lately been produced by pains taken in Grafting, as I myself have seen. It bears the name and the form also of both the parents whereof it is generated, having a green color like a Nut, and has no Moss down on the outside, but very smooth all over, the taste of it is sharp and somewhat bitter, it is long before it becomes ripe, and is of a hard substance like a Peach. That part of it which lies against the Sun is reddish, it smells very well, it has within, a rough Stone, and hard like a Peach Stone. It has a pleasant Relish, but the Apple will not last so long as the Nut, or Kernel within. Which kind of fruit cannot be supposed to have been otherwise brought forth then by diverse Grafts of the Peach into the Nut tree, one year after another. We may also better the fruits by Grafting them into better trees. Diophanes produced

"Citron-apples Compounded of an Apple and a Citron."

for he Grafted an Apple into the Citron tree, and that often, but it withered as soon as ever it did shoot forth. However, at length it took fast hold, and became a Citron-apples tree. Anatolius and Diophanes made a Compound fruit called

"Melimela, of an Apple and a Quince mixed together. "

for if we Graft an Apple into a Quince tree, the tree will yield a very good Apple, which the Athenians call Melimelum, but we call it a St. Johns Apple. Pliny writes, that an ordinary Quince, and a Quince-pear Compounded,

"Produce a fruit called Milvianum."

The Quince, says he, being Grafted into a Quince-pear, yields a kind of fruit called Milvianum, which

alone of all other Quinces is to be eaten raw. Now as we have shown how to make fruits better by Grafting, both for show and for properties, we will declare also, how by Grafting,

"Fruits may be made worse,"

We will show it first by a Pear. Marcus Varro says, that if you Graft a very good Pear into a wild Pear tree, it will not taste so well as that which is Grafted into an orchard Pear tree. If you Graft a peach into a Damosin tree, the fruit of it will be much less. If into a bitter Almond tree, the fruit will have a bitter Relish. Likewise if you Graft a Chestnut into a Willow, and be somewhat a latter fruit, the taste of it will be more bitter. And so if you Graft an apple into a Damosin tree, the fruit which it yields, will neither be so great, nor yet so good, as it is in its own kind.

Chapter VIII

"...How to procure ripe fruits and flowers before their ordinary season..."

Art being as it were natures Ape, even in her imitation of nature, effects greater matters then nature does. Hence it is that a Magician being furnished with art, as it were another nature, searching thoroughly in those works which nature does accomplish by many secret means and close operations, does work upon nature, and partly by that which he sees, and partly by that which he conjects and gathers from thence, takes his sundry advantages of nature's instruments, and thereby either hastens or hinders her work, making things ripe before or after their natural season, and so indeed makes nature to be his instrument. He knows that fruits, and flowers, and all other growing things that the world affords, are produced by the circuit and motion of Celestial bodies, and therefore when he is disposed to hinder the ripening of any thing, or else to help it forward, that it may be more rare and of better worth, he effects it by Counterfeiting the times and seasons of the year, making the winter to be as summer, and springtime as the winter. Among other means, Grafting is not a little helpful hereunto. Now let us see, how we may by Grafting,

"Produce Grapes in the Spring-time."

If we see a Cherry tree bring forth her fruit in the springtime, and we desire to have Grapes about that time, there is a fit opportunity of attaining our desire, as Tarentinus writes. If you Graft a black Vine into the cherry tree, you shall have Grapes growing in the springtime. For the tree will bring forth Grapes the very same season, the same as when it would bring forth her own fruit. But this Grafting cannot be done without boring a hole into the stock, as Didymus shows us. You must bore the Cherry tree stock through with a Wimble, and, your Vine growing by it, you must take one of the next and best branches from it, and put it into the Auger hole, but you must not cut it off from the Vine, but place it in its own mother the Vine, and also as being made partaker of the juice of that tree into which it is Grafted. This Sprig within the compass of two years, will grow and be incorporated into the Cherry tree. About which time, after the scar is grown over again, you must cut off the branch from the Vine, and saw off the stock of the Cherry tree upon which it is Grafted, all above the boring place, and let the Vine branch grow up in the rest. For so shall neither the Vine be idle, but still bring forth her own fruit, and that branch also which was Grafted does grow up together with it, being nothing hurt by that Grafting. We may also by the help of Grafting procure,

"A Rose to Show forth her buds before her time."

If we pluck off a Rose bud from the mother, and Graft by such an Emplastering as we spoke of before, the same into the open bark of an almond tree, at such time, as the almond tree does bud, the Rose so Grafted, will bring forth her own flowers out of the almond bark. But because it is a very hard matter to Graft into an Herb, and therefore we can hardly produce flowers sooner then their time by that means, we will show another means here, and namely,

"How Cucumbers may hasten their fruits."

Columella found in Dolus Mendefius an Egyptian, an easy way whereby this may be done. You must set in your garden in some shadowy place well Dunged, a rank of Fennel , and a rank of Brambles one within another, and after the Aquinoetial day, cut them off a little with the ground, and having first loosed the Pith of either of them with a wooden Punch, to convey Dung into them, and withal to Graft in them Cucumber seeds, which may grow up together with the Fennel and the Brambles. For by this means the seeds will receive nourishment from the root of the stalk into which they are Grafted, and so you shall have Cucumbers very soon. But now let us show how we may accomplish this thing by Counterfeiting as it were the seasons of the year. And first, how we may procure that,

"Cucumbers shall be ripe very timely."

The Quintiles say you must take Panniers or earthen pots, and put into them some fine sifted earth mixed with Dung, that it may be somewhat liquid, and preventing the ordinary season, you must plant therein Cucumber seeds about the beginning of spring, and when the Sun shines, or that there is any heat or rain, they bring the Panniers forth into the air, and about Sun setting they bring them into a closed house, and this they do daily, still watering them as occasion serves. But after that the cold and the frost is ceased, and the air is more temperate, they take their Panniers and dig a place for them in some well tilled ground, and there set them, so that the brims of them are even with the earth, and then look well to them, and you shall have your desire. The like may be done by Gourds. Theophrastus shows us, that if a man sow Cucumber seeds in the wintertime, and water them with warm water, and lay them in the Sun, or else by the fire, and when seed time comes, put the whole Panniers of them into the ground, they will yield very timely Cucumbers, long before their ordinary season is to grow. Columella says, that Tiberius the Emperor took great delight in the Cucumbers that were thus ripened, which he had at all times of the year, for his gardeners every day drew forth their hanging gardens into the Sun upon wheels, and when any great cold or rain came, they straight away carried them in again into their close Hovels made for the same purpose. Didymus shows,

"Roses may bud forth, even before Winter be past."

If they be used after the like manner, namely, if you set them in Hampers or earthen vessels, and carefully look unto them, and use them as you would use Gourds and Cucumbers, to make them ripe before their ordinary season. Pliny shows,

"How to make Figs that were of last years growth, to be ripe very soon the next year after,"

And this is by keeping them from the cold also, but yet the device and practice is not all one with the former. There are, says he, in certain countries, as in Maefia, winter Fig trees, (a small tree it is, and such as is more beholding to art then to nature) which they use in this manner. After the Autumn or Fall, they lay them in the earth, and cover them all over with Muck, and the green Figs that grew upon them in the beginning of winter are also buried upon the tree with them. Now when the Winter is

past and the air is somewhat calmer the year following, they dig up the trees again with the fruit upon them, which presently do embrace the heat of a new Sun as it were, and grow up by the temperature of another year, as kindly as if they had then newly sprung up. Then it comes to pass, that though the country is very cold, yet there they have ripe Figs of two years growth as it were, even before other Fig trees can so much as blossom. But because we cannot so well practice these experiments in the broad and open fields, either by hindering, or by helping the temperature of the air, therefore we will try to ripen fruit and flowers before their time, by laying warm Cherishers, as Lime, or Chalk, and Nitre, and warm water, to the roots of trees and Herbs. If you would have,

"A Cherry ripe before his time,"

Pliny says, that you must lay Chalk or Lime to the root of the tree before it begins to blossom, or else you must often pour hot water upon the root, and by either of these means you may procure the ripening of Cherries before their time. However, the tree will dry and wither away. If you would procure the ripening,

"Of a Rose before his time,"

Dydimus says you may effect it by covering the Rose bush with earth, a foot above the root of it, and there pour in warm water upon it, when the slip begins to shoot up, and before any blossom appears. Likewise if you would have,

"A Vine to bring forth before her time,"

You must take Nitre, and pound it down, and mix it with water, so that it be made of the thickness of Honey. And as soon as you have pruned the Vine, lay good store of your Nitre upon the Vine buds, and so shall your buds shoot forth within nine days after. But to procure the Grapes to be timely ripe, you must take the mother of the Wine before it is sour, and lay the same upon the root of the plants when you set them, for at that time it is best so to use them, as Tarentinus and Florentinus both affirm. Moreover, if you would have anything to bud forth very timely, Theophrastus says you may procure it by setting the same,

"Into the Sea-onion."

for if a Fig tree be set but near it, it will cause the speedy ripening of Figs. And to be brief, there is nothing set in the Sea-onion, but will more easily and speedily shoot forth, by reason of the strong inward heat which that Herb is endued withal. Democritus shows another means, whereby you may cause,

"The Fig tree to bring forth hasty Figs,"

Namely, by applying the same with Pepper and Oil, and Pigeon's Dung. Florentinus would have the Dung and the Oil to be laid upon the Figs when they be raw and green. Palladius counsels, that when the Figs begin to wax somewhat red, you should then besmear them with the juice of a long Onion mixed with Pepper and Oil, and so the Figs will sooner ripen. Our practice is this, when the Figs begin to wax ripe, we take a wooden Needle, and anoint it over with Oil, and so thrust it through both ends of the Figs, whereby in a few days the fruit is ripened. Other effect this by heaping up a great many Ram Horns about the root of the tree. Pliny shows,

"How to make Coleworts branch before their time,"

And this is by laying good store of Sea Grass about it, held up with little props, or else by laying upon it black Nitre, as much as you can take up with three fingers, or thereabouts, for this will hasten the ripening thereof. We may also cause,

"Parsley to come up before his time."

Pliny says, that if you sprinkle hot water upon it, as it begins to grow, it will shoot up very swiftly. And Palladius says, that if you pour Vinegar upon it by little and little, it will grow up, or else if you cherish it with warm water as soon as ever it is sown. But the mind of man is so bold to enter in the very secret bowels of nature, by the diligent search of experience, that it has devised to bring forth,

"Parsley exceedingly timely."

It grows up easily of itself, for within fifty or forty days it is found to appear out of the earth, as Theophrastus and other affirm, as by their writings may be seen. Our countrymen call it Perroselinum. In the practicing of this experiment, you must show yourself a painful workman, for if you fail, or commit never so small an error herein, you will miss your purpose. You must take Parsley seeds that are not fully one year old, and in the beginning of summer you must dip them in the Vinegar, suffering them to lie a while in some warm place. Then wrap up the seeds in some small loose earth, which for this purpose you have before meddled with the ashes of burnt Bean straw. There you must sprinkle them often with a little warm water, and cover them with some cloth, that the heat does not leave them. So will they in short time appear out of the earth. Then remove the cloth away, and water them still, and thereby the stalk will grow up in length, to the great admiration of beholders. But in any case, you must be painful and very diligent, for I have studied it, and by reason of some error and negligence, I obtained not my desire. However, many of my friends having made diligent trial of this procedure, found it to be a very true experiment. Likewise may,

"Lentils be hastened in their growth,"

If they be smeared over with dry Ox Dung, a little before they are sown, but they had need lie in that dung four or five days before they be cast into the ground. So,

"Melons may be hastened in their fruit,"

For if in the wintertime you lay a parcel of earth in mixtures that are made of hot Dung, and in the same earth sow Melons seeds, the heat of the Dung will cause them soon to sprout forth. You must keep them warm with some covering, from the snow, and the cold of night, and afterward when the air is more calm, you must plant them in some other place. For by this means we have hastened the fruit hereof. And by this same device of preventing their seed time, we may cause,

"Cucumbers to hasten their fruit."

But Theophrastus sets down another practice. Cucumber roots, if they be carefully looked into, will live long. Therefore if a man cuts off a Cucumber close by the ground, after it has brought forth fruit, and then cover the roots over with earth, the very same roots the year following will bring forth very timely fruit, even before others that were most seasonably sown. Theophrastus also sets down another way,

"Of Hastening Cucumbers,"

And that is by Macerating the seed before it be sown, or else by supplying it with continual moisture after it is sown. So also we may procure,

"Peas or Vitches to be timely ripe,"

If we sow them before their ordinary season in Barley time, as Florentinus shows. But Theophrastus says this may be done by macerating them in the water before seed-time, but especially if you Macerate them shells and all. For there is but a little of it will turn to Putrefaction, and the shell feeds the Kernel well at the first, however afterward it turns to nothing. The same Theophrastus shows also,

"How the Rape-root may be hastened in growth."

If the gardener, says he, does hide the same in a heap of earth, it will cause it to bring forth very timely fruit the year following. There may be other fruits also be timely ripened, as,

"A Quince may be hastened in ripening,"

If you daily sprinkle them with continual moisture, as Palladius shows, and Democritus says, you may have,

"Roses growing in the month of January."

If you water the slip twice a day in the summertime. We may likewise procure that,

"Gourds shall bring forth very timely."

By propping up and holding up their young tender Sprigs. In like manner we may cause,

"The Forward Fig tree to hasten her fruits,"

By renting or scarifying the body of the tree, that the milky juice may there swell and issue out of it, that when the superfluous Humor is gone forth, that which is left behind, may be the more easily Concocted, and so the fruit will be sooner ripened. To be short we may procure,

"The timely ripening of all kinds of Fruit."

If we sow or plant them in some place where they may lie still opposite against the Sun, or it we put them into certain vessels made for the same purpose, and still water them with warm water, and let them lie continually in the Sun. And if we would have them to hasten their fruit very speedily, we should have an oven made under those vessels, that so by reason of a double warmth, one from above, and the other from beneath the fruit may more speedily be produced. And surely this is the only cause, why fruits and flowers are more forward and sooner ripe in the country Puteoli, and the Island Inarime, then in all other places of Campania, because there they hasten the Concoction and ripening of them, by cherishing the roots thereof with fire and heat within the earth.

Chapter IX

"How we may have Fruits and Flowers at all times of the Year."

By these ways of procuring fruit to be timely ripe, it may be effected, that we shall have fruits and flowers at all times of the year, some very forward that come before their ordinary season, and some later that come after. As for their own time, then, Nature of herself affords them unto us. Aristotle in his Problems shows,

"How we may have Cucumbers all the year long, "

Both in season and out of season. When they are ripe, says he, you must put them into a watery ditch, near the place where they grow, and cover it over. By this means the heat of the Sun cannot come at them to dry them, and the wetness of the place will keep them supple and moist, so that they will still be fresh and green. And Theophrastus after him says the like, that Gourds and Cucumbers must be taken when they are small, and in their tender growth, and must be hidden in some ditch, where the Sun cannot come to waste and consume their moisture, nor the wind to dry them, which two things would mar and hinder their growth, as we see when it falls from a tree, that they are so situated, as both the wind and the Sun have their full scope upon them. If you would have,

"Citron Trees bear fruit all the year,"

To have Citrons still growing fresh upon the tree, you must observe that manner and custom which was first peculiar in Assyria, but is now usual in many places. When their season is to be gathered, you must cut off some of the fruit from the tree, and prune those parts well where you have left no fruit, but you must leave some behind, upon some other parts of the tree. So shall you find a new supply of fresh fruit there where you cut off the former, and when these be ripe, then cut off those which you left upon the tree before, and so fresh fruit will also come up in their stead. Pontanus has set down the same experiment in verse, for so it will come to pass, that the tree will bud forth afresh in those parts where it finds itself destitute of fruit, grieving as it were that one bough should be beautified with fruit, and the other should have none at all. We may also effect this by the help of Grafting. For if we desire,

"To have Apples all the year,"

Dydimus in his Georgics says, that if we Graft an Apples into a Citron tree, it will bring forth for the most part continual fruit. And if we would have,

"Artichokes grow continually,"

We may learn to do it out of Cassianus, who following the authority of Varro, says, that Artichokes always bring forth fruit about the same season that they are set in, and therefore it is easy to have them all year long. The ordinary season of planting Artichokes is in November and September, and commonly they bear fruit in July and August. But they will bring forth also in March and April, if they be planted accordingly, for by that time they will have as perfect a soul, as at any time else. If you practice it three years together, plant them in the months of November, December, January, February, and March, you shall have Artichokes of that kind, as will bring forth fresh fruit almost all the year long. Likewise, if you desire to have,

"Sperage always growing fresh,"

And fit to be eaten, you must take this course. As soon as you have gathered the fruit, you must dig round about the roots as they lie in their own place under the earth, and by this means they will shoot up into new stalks. In likewise manner, if you desire to have,

"Roses growing all the year long,"

You must plant them in every month, and by dunging them, and taking good heed unto them, you shall have fresh Roses continually. By the like practice, you may also have,

"Lilies all the year long,"

For if, you take the roots or cloves of Lilies, and set them in the ground, some fourteen, some twelve, some eight fingers deep, you shall by this means have Lilies all the year long, and so many several flowers of them as you have planted several roots. And as this may be done by Lilies, so Anatolius thinks the same practice will take like effect in all other flowers. Theophrastus says, that we may have,

"Violets always growing,"

If we set them in well-fenced places, and such as lie open to the force of the sun. For commonly fruits and flowers will grow there, when they will grow no where else. But they must be very carefully looked unto, and then they will come on the better. The best way is, to set them in earthen vessels, and keep them from vehement cold and heat, bringing them forth still when the air is calm and temperate, and applying them with moisture, and Muck, and careful dressing. So we may procure also that,

"The Herb Oenanthe shall flourish all the year,"

For Theophrastus writes, that if we deal thereby, as in the procuring of Violets, we shall have flowers upon it continually.

Chapter X

"How to produce fruits that shall be later and backward."

We have already shown how to produce forward fruits that will be very timely ripe, now it remains that we set down such cunning sleights and devices, as whereby we may procure fruit to grow very later, not to be ripe before the lowest of winter. And this we may learn to effect by contrary causes to the former, and whereas we were to heat that which we would have to be timely ripe, we must here use coolers to make things ripen slowly, and whereas before we were to Graft later fruits into forward trees, here we must Graft forward fruits into later trees. Likewise we must sow or plant late, that we may receive later fruit. For as beasts that are long here must be perfectly bred, are long before they have their hair, and do not change their hair before the same time of the year come again, in which they were brought forth, so also in plants it comes to pass, that if they be set late, they will

grow late, and bring forth backward fruits. To begin with Grafting, we will show how thereby,

"To produce later Cherries."

There is a kind of tree that brings forth a very bitter fruit, so bitter that is called Amarendula, that is to say, a Bitterling. A branch of this tree being Grafted into a Cherry tree, after three or four Grafting will bring forth at length Cherries that will be very later. And, however, the fruit of its own kind be very bitter, yet in time it will forget its former Relish, and yield a more pleasant taste. We may effect this also by that kind of Grafting which we spoke of in the eighth chapter, but that will be longer in working. Likewise we may procure that,

"A Pear shall grow exceeding later,"

If we Graft the same into a Willow, for we have declared before, that such a Grafting there may be, and certain it is, that thereby a very later fruit may be produced. But we must see that the Willow, grow in such a place, as where it may be nourished with continual moisture, and this Grafting must be done about the last days of the Moon's last quarter, and it must be Grafted between the tree and the bark. If any man would have,

"Roses grow later,"

Florentinus shows how it may be effected. When you have Grafted the Vine branch into a Cherry tree, as soon as ever the fruit comes forth, you must set the bud of a Rose into the bark or Pill thereof. For growing in another body, look what time the tree wherein it is set, will Fructify, and the same time will the Rose open itself, yielding a very excellent favor, and besides will be very pleasant to behold. To be short, all kinds of fruits may be made to grow later, by this kind of Grafting. Now there is another way whereby we may procure the backward growth of fruits. And this is by shaking or plucking off the buds or blossoms that grow first upon the tree, for while new buds are growing up in the room of the first, time wears away, and yet if the air be seasonable, these later buds will be good fruit, and well ripened, though they be slow. Thus we may produce,

"Figs that are very backward,"

As Columella shows. When the green Figs are very small, shake them off, and the tree will bring forth others that will not be ripe before the latter end of winter. And Pliny following his authority, says, that Figs will grow latter, if the first green ones be shaken off when they are about the bigness of a bean, for then others will come up in their stead, which will be long in ripening. And by this means it is, that Tarentinus shows how to produce,

"Latter Grapes,"

We must take away the bunches that grow first, and then others will grow up in their stead. But we must have a special care still to look to the Vine, that clusters may grow, and at length be ripened. By this means likewise we cause,

"Roses to open or blow very later,"

If we tuck off the buds that grow first, at such time as the flower begins to appear and show forth itself. This practice will take best effect, if it be Musk Roses, especially such as are found to be fullest of leaves, for thus we have the country store of Roses growing all winter long, as they stand in

earthen vessels, and are set up in windows, So if you would have,

"Clove-gilliflowers blow later,"

You must tuck off the first stalks and slips about that time as they are ready to bud, and set them in the heat of the Sun all the summer long, but you must water them continually, that they lose not all their moisture. For by this practice we have procured other stalks, and other slips which have yielded flowers all the winter long even to the spring, so that we have continual winter Gilliflowers, both at home and in the country abroad. There is also another device whereby we may cause fruit to ripen very late, not by shaking or cutting off the buds, but by planting them late, and keeping away the cold from them. As for example, If we would,

"Produce later Cucumbers,"

Because we know that this kind of fruit cannot endure any frost, or showers, or cold storms, therefore we must sow the seeds in the summertime, and when the winter draws on, we must lay heaps of Muck round about them, whereby no cold may come at them to destroy them, and they may be ripened through the heat and fatness thereof. But the best way to have later Cucumbers, is, as we have shown before, either to set thereof into great Fennel stalks, or else to cast the Cucumbers into a pit for a certain season. If we would have,

"A Rose blow in the Winter,"

We must watch the time when the tops of the sets begin to shoot up, as they grow on their beds, and then take away the sets, and plant them in another place, where the root afterward will take, and so yield us a winter Rose. Likewise if we desire to have,

"Strawberries in the winter or spring,"

As we have in the summer, we must take them while they are white, before they are grown to their reddish color, and put them leaves and all into Reeds or Canes, stopping up the mouth thereof with some fat Foil, and burying them in the earth till Winter comes, and the if we would have them to be red of their own natural color, let them lie a while in the Sun, and we shall obtain our purpose. By the like device as this is, we may reserve,

"Lettuce for a Winter Salad."

When she has brought forth her leaves, that they grow up round together, you must bind the tops of them about with a little string, and keep the growing in an earthen vessel, in such a place as they may always receive fit nourishment, and by this means you shall have them still white and tender. In like manner,

"Endive may be kept all Winter,"

To have it still fresh for any use. Others take other courses that are less chargeable, as to cover them only with earth, or with straw and leaves. Gardeners with us cover them in their gardens with sand or such like earth, whereby they keep them very white and tender, and yet enjoy them all Winter long.

Chapter XI

"How we may cause fruit to grow bigger then their ordinary kind."

It remains now that we set down certain rules and ways whereby fruit may be made greater, and far exceed the ordinary bigness of their own kind. and this may be effected diverse ways. For it may be done either by Engraffing only (for indeed this is the chief privilege that Engraffing has, to procure larger fruit.) Or else by planting upon those trees which bring forth greater fruit of their own kind. Or else by gathering of the fruit here and there some, if the tree be overloaded, that so the juice may more plentifully bestow itself upon the fruit that is left behind. Or else by dressing and trimming them. Or by other devices, as hereafter will be shown. We will first begin with Engraffing, and show how we may procure thereby,

"That Apples or other like fruit shall grow bigger then they are found."

A tree that is planted with a Graft of her own kind, will always bring forth greater fruit, then if it were not so planted. We brought an example hereof out of Pliny, that Corellius took a Scion of a Chestnut tree, and Grafted the same into the tree again, and thereby produced a greater and better Chestnut. and for my own part, I have often made the like proof in many other fruits, and by experience have found that all fruits may be made greater by Engraffing, and careful looking unto, but especially Citrons. Secondly we may procure fruit to be greater then ordinary, by grafting upon another tree, whose kind is to bear bigger fruit. As for example, if we would produce,

"Pears that should be greater then ordinary,"

Especially the least sort of Pears called Myrapia, or Musk-pears. We may effect it by Engraffing them to a Quince tree. Because the Quince tree, of all others, bears the greatest fruit. And thereby the least Pears that are may be so augmented, that they will become a very goodly fruit. Experience whereof, we have in many places in our country. So we may cause,

"The Medlar tree to bear huge Medlars,"

Greater then any man would imagine, if we Engrafted it into the Quince tree. The proof whereof both I have made myself, and seen it tried by many others. And the oftener we so Engraff it, the greater Medlars we shall produce. Likewise,

"The small Apricot may be made greater."

Whereas they are the smallest kind of Peaches that are. I have often Engrafted it upon that kind of Damosin tree which bears a Plum like a Goat's Stone both in shape and greatness, (it may be it is our Scag tree) and by this means I procured great Apricots. But if you Engraff it into any other Damosin tree, it will yield but a Bastard fruit. For the Apricot does not endure kindly, to be Engrafted into any other trees besides. In our Naples and Surrentine orchards, there is excellent fruit of this kind. And I never say any where else. We may also,

"Augment the fruit of the Myrtle tree."

The Pomegranate tree and the Myrtle tree are each delighted with others company, as Didymus writes in his Georgicks. Where he says plainly, that the Pomegranate tree being Engrafted into the Myrtle tree, and likewise the Myrtle tree into the Pomegranate tree, do each of them bring forth a greater fruit. But I am persuaded that the Myrtle tree brings forth greater fruit in proportion to her body when it is Engrafted upon the Pomegranate tree, because the kind of this is greater then the kind of that, then the Pomegranate tree does when it is Engrafted upon the Myrtle tree. By such a kind of means we may also procure,

"Mulberries greater then ordinary,"

If we Engraff a Mulberry into a Fig tree. For so Palladius has written, that if the Mulberry be Engrafted into a Fig tree, the Fig tree will cause it to change his color, and will fill up the fruit thereof with a fat juice, so that they shall be greater Mulberries then ordinarily their kind is found to yield. A third means whereby Apples or such like fruit may be augmented, is, by plucking off some of the fruit here and there, and leaving some few upon the tree. For so shall the juice of the tree bestow itself more liberally upon the fruit that is left, and make it greater. A mother does more bountifully feed one child with her Milk, then she can feed two. Wherefore if we would procure,

"Citrons greater then their kind."

Florentinus counsels us, that when the fruit begins to weigh down the boughs, we should pluck off here and there some, and leave but a few behind. So shall they that are left be thicker an bigger in every way. Pontanus also says the same. If, says he, you would have great Citrons, big enough to fill your hand, you must shake off a great many from all the boughs, only leaving some few, but you must leave both the greatest, and those also that grow in the chiefest and likeliest parts of the tree.) For, says he, the heir that is left, will make himself merry and fat with his brother's Milk, and thrive much the better. Palladius shows,

"How to make Apples greater then ordinary,"

And it is by this same means. For when they hang thick upon the boughs, you must gather away the worst, and so the nourishing juice may be converted to the best and the fairest may thereby be the better augmented. there is yet another means whereby we may cause fruit to be the greater. And this by dressing and trimming, when we dig about them, and water them and lay Muck about them. And first, by this means,

"Citrons may be made greater."

For, as Palladius says, they are much helped and delighted with continual digging about them. And,

"Quince pears may be made greater."

As the same author shows, by watering them continually. And,

"Peaches may be augmented much,"

If we plant them in moist places, and supply them with continual watering. But if you would have the Peach trees,

"Bring forth very great ones,"

You must watch the time when they blossom, and suckle them three days together with three pints of Goat's Milk, as Palladius shows. We have practiced to cause,

"The Pomegranate tree to bear a mighty fruit."

And by this means. We took a good portion of fat Muck, whereunto we put an equal portion of Swine's Dung, and the Lees of Wine and Barley Bran. And we kept all this in a dry place for a year together, every month managing them again one with another. And at last we put Vinegar to it, and made it like an Ointment. Afterward in October and November, we dug away the earth from about some parts of the Pomegranate tree roots, and there wrapped in this Ointment around them. And at length, covered them with earth. And by this device, I had greater Pomegranates then ever the tree bore before. But now if you would go forward, and practice the same upon it the next two years following, questionless, you might produce very huge Pomegranates, wonderful to bee seen. As big as Gourds. Likewise we have caused,

"Beans to bring forth great Cods,"

By anointing them with this same Ointment. And afterwards sowing them in the earth. Whereby we had great increase, both for the bigness of the Bean, and also of the Cod. Also,

"Leeks and roots of Radish may be made greater,"

If we translate them out of one place, and set them in another, as Theophrastus shows. If you would have,

"A Rape grow bigger and rounder."

You must sow it as soon as ever it is ready to be taken out of the husk. For by the advantage and benefit of the season wherein it is sown. It will be the more augmented because the root will thereby be the better filled, and the larger grown. Likewise, Florentinus shows, how to make,

"Peas of a bigger growth."

If, says he, you take Peas, and steep them in warm water the day before you sow them, they will grow the greater. Some men take more pains then needed. Who, because they would have greater Peas growing, they steep them shells and all, and put Nitre into the water wherein they are steeped, and sow them in their shells.

"Vitches may be made bigger."

If they be set with a little pole, to grow up thereby. For this will cause them to thicken, as Theophrastus says.

"Onions may be thickened."

As Sotion shows. About some twenty days before you translate them from the place where they first grew, you must dig away the earth about them, and let them lie drying, that all moisture may be kept from them. And then plant them again, and they will grow much larger. But if with all you peal off the topskin, and so plant them, they will be far greater. Likewise we may cause,

"Artichokes to bear fuller fruit."

As Varro shows. If you plant them in a well soiled place, and cover them with old Dung, and water them often in the summertime. You shall by this means have a fuller and a more tender Artichoke. We may also practice another device whereby to make greater fruit, which Theophrastus has set down. And he brings an example, how to make,

"Pomegranates to grow greater then ordinary."

for art may cause the greatness of fruit. When the first buds be formed upon the boughs, they must be put into an earthen vessel that is made with a hole quit through. And the bough upon which they grow, must be swayed downward without damaging it. Then cover the pot with earth, and so you shall have very great Pomegranates. The reason for this is, the pot preserves the fruit from the vapors that would otherwise annoy it. And besides, the earth ministers some moisture unto it, so that the bigness of it is increased by the store of nourishment. It receives no more help from the tree, then if it were out of the earth. And therefore the Kernels are no greater then ordinary. But the pill is much thicker. The proper juice of it is somewhat wasted, which cause the taste of this fruit so handled, is waterish and worse. But the Rind receives outward nourishment, and spends none. For which cause that is much thicker. The like practice Palladius and Martial use, thereby to procure,

"A great Citron."

They take a Citron when it is young, and shut it up fast in an earthen vessel. For the Citron will increase continually, till it comes to be of the bigness and fashion of the vessel wherein it is put. But there must be a hole made through the vessel, whereby the air may get in unto it. By the like device, Theophrastus assays to produce,

"Cucumbers and Gourds greater then ordinary."

By hiding them while they are young that nothing may come at them to hinder their growth. Like to this device setting them in Fennel stalks, or in earthen pipes. Whereby the natural juice and nourishment is kept in, to the increasing of their growth. We will also show, out of Theophrastus, a like device, whereby the Herb,

"Alisander or Parsley may be made greater."

You must dig the Alisander around the root, and cover it with Cachryl, and then heap earth upon it. For the roots spend all the moisture themselves, and suffer no nourishment to ascend up to the buds. This Cachryl is hot and thick. And by the thickness it draws nourishment to it, so by virtue of the heat it does Concoct and digest that which it has attracted. And therefore seeing this does both draw more nourishment to the Alisander, and also Concoct it. There must needs be a greater augmentation of that Herb. This practice he borrowed from Aristotle. This Herb may also be made bigger by another means. Namely, if when you plant it, you make a hole for it in the ground with a great stake. For the root will at length fill up the hole. So there is a means to make,

"A Radish root grow bigger,"

If it be planted in a cold ground, as Pliny shows. For Radishes are much cherished and delighted with cold. As in some cold places of Germany there are Radishes growing as big as a little child.

Some have reported, that if you drive a stake into the ground six inches deep, and put chaff into the pit which the stake has made, and then put in the Radish seed, covering it over with earth and Muck, the Radish will grow up to the bigness of the pit. By a device not much unlike to this, Florentinus shows how to,

"Make a great Lettuce."

You must remove them, and water them well. And when they are grown half a handful high, you must dig round about them, that the roots may be seen. Then wrap them in Ox Dung, and cover them over again, and water them still. And when they are waxen bigger, cut the leaves cross with a sharp knife, and lay upon them a little barrel or tub that never was pitched, (for Pitch will hurt the Herb) that so it may grow not in height, but only spread forth in breadth. So the Herb,

"Beet may be made greater,"

As Sotion shows. To make a Beet grow in bigness, says he, you must cover the roots over with some fresh Ox Dung, and divide the leaves or buds. Lay a broad Stone or a tile upon it, to cause it to spread froth in breadth. You may also make,

"Leeks greater,"

By removing them, and laying a great Stone or a broad tile upon them. By the same device, Anatolius shows how to make,

"Garlic greater,"

By laying tiles on the roots thereof, as upon Leeks. Theophrastus shows another way to make,

"Radishes greater,"

And he states the gardeners of his time were found to practice it. They took away the leaves in the winter, when they flourish most, and cast the Radishes into the ground, covering them over with earth. And so they lasted and grew till summer came again, never shooting forth either into buds or leaves, except it were the earth was gone, that they lay uncovered. The like experiment does Palladius teach, concerning the Rape-root, whereby to make,

"Rape-roots greater."

As soon as you have brought them up, you must strip off all the leaves, and cut off the stalk an inch above the root. Then make furrows for them in the ground. And there bury them asunder about eight inches deep. And when you have cast earth upon them, tread it in. And by this, you shall have great Rape-roots. The like means, Theophrastus thinks to make,

"The Herb Wakerobin to grow greater."

When it is most full of leaves, and when the leaves be at the broadest, we must bow them downward, winding them round the root within the earth, that the Head does not but forth, but all the nourishment may be committed to the Head of the Herb. We also may make,

"Onions to grow bigger,"

As Theophrastus supposes, if we take all that stalk, that is the provider of the nourishment, may it descend downwards. Lest it should be that chief virtue thereof should spend itself upon the feeding. Sotion says, that if a man plants onions, he must cut off both the tops and the tails thereof, that so they may grow to a greater bigness then ordinary. Palladius says, that if we desire to have great Headed Onions, we must cut off all the blade, that so the juice may be forced down to the lower parts. In like manner, if we would have,

"Garlic Heads greater then common,"

We must take all the greenish substance thereof, before it be bladed, and turn it downward, that so it may grow into the earth. There is yet another device, whereby to make Herbs and roots grow bigger then ordinary. But yet I like not so well of it, however many ancient writers have set it down. And first,

"How to make Leeks grow greater."

Columella has prescribed this course. You must take a great many Leek seeds, and bind them together in Linen clouts. And so cast them into the ground. And they will yield great Leeks. Which thing Palladius also confirms by his authority, in the very same words. But both of them had it out of Theophrastus, who puts it for a general rule, that if a man sows many seeds bound up together in a Linen cloth, it will cause both the root to be larger, and the buds to be larger also. And therefore in his time they often found to sow Leeks, Parsley, and other Herbs in the same manner. For they are of more force when there are many seeds together, all of them concurring into one nature. Moreover, it makes not a little to the enlarging of fruits, to take the seeds which we would sow, out of some certain part of the former fruit. As for example, we shall procure,

"A Gourd of a greater or larger growth."

One should take the seed out of the middle of the Gourd, and set it with the top downward. This course Columella prescribes, in his Hortulus. Look, says he, where the Gourd swells most, and is of the largest compass. Then, even out of the middle of it, you must take your seed, and that will yield you the largest fruit. And this is experienced not in Gourds only, but also in all other fruit. For the seeds which grow in the bowels or belly, as it were, of any fruit, are commonly most perfect, and yield most perfect fruit. Whereas the seeds that grow in the outward parts, produce for the most weak and unperfected fruit. Likewise the grains that are in the middle of the ear, yield the best Corn. Whereas both the highest and the lowest are not so perfect. But because Gourds yield great increase, the experience here is more evidently in them then in any other. Cucumbers will be of a great growth, as the Quintiles say, if the seeds be set with their Heads downward. Or else if you set a vessel full of water under them in the ground, that so the roots may be drenched therein. For we have known them grow both sweeter and greater by this device.

Chapter XII

"How to produce fruit that shall not have any stone or Kernel in it."

It is a received thing in philosophy, especially among those that have set forth unto us the choicest and nicest points of Husbandry, that if you take Quicksets, or any branches that you would plant, and get out the Pith of them with some Earpicker, or any like instrument made of bone. They will yield fruit without any Stone, and without any Kernel. For it is Pith that both breeds and nourishes the substance of the Kernel. But the Arcadians are of a quite contrary opinion. For, say they, every tree that has any Pith in it at all, will live. But if all the Pith be taken out of it, it will be so far from yielding any stoneless fruit, that it cannot chose but to die, and become quite dried up. The reason is, because the Pith is the moistest and most lively part of any tree or plant. For the nourishment which the ground sends up into any plant, is conveyed especially by the Pith into all the other parts. For nature has so ordained it, that all the parts draw their nourishment, as it were, their food and breath, through the marrow or Pith of the stock, as it were through a Squirt or conduit pipe. Which may appear by experience, seeing any bough or stalk, so soon as the Marrow is gone, returns and crooks backward, till it be quite dried up, as the Ancients have shown. But I for my part must needs hold both against Theophrastus and against others also that have written of Husbandry, both that trees may live after their Marrow is taken out from them, and also that they will bring forth fruit having Stones or Kernels in them. This, even though there be no Pith in the tree themselves, as I have shown more at large in my books of Husbandry. Not withstanding, lest I should omit anything belonging to this argument, I have thought good here to set down the examples which those Ancients have delivered in writing, that every man that wants may make a trial of. And some among the rest using greater diligence in the proof hereof then I did, may find better success herein then I have found. There are many means, whereby plants may be deprived of Kernels. As namely by Engraffing, by taking out their Pith, by foiling with Dung, or by watering, and by other devices. We will first begin as our founded manner is, with engraffing, and will show how to produce,

"A Peach-apple without a Stone."

Palladius says he learned this new kind of Engraffing of a certain Spaniard, which he says also he had experienced in a Peach tree. Take a Willow bough about the thickness of a man's arm. But it must be very sound, and two yards long at the least. Bore it through the middle, and carry it where a young Peach tree grows. Then strip off all the Peach tree Sprigs. All but the very top. Then draw it through the hole of the Willow bough. Then stick both ends of the Willow into the ground, that it may stand bending like a bow. And fill up the hole that you bored, with dirt and moss, and bind them with thongs. About a year after, when the Peach tree and the Willow are incorporated into each other, cut the plant beneath the joining place, and remove it. Cover both the Willow bough and the top of the plant also with earth. By this means you shall procure Peaches without Stones. But this must be done in moist and waterish places. And besides, the Willow must be relieved with continual watering, and so the nature of the wood may be cherished, (as it delights in moisture) and it may also minister abundant juice to the plant that is Engrafted in it. By the like experiment we may procure, as Avicenna shows, that,

"A Citron shall grow without any seed in it."

For, says he, if we Engraff it into a Quince tree, it will yield such a fruit. Albertus promises to produce,

"A Medlar without any Stones,"

By Engraffing it into an Apple tree, or a Service tree. But experience proves this to be false. Yet, surely, if it be so Engrafted, it will have a softer Kernel a great deal. The reason which brought the Ancients to think and write thus, was this. They saw that such fruits as have in the hardest Stones, do grow upon such trees as have in them the hardest Pith. As the Dog-tree, the Olive tree, the

Damosin tree, the Myrtle tree, and the like. They saw also, that such trees as have a soft and a spongy kind of Pith in them, as the Fig tree, and the Alder tree, and such like, bring forth fruit without any Stones in them at all. And from hence they gathered and concluded, that it is the Pith which nourishes the Kernel. Which thing howsoever it has had some little shadow of truth in it, yet they should not have extended it generally to all plants, seeing experience proves it to fail very often. Now let us come to the second means whereby fruit may be prevented of their Kernels. And this is by taking forth the Pith or Marrow. As for example. If you would procure the growing of,

"A Grape without any Stone in it,"

Democritus counsels you to take a branch or twig of a Vine, and cleave it just in the middle, and either with a Stone, or some instrument made of bone, fetch out all the Pith, in that part which you will plant within the earth. Or at least as far as you can hollow it without spoil. Then presently bind up the parts together again with paper stiffly and tightly wrapped about them, and make a trench for them in some moist and very fertile soil, where you must plant them in one, and fasten it to some sure prop, that it may not be wreathed nor bowed. So will they soon grow up together into one, as they were before. But it would be much better, if you would put the clove or Head of a Sea-onion into that part which you have robbed of the Pith. For this is as good as glue to fasten them together. And the moisture hereof will keep them supple, as also the heat hereof will cherish them much. Theophrastus says, that you may procure Grapes without any Stones in them, if you rob the Vine branch of the Pith that is in it, whereof the Stones are found to be Gendred. And Columella says, that if you would have Grapes without Stones, you must cleave the Vine branch, and take out all the Pith. But so, that the buds be not hurt thereby. Then join it together, and bind it up again, so that you crush not the buds. And so plant it in a well soiled ground, and there water it often. When it begins to shoot up into slips, you must dig deep about it often. And when it comes to bear, it will yield Grapes without any Stones. Palladius says, there is a pleasant kind of Grape which has no Kernels in it, so that it may be swallowed down easily, and that with no small pleasantness, as if it were many stoned and eaten up together. The manner of procuring it is, as the Greeks record, by art assisted by nature. The set which we would plant, must be cleft in the middle, so far as we mean to set it within the ground. And when we have picked and clean scraped out all the Pith of those parts, we must close them together again. And when we have bound them hard up, set them in the earth. But the bond wherewith they are tied up, must be made of Paper or Parchment. And the ground where they are set, must be a moist place. Some go to work more precisely, and put the plant so cleft and made up again, into a Sea-onion, so far as the plant was cloven. For by the help thereof, all plants do sooner and easier take root. Pliny likewise says, there is a new invented kind of Grape, when the Vine branch that is to be planted, is cloven in the middle, and all the Pith is scraped out, and the pieces knit up together again, with a special care that the buds receive no harm in any way. Then they set the Vine branch in a well soiled ground. and when it begins to shoot forth, they prune it, and dig often about it. The Grapes which it bears afterwards, will have no hard Kernel in them, as Columella writes. However, it is a great marvel that there can be in them any Kernels at all, though never so soft. Seeing all the Pith, which is the mother of the Kernel, is quite taken away. But surely I for my part marvel at those who think it strange that a tree should live when this Pith is gone, and are persuaded that a Vine branch can bear fruit with Kernels when the Pith is taken out of it. Seeing many men in the Country are eyewitnesses that there do many plants live without any Pith in them. And seeing also it is impossible almost that any tree should bear fruit without Kernels, because the Kernel carries itself the very seed whereby one fruit may be generated of another. Likewise you may procure, as Democritus also shows,

"Pomegranates and Cherries without any Stones,"

If in like manner you pick out the Pith of young plants that you set. And Africanus says, if you deal with these as with Vine branches, plucking out the Pith after you have cleft them, and then plant them. And after a while cut off the upper parts of the plants when they have budded forth, then the Pomegranates set, will yield fruit without any Kernels. Palladius borrows this same experiment of Africanus, and sets it down word by word as he does. Likewise that,

"A Cherry tree may bring forth fruit without any Stone within,"

Martial shows more distinctly. Cut off a young plant about two foot long, and cleave it as it stands in the ground, down to the root. Then fetch out the Pith on both sides, and presently tie them up again fast, and cover the whole cleft both on the top, and on both sides, with Muck. So shall they grow fast together again in one year. Then Engraff some young Sprigs from a Cherry tree, such as never bore any fruit before into this stock. And by this means you shall procure Cherries without any Stones at all. Others, that they might accomplish their purpose more speedily, did not cleave such tender young Cherry trees, but bored a great hole through trees of good growth, so that it might pierce the whole Pith, and cross it in the middle if the tree. Then they put a stake or a wedge into it, which might stop the passage of the Pith, that one might be ministered into the upper parts. In like manner, Africanus teaches how to procure,

"A Peach without any Stone."

You must, says he, bore a hole beneath through the body of the tree. And having so cut off the Pith from passing upward, you must fill up the hole with a stake of Willow or Prickwood. So shall you intercept the Pith from ascending out of the root into the branches. Some writers are there, which show how to procure stoneless fruit by diligence in dressing and trimming of plants. It is held for a rule in Husbandry, that soft, fat, and moist nourishment does alter all wild and unkindly fruit into that which is milder and more natural. It is a kind of mildness in fruit, to have a little, soft and sweet Kernel. As on the contrary, it is wildness to have a great and hard Kernel, for it comes by reason of a kind of harsh and dry nourishment that the earth sends up into them. Wherefore no doubt but we may procure the Kernel of a fruit to be smaller and more tender , by diligence and skill in dressing them. To begin with a Vine...

"How a Vine may bring forth Grapes without a harsh and stony Kernel."

At such time as Vines are pruned, you must take a fruitful Sprig, somewhat near the top as you can, and there, as it grows, you must pick out the Pith at the highest end, never cleaving it, but hollowing it with some fit instrument as well as you can. and there uphold it with a prop that it bow not down. Then take some Cyrenian juice, as the Greeks call it, and pour it into the place that is hollow. But first you must steep this juice in water, to the thickness of Sodden Wine. And this you must do for eight days together every day once, until the Vine branch sprouts forth again. Columella says the very same. That the Vine branch as it grows upon the Vine must be cut, and the Pith of it fetched out with some fit instrument, as well as you may, out of the top without the cleaving of the branch. But the branch being whole, and still growing on the Vine. You must put into it some Benjamin or Cyrenian juice steeped in water, as was shown before, and set it upright with a prop, that the juice may not run forth. And this is to be done for eight days together. So if we would procure,

"A Myrtle without a Kernel,"

Theophrastus teaches us how to do it. If you water the Myrtle tree with hot water, then, says he, the fruit will be better, and without any Kernel. Some affirm, that this experiment was found out by

chance. For once there stood near to a bath, a Myrtle tree which no man regarded. The visitors to the bath took off some of the fruit by chance, and found them without any Kernels. Then they carried some home, and set them, and so this kind of fruit began first in Athens. Didymus also says, that if the Myrtle tree be often watered with warm Liquor, it will yield berries without any Stones or Kernels within. Theophrastus shows yet another way whereby this may be effected. Take, says he, the filth or shavings of skins, and put them in Urine. And so lay them about the root of the Myrtle tree at such time as the buds begin to show themselves. And so shall you have berries that have either none at all, or else very small Kernels in them. Likewise the Pomegranate may be produced without any Kernels within it, if you lay good store of Swine Dung about the root of the Pomegranate tree.

Chapter XIII

"How Fruit may be produced without any outward Rinds or Shells."

The very same helps and devices which we prescribed for the producing of fruit without their inner Kernel, we may likewise use in the practice of producing Nuts, and such like fruit as are likely to grow in shells and Rinds. That they may grow naked as it were without any shell at all. And first this may be effected by taking away the Pith from the plant that bears them so.

"A Nut without a shell,"

May be produced, as Damageron teaches. If you bore a hole through the Nut tree, and put into it a stake of Elm to fill it up. You shall thereby stop the Pith from ascending into the upper parts. And so no shells can grow because it is the Pith only that causes them. Palladius counsels you to bore the hole through the root, and stop it with a stake of Box, or some wedge made of Iron, or of Copper. But Theophrastus shows, how to procure,

"Almonds and Chestnuts with a soft shell,"

And this is by skill in dressing the trees. If you would soften and alter the fruit, we must apply the root with Swine Dung. For this is a very forcible worker. Likewise, often digging will cause both the plants to prosper better, and the fruit to become better also. For the Kernels will be smaller, in such fruit as have any Stones in them. And such fruit as grow in shells or Rinds, as Almonds and Chestnuts, will have the softer shell without, and the larger Kernel within. For the greater store of nourishment there is applied to the tree, the moister it is, and the substance of the fruit is so much the more increased. But Palladius would persuade us, that if we rid away the earth from the roots of the Almond tree some certain days before it begins to blossom, and all that while applying them with warm water, we shall hereby procure Almond shells to be very tender. If we would produce,

"That kind of Nut which is called Nux Tarentina,"

The same author Damageron has shown us how to do it. Every Nut and Almond will yield a mild fruit with a tender shell, if we continually apply the body and the root of the tree with pouring ashes upon them. And likewise all other kinds of fruit that grow in any shell or Rind, may be so wrought upon, and will suffer the like alteration by the like means practiced upon them. If you would produce

a Tarentine Nut, Palladius says, you must water the tree with Lye thrice a month throughout the whole year, and so you may obtain your purpose. Others effect such alterations by correcting the plants. As, by cutting off the tops of the roots. If the Nut be too hard shelled, you may also remedy it by cutting and paring off the bark of the tree as Damageron shows. For by this means you draw down that harsh and wild Humor. The reason for this is, because the bark of the tree answers to the shell of the fruit. And therefore, as to amend the inner Kernel we abated the Pith, so to soften or amend the outer shell or Rind of the fruit, we must abate the bark of the tree. A thing which we have observed by another like example. For a Peach being Engrafted upon a bitter Almond tree, the Pill of the fruit thence growing was so bitter, that it could not be eaten until the Pill were pared off. This secret may stead you in many other experiments of the like kind. But this kind of Nut, which we now speak of, I have growing in my own orchard. And it has such a tender shell, and so thin, that as soon as ever it is but touched, the shell falls off, and the fruit is bare and naked. Florentinus produced,

"An Almond without a shell,"

On his manner, he broke the shell very carefully, so that the Kernel was kept whole. Then he took Wool, and sometimes green leaves of the Vine, or of the Plane tree, and wrapped it about the Kernel . Lest he should have set it without any covering about it, the Emots or such like Vermin should have gnawn it. Columella shows another device whereby we may procure,

"A Filbert to become a Tarentine Nut."

When you have made your pit wherein you intent to set your Nut, put into it a little earth, about half a foot deep. And there plant the seed of Fennel-giant. And when the Fennel has come up, cleave it, and within the Pith of it put your Filbert without any shell upon it, and so cover it all over with earth. This if you practice before the Calends of March, or between the Nones and the Ides of March, you shall have your purpose. They prescribe likewise another device, whereby,

"Gourds may bring forth fruit without any seeds within them."

The Gourd, say they, will grow seedless, if you take the first branch or Sprig of a Gourd, when it is a little grown up, and bury it in the earth as they use to deal by Vines, so that only the Head thereof may appear. And so soon as it is grown up again, to bury it so again. But we must have a special care that the slips which grow up out of the stalk be cut away, and note but he stalk left behind. So shall the fruit that grows upon it, whether it be Gourds or Cucumbers, be destitute of all seed within. Likewise they will grow without seeds in them, if the seeds which are planted, be Macerated or steeped in Sea Samine oil, for the space of three days before they be sown.

Chapter XIV

"How to procure fruits, to be of diverse colors, such as are not naturally incident to their kind."

Now we will show how to color fruits. The effecting whereof there have been diverse means devised. As watering, and Engraffings which can never be sufficiently commended or spoken of, other like practices. To begin with Engraffing. If we would color any fruit, we must Engraff it upon a plant that flourishes with the same color which we would borrow. As for example, if we would

produce,

"Red Apples,"

We must Engraff them upon a Plane tree, and the fruit will be red, as Diophanes, Didymus, and Palladius affirm. So we may procure that the fruit,

"Rhodacens shall grow red,"

If we Engraff them upon a Plane tree, as Africanus witnesses. Of whom Palladius learned that the way to make Rhodacens look red, is to Engraff them into a Plane tree. If you would have,

"Citrons of a red scarlet color,"

Avicenna shows you may effect by Engraffing them into a Pomegranate tree. For we have shown before that such an Engraffing may well be made. But if you would have,

"Citrons to be blood red,"

Florentinus shows that you may effect this by Engraffing them into a Mulberry tree. Which experiment Diophanes approves. Likewise he that desires to have,

"Red Pears ,"

Must Engraff them into a Mulberry tree. For this means the Pears will grow red, as Tarentinus and Diophanes do witness. So also you may procure,

"A white Fig to become red,"

By Engraffing it upon a Mulberry tree, as the same Diophanes witnesses. By the same means,

"Apples may be of a blood red color."

If it be Engrafted into a Mulberry tree, as Avicenna shows. But Beritius and Diophanes write, that the Mulberry tree itself, which makes all other Apple fruit to become red, may be caused to bring forth,

"White Mulberries,"

If it be Engrafted into a white Poplar tree. For this will alter the color of the fruit. But Palladius procures this effect by another means. Not by Engraffing the Mulberry into a white Poplar, but into the Fig tree. For this also will alter their color, and cause,

"White Mulberries,"

As he shows in his verses. Wherein he says, that the Fig tree does persuade Mulberries to change their own color and to take hers. Whereof I myself have seen the experience. Likewise, of

"A white Vine may be made red Wine,"

If we Engraff a white Vine into a black. For the stock into which it is Engrafted, will alter the color

much, as I have seen by experience in Honey Grapes, those which we call Greek Grapes. For the Vines which have been Engrafted upon those Greek Vines, have yielded a blackish juice or Wine. And the more often such Engraffing has been made, the blacker the juice that was yielded. In the places bout the Hill Vesuvius, the white Wine Grape, which grows upon her own stalk that is Engrafted into the Greek Vine, yields a more high-colored Wine then others do. Another way to make,

"Apples grow red,"

Is by diligent and cunning dressing, even by applying them with hot and fat Receipts. For there are two chief elements or principles of color. White and black, or dark colored. Now by dressing them, and applying fat things unto them. We may procure every flower or fruit that is blackish, to become brighter and fresher colored. Whereas on the other side, if they be neglected, that we do not bestow pains and care in trimming them, their color will not be so lively, but Degenerate into a whitish hue. For all colors that begin to fade, wax somewhat whitish. Beritius therefore, endeavoring to make Apples grow red, watered them with Urine, and so obtained his purpose. But Didymus,

"To procure red Pomegranates,"

Watered the tree with bath water Sodden into Lye, and some other water mixed therewith. But there is yet another device, whereby we may procure,

"Apples to grow red,"

By opposing them directly to the greatest force of the Sunbeams. For this will make them red. Beritius, that he might cause the reflex of the Sunbeams to be more forcible upon the fruit, used this Slight. He fastened certain stakes into the ground, and weighing down the boughs that had fruit upon them, he bound them charily without hurting the fruit to those stakes. And near thereunto he dug certain ditches filling them with water, or else would place some other vessels full of water near the boughs. Casing this in his conjecture, that surely the heat of the Sun lighting upon the water, would cause hot vapors, which being reflected together with the heat of the Sun into the places near adjoining where the fruit hangs, and so reflected upon the fruit, would procure them to be of a reddish and goodly color. Beritius assayed to procure,

"Red Apples,"

by another device, by a secret kind of operation. Under the tree he would often set Roses, which did lend there goodly hue to the Apples that grow upon the tree above them. Democritus practiced the like device not upon Apples, but upon Rhodacens, and made,

"Red Rhodacens,"

by planting Roses underneath the tree, round about the roots. Likewise we may color fruit by coloring the seeds of them. For look what color we procure in the seed, either by Steeping it in some colored Liquor, or by any other means, the fruit will grow to be of the same color which the seed is, when it is set or sown. As for example we may color,

"Peaches,"

With Sanquinary or Vermillion. If we bury a Peach Stone in the ground, and take it up again seven days after (for in that time, the Stone will open of itself) and then put into it some Vermillion, and bury

it in the earth again, and afterward look carefully unto it, we shall thereby procure Vermillion colored Peaches. And Democritus is persuaded, that if we should put into it any other color after the same manner, the Peach would be of that other color. It is a thing commonly reported among us, and it is not unlike to be true, that,

"Peaches may be of a Sanguine color,"

By another means. You must take a Peach Stone, and put it into a Carrot that is then growing, and the stalk which grows of that Stone in the Carrot. If it be carefully nourished and preserved, will bring forth Peaches of a Sanguine color. In like manner, if you would have,

"White Kernels growing in a Pomegranate."

Palladius shows how to do it, by the authority of Martial. If you take Chalk and white Clay, and with them mingle a quarter so much plastering, and apply the Pomegranate tree roots with this kind of foliage or Dunging, for the space of three whole years together, you shall obtain your purpose. Likewise, if you desire,

"Melons of a Sanguine color."

You must take Melon seeds, and steep them in Sanguine Liquor for three or four days together before you set them, you may easily have your desire. Or else, if you open a little the skin of the seed, and put within it the juice of red Roses, Clove-gilliflowers, and Blackberries that grow upon Brambles, or of any other like thing. So that it be not hurtful to the seed, you may effect your purpose. And I suppose that the Sanguine colored Melon which are seen in these countries, are thus used, that they may be of this color. Consequent upon these devices is that the sleight whereby,

"A Peach may grow with any writing upon it."

The Greeks affirm, that a Peach may be made to grow with a writing upon it, if you take out the Stone and bury it in the earth for seven days. And then when it begins to open, pluck out the Kernel, and write in it what you will, with Vermillion juice. Then bind up the Kernel into the Stone again, and set it so into the ground, and you shall have growing a written fruit. Now as the Sun does color the Herbs that it may welcome at, as we have shown. So by keeping the force of the Sun away from them. And with us,

"A Lettuce may be made white,"

As Florentinus shows. If you would, says he, procure goodly white Lettuce, then must you bind together the tops of the leaves, two days before they be gathered. For so they will be fair and white. Likewise you may whiten them by casting sand upon them. And with us,

"Artichokes are made white,"

By the very same means which we speak of. And if you would cause,

"Beets to become whiter then ordinary,"

You must cover the roots over with Cow Dung, and as we spoke before concerning Leeks so here

you must cleave the bud, and lay a broad Stone or a tile upon it, as Sotion shows. So Columella teaches how to make,

"Endive to grow white,"

When the leaves are shot forth, you must tie them about the tops with a small string, and cover them over with an earthen vessel set fast into the ground. And the Herb will be white. Others are at less charges, and cover them over with some earth. Our gardeners lay them in sand, and so make them very white. If you would procure,

"White Sperage,"

You must put the slips as soon as ever they appear out of the earth, into a broken Reed. And there let them grow for a while, and afterward when you take away the Cane or Reed, the Sperage will be whiter then ordinary.

Chapter XV

"How the color of Flowers may also be changed."

In transforming and meddling the colors of flowers together, we may procure such strange medleys, as nothing can be more delightful to be seen. Those which are of a deep purple color may be meddled with azure blue. Those which are white as Milk, may be meddled either with a duskish hue, or with a green, or crimson, or some other Compound colors. In the beholding whereof, the mind cannot choose but be affected with great delight, and be ravished with admiration, and as it were quite overcome with the excellent beauty of them. Wherefore we will set down certain rules, whereby we may be able to alter the color of flowers, as we prescribed certain rules before, whereby we have shown how to alter the color of fruit. And first we will show, how by Engraffing,

"Gilliflowers that are of themselves purple, or else white, may become azure blue,"

You must cut off (somewhat near the root) a stalk of Endive or Blue-bottle, or Bugloss, but the old wild Endive is best for this purpose. And let it be grown to an inch in thickness. Then cleave that in the middle which is left growing in the ground, and plant into it a Gilliflower new plucked out of the earth, root and all. Then bind up the stalks or slips with some Slight bond, and lay a good store of earth and Dung round about it. So shall it yield you a flower, that is somewhat bluish, of a most delightful color to behold. This, many of my friends will need to persuade me, though for my own part, I have often made trial of it, and yet never see it effected. But this I have seen. That a white Gilliflower slip being Engrafted into a red Carrot made hollow for the same purpose. And so buried in the earth, has yielded a sea colored flower. If after the same manner you Engraff it into the root of Orchanet, by which means also you may turn a purple Gilliflower into a scarlet. If you would have,

"A Rose, as also the flower Jasmine to be of a Yellow color."

You may procure it by Engraffing either of them into a Broom stalk. For of all other, the Broom flower is most yellow. And though we cannot do it so well, by clapping the leaf or the bud of the one upon

the leaf or bud of the other, yet it may be effected by boring into the stalk after this manner. You must set a Rose or a Jasmine near to the Broom, and when they are somewhat grown, take them up together with the earth that is about them (for they will prove better when they are set again, with their own earth which is about them, being as it were their mother, then with any other earth that shall be as it were their step-mother,) then bore a passage into the Broom stalk and plant it into the Broom. And there, cover the with Loam where the Engraffing was made. And so bind them up. Afterward, when the set is grown into the stalk, you must cut off all the Head somewhat above the Engraffing place. So shall you have a Rose or a Jasmine thereby growing, of a lovely yellowish color. Which kind of flowers are very usual with us, and this their borrowed color is so orient and bright that the eye is scarce able to endure the brightness thereof. There is another means also whereby we may color flowers, and that is by pouring some coloring into the roots. If you would have,

"Lilies to be red,"

We will show how to do it, as Florentinus has shown us. Take a Lilly Clove or Head, and when you have opened it well, pour into it some Sinoper, or any other coloring, and the Lilly flower that grows out of the Clove so dressed, will be of the same color. But you must be very careful that you hurt not the Clove or Head, when you so open it. And besides, you must be sure to cover it with fat and well soiled earth. By the like means you may procure,

"Lilly flowers of a purple color."

The manner whereof, Anatolius shows to be thus. You must take ten or twelve Lilly stalks, about such time as they are ready to yield flowers. Bind them all together and hang them up in the smoke. Then will there spring out of them some small roots, like unto a Scallion. Therefore when the time of the year serves to set them, you must steep the stalks in the Lees of red Wine, until you see they are thoroughly stained with that color. You must take them apart, and set every one of them by itself, watering them still with the same Lees. And so shall you have Lilies that bear a purple flower. Cassianus attempted by the very like means,

"To produce white Ivy,"

He Steeped it in white Marle, and covered the roots of it with the same Mortar for eight days together, and it brought forth white berries. We may effect the like matters by careful manuring and dressing of fruit. For if we apply them with fat and fertile Muck, the flowers will be a great deal the better colored, and may be made blackish. As we have often proved in Clove-gilliflowers, which we have procured to be so deep colored, that they have been even black. And on the contrary,

"Roses, Clove-gilliflowers, and Violets will wax of a whitish color,"

If they be not carefully looked unto, that either you do not water them well, nor transplant them, nor dig about them, nor feed them with Muck. For by this means Theophrastus writes, not only these kind of flowers, but almost all other, that grow in the woods and forest unregarded, do become light colored. But Didymus has devised another kind of sleight diverse from these. Whereby he makes Roses and Clove-gilliflowers to become white very suddenly. And this is by smoking and perfuming them with Brimstone about the time they begin to open.

Chapter XVI

"How fruits and flowers may be made to yield better flavor then ordinary."

As it is pretty and delightful to see fruit and flowers wear a Counterfeit color, so it is worth our labor to procure them a more fragrant smell then their ordinary kind is found to afford. Which thing we may effect by diverse ways, by planting, by watering, and by other devices. and for example sake, we will first show, how to make,

"Lemons to become very Odoriferous."

If we take that least kind of Lemon, which is called Limoncellum picciolum, and Engraff into a Citron tree, the stock will inspire the fruit with a very nice smell. And the more often that you so Engraff it, the sweeter smell it will afford, as by daily experience we have tried in our Naples gardens. So also we may procure,

"Very Odoriferous Pears,"

By Engraffing them upon a Quince tree, for the stock thereof will lend the fruit a graceful favor. Diophanes vouches, that,

"Apples may be made more Odoriferous,"

If they are Engrafted into a Quince tree. And that hereby are procured those good Apples which the Athenians call Melimela. And I suppose that the Apple called Appium malum, was produced by the often Engraffing of an Apple into a Quince tree. For the smell of it is somewhat like a Quince. And it is not unlike that Appius Claudius found it out, and first procured it by the same means. Likewise we have with us great red Apples, and some of them of a murky color. Which yield the same smell. And questionless could never be produced but by the same means. So we have procured,

"The Centifole Roses to be more Odoriferous."

If you would do so also, you must Engraff it into that kind of Rose, which by reason of the sweet smell of Musk that it carries with it, is called Moschatula. But you must often reiterate the Engraffing of it again and again. So shall it be more beautiful and more full of leaves, and smell the sweeter. But it is best to Engraff it by Inoculation, by clapping the bud of the one upon the bud of the other. For so it will take soonest, and prove best. By a Slight not much unlike this we may procure,

"Vines to smell of sweet Ointments,"

As Paxamus shows. If you would have the Vine to smell sweetly, and the place where it grows, you must take the branches and cleave them, and pour in sweet Ointments into them when you are about to plant them. But your labor will take the better effect, if you first steep the branches in sweet oil, and then plant or Engraff them. I have practiced an easier and slighter way, besmearing the branches that are to be Engrafted, with Musk, or else Steeping them in Rosewater, if the Musk did not stay upon them. So also we could make,

"Lemons to be as Odoriferous as Cinnamon,"

By taking the Sprigs that are to be planted, and besmearing them with oil or the water of Cinnamon and dressing them with much industry and diligence. And this kind of Lemon is usual among us. And is termed by the common people Limon celleum incancellatum. There is also another device whereby fruit may be made Odoriferous, and to smell of Spice. And this is, by taking the seeds of them, and Steeping them in sweet water before they be sown. As for example, if we would procure,

"Odoriferous Artichokes,"

Cassianus has declared out of Varro, the manner how to effect it. You must take Artichoke seeds, and steep them for the space of three days in the juice of Roses, Lilies, or Bays, or some other like, and so to set them in the ground. Also you may make Artichokes smell like Bays, if you take a Bayberry, and make a hole in it, and put therein your Artichoke seed, and so plant it. Palladius records out of the same author, that if you steep Artichoke seeds for three days together in the oil of Bays, or Spikenard, or Balm gum, or the juice of Roses, or of Mastick, and afterward set them when they are dry, that then the Artichokes that grow out of those seeds, will yield the smell and favor of that which the seeds were before steeped in.

"Melons of the fragrant smell of Roses,"

After this manner...by taking Melon seeds, and laying them up among the dry Roses, and so planting them one amongst the other. I have procured Melons to smell like Musk by opening that part whereby the seed sprouts out, and Steeping them in Rosewater wherein some Musk is Distilled also, and so planting them after two days Steeping . So we have procured,

"Odoriferous Lettuce,"

By taking the seed of Lettuce, and putting it into the seed of a Citron, and so planting it. After the same manner, you may learn to make,

"Flowers grow that shall smell of Cloves."

If you take the seeds of those flowers, and lay them in Clove powder, or the oil of Cloves, or Clove-water Distilled. And so set them. For by this means the flowers will entertain the smell and favor of the Cloves. And this I take it, was the cunning sleight whereby our ordinary Clove-gilliflowers were first produced. For questionless, Gilliflowers do grow everywhere of themselves without any such pleasant smell. And besides, they are of a smaller size, and of their own kind somewhat wild. But it should seem, that the gardeners did by their industry and trimming, bestow the smell of Cloves upon them, by Steeping their seeds in Clove-water, or by supplying them with the oil of Cloves, or else by sticking Cloves in the roots of them. And so planting them. We may add to these Slights another device,

"How to make Garlic grow that shall not smell rankly and unfavorably."

Sotion has taught us the way. If, says he, you do set Garlic, and pluck it up again, both when the Moon is underneath the Earth, it will not have any bad favor. And Theophrastus has taught us a means,

"How we may procure Roses to yield a more Odoriferous smell."

Namely, if you take Garlic, and plant it near your Roses.

Chapter XVII

"How to procure fruits to be sweeter and pleasanter for taste."

There are some trees, which cannot away with any scar. But if you cut their stock never so little, or make any other scar in them, presently the air and the extrinsecal heat get in, and so the trees perish. For the Corruption will fall downward to the root, and so make the trees presently to wither and fade away. Now there are other trees, which will abide not only a scar, but also to have their stock cleft, and to be bored into. Yes, and by this means also, they will bear fruit more plentifully. As does both the Pomegranate tree, the Almond tree, and the Apple tree. Of all which there is very great use. The reason hereof is this. Their nature and kind is, to receive so much nourishment as is sufficient for them, and to void away hurtful and superfluous Humors. For as those living creatures which sweat most, or have some other issue in their bodies, are most healthful and likely to live longest. So when these trees have a cut or a scar in them whereby they sweat out, as it were, their hurtful and superfluous moisture, they do more easily digest that moisture which is left behind within them. And the better that the moisture is digested, the sweeter and pleasanter is their juice. And besides, they will live, if the parts have any continuation at all, though it be never so little, only if they may but hang together. And therefore they will easily defend themselves from any harm that may happen unto them by cutting or mangling of any of their parts. We will show how to procure fruit that shall be sweeter in taste then ordinarily their kind is likely to afford. First by Engraffing, secondly by boring or cutting, and last of all by other means. And first, by Engraffing we may procure,

"Cherries that shall have in them the Relish of Bays,"

For as we have shown before, Engraffing may amend those defects that are in plants and endure them with better qualities. So that if you have any fruit that is loathsome, because it is too sweet, do but Engraff it into a bitter tree, and there will be such a medley, that your fruit shall have a very savory Relish. Pliny says, that if you Engraff a Cherry upon a Bay tree, you shall then have Cherries then growing that will have the taste of the Bay. Palladius says the same. Engraff a Cherry upon a Bay tree, and the fruit that grows thence, will have the Relish of the Bay. In my time, there have been seen certain Cherries in Naples, which they called Bay-cherries, somewhat bitter, but yet pleasant withal. A most excellent kind of fruit, far better then any other Cherries. Of a very large size, full of juice, of a very Sanguine color, that have a bittersweet taste, so that they are neither loathsome for their overmuch sweetness. Nor yet to be refused for their overmuch bitterness. So likewise may be procured,

"Sweeter Apples by Grafting them into a Quince."

For if you do Engraff an Apple into a Quince, the Apple will have a Relish like Honey. Which kind of fruit the Athenians do therefore call Melimela, because they taste like Honey, as Diophanes shows. Now we will show also, that by Husbandry and skillful dressing, fruit may be made sweeter in taste. Namely, by piercing or boring the stock, or scaring it round about, or by some other chastisements, as the Husbandmen are like to call them. For by these means, the trees may purge themselves of

their superfluous moisture, and so they will bear the sweeter fruit. As for example. If you would learn,

"How to procure the Almond tree to yield fruit without any bitterness."

Aristotle has taught the way. You must knock a great nail into the body of the Almond tree, that the Gum of tree, which causes bitterness of the fruit, may drop out by that passage. And this is such a sleight that hereby you may tame, as it were, wild trees, and alter their nature into a milder kind. Theophrastus says, that if you dig round about the stock of the Almond tree, and bore through it about nine inches above the ground, the Gum will thereby drop out, and so the fruit will become the sweeter by that chastisement. If you cut off a bough, or an arm of it, so that the Gum may have egress that way, and if you wipe away the Gum still as it comes forth, and observe this for two or three years together, you may by this means alter a bitter Almond tree into a sweet one. For the bitterness proceeds from not other cause, but only from the superfluity of the nourishment and moisture, which is abated by boring into the stock. And when once that which is superfluous is evacuated, then that which is left, is more easily Concocted, and so the tree becomes fertile in bringing forth a sweeter and better fruit. Africanus likewise affirms, that if you dig about the stock of a bitter Almond tree, and make a hole into it some four inches above the root, whereby it may sweat out the hurtful moisture, it will become sweet. Pliny says the same. If you dig round about the stock, says he, and bore through the lower part of it, and wipe away the Humor which issues forth, a bitter tree will become sweet. Some there are, who after they have made that hole, do presently put Honey into it, that it may not be quite empty. For they are of the opinion, that the Relish of the Honey is conveyed up into the fruit, through the Pith, as through a conduit pipe. As for example sake, if we would procure,

"Sweet Citrons,"

(for that kind of fruit was not often found to be eaten in Theophrastus's time:) nor in Athenaus's, as himself reports. Nor yet in Pliny's time. Palladius has shown, hot to alter the bitter Pith of a Citron tree into sweet. His words are these. It is reported that the bitter Piths of Citrons may be made sweet, if you take the Citron seeds, and steep them in Honeywater, or else in Ewes Milk, (for this is better) for the space of three days before you set them.. Some do bore a hole sloping into the body of the tree. But not quite through it. By which passage the bitter Humor drops away. This hole they make in it about February, and leave it so, till the fruit is fashioned. But after the fruit is fashioned, then they fill up the hole with Mortar. And by this device the Pith is made sweet. This has Pontanus set down in his book called, The Gardens of Hesperides. What is it, says he, that art will not search into? Cut a thick Vine, and make it hollow on the top, about thy hand breadth. But so, that the brim of the hole be brought round and something close together, so the sides be about an inch thick and no more. Pour into it and fill it up with liquefied Honey, and cover it with a broad Stone that the Sun may not come at it. And when the Vine has drunk in all that, then fill it up again with the like. And when that is soaked in also, then open the Concavity wider, and let the Vine grow. But you must continually water the tender roots thereof with man's water. And you must be sure that you leave not buds or leaves upon the stock, that so there may be no other moisture let into it, but the whole vine may grow up as it were in the spring of Honey. Palladius shows also,

"How to make sweet Almonds of bitter ones,"

Even by boring a hole in the middle of the stock, and putting into it a wood wedge smeared with Honey.

"Sweet Cucumbers,"

May be procured, by Steeping Cucumber seeds in sweet waters, till they have drunk them up. For they being planted, will produce sweet Cucumbers. Theophrastus shows how to make sweet Cucumbers, even by the same method. By Steeping their seed in Milk, or else in water and Honey mixed together. And so planting them. Columella says, that a Cucumber will eat very tender and sweet, if you steep the seed as such before you set it. Others, because they would have the Cucumber to be the sweeter, do steep the seed thereof in Honeywater. Pliny and Palladius do write the same things of the same fruit, out of the same authors. Cassianus has declared out of Varro, how to procure,

"Sweet Artichokes growing,"

You must take the Artichoke seed, and Steep them in Milk and Honey, and after you have dried them again, then set them, and the fruit will Relish of Honey. So you may procure,

"Sweet Fennel growing,"

For if you Steep Fennel seed in sweet Wine and Milk, then will the fruit that grows out of those seeds, will be much sweeter. Or else, if you put the seeds thereof in dry Figs, and so plant them, the like effect will follow. So you may procure,

"Sweet Melons,"

As Palladius shows, even by Steeping the seeds thereof in Milk and sweet Wine for three days together. For then if you dry them, and set them being so dried, there will grow up a very sweet fruit. Likewise you may procure,

"Sweet Lettuce,"

For if you water them in the evening with new sweet Wine, and let them drink for three evenings together as much of that Liquor as they will soak up, it will cause sweet Lettuce, as Aristoxenus the Cyrenian has taught out of Athenaus. So,

"A sweet Radish may be procured,"

By Steeping the Radish seeds for a day and a night in Honey. Or in Sodden Wine, as both Palladius and Florentinus have recorded. So you may procure the same, by Steeping the seeds in new sweet Wine, or else in the juice of Raisins. There is also another device, whereby to make sharp or bitter fruits to become sweet. And this is by art and cunning in dressing them. As, by pouring hot water, or the Lees of oil, or casting soil and such like about their roots. As for example. When we would,

"A bitter Almond to become sweet,"

We cast some sharp piercing matter upon the root, that by virtue of their heat, the tree may the more easily Concoct her moisture, and so yield a sweeter fruit. Theophrastus says, that if we apply hot and strong Oil, as Swine Dung, or such like, to the root of the bitter Almond tree, it will become sweet. But it will be three years before the tree will be so changed. And for all that time you must use the same Husbanding of it. Africanus says, if you uncover the roots, and apply them still with Urine, or with Swine Dung, then will the fruit will be sweeter. The Quintiles report of Aristotle, that, by covering

the Almond tree root with Swine Dung, in March, of a bitter one it becomes sweet. And Palladius uses the very same practice. By the same device,

"Sharp and sour Pomegranate trees may be made to bring forth a sweet Pomegranate."

For these also may be changed from sharp and sour into sweet. Aristotle shows in his book of plants, the Pomegranate trees, it their roots be applied with Swine Dung, and watered with some cool sweet Liquor, the fruit will be the better and sweeter. Theophrastus says, the roots of a Pomegranate tree must be applied with Urine, or with the offals and refuse of hides, yet not in too great a quantity. For the roots of this tree have need of some sharp matter to gnaw upon them, and most of all, every third year, as we said before of the Almond tree. But indeed the Pomegranate roots are more durable. The reason is, because of a kind of softness in the roots, which is peculiar unto them alone. Now Swine Dung, says he, or somewhat that is of the like operation, being cast upon the roots, does sweeten the juice of the tree. As also if you pour on good store of cold water, it will work some kind of change thereof. Paxamus prescribes this course. To dig round about the root of the tree, and to lay Swine Dung upon it, and then when you have cast earth upon that, water it with man's Urine. Columella says, if you have a Pomegranate tree that bears a sharp and sour fruit, this is your way to amend it. You must cover the roots with Swine Dung and man's Ordure, and water them with man's Urine that has stood long in some vessel. And so it will yield you for the first years a fruit that tastes somewhat like Wine, and afterward a sweet an pleasant Pomegranate. Pliny reports the very same thing out of the same authors. Anatolius shows,

"How to make an Apple tree become sweeter,"

And that is, by watering it continually with Urine, and which is a thing very comfortable to an Apple tree. Some do use Goat Dung and the Lees or dregs of old Wine. Applying them to the roots of the Apple tree, and thereby cause it to bear a sweeter fruit. Theophrastus says, if you water an Apple tree with warm water in the spring time, it will become better. The like applications being used to Herbs, will make them sweeter also. As for example sake, we may procure,

"Sweet Endive ."

There are many things, which being watered with Salt Liquors, do forsake their bitterness, and become sweet. Of which sort Endive is one. And therefore if we would have sweet Endive, Theophrastus wills us, to water it with some Salt Liquor, or else to set it in some Salt places. The like practice will procure,

"Sweet Coleworts."

And therefore the Egyptians do mix water and Nitre together, and sprinkle it upon Coleworts, that they may be sweet. And hence it is that the best Coleworts are they which are planted in Salt grounds. For the saltiness, either of the ground where it is set, or of the Liquor wherewith it is watered, does abate and take away the tartness and natural saltiness of the Coleworts. In like manner, if you would procure,

"Sweet Betony,"

Theophrastus counsels you to water them with Salt Liquor, and so they will be better. Which very same things Pliny reports out of the same author. Likewise you may procure,

"Sweet Rochet,"

Such as will yield leaves that shall be more Toothsome, if you water it with Salt Liquor. There is another sleight in Husbanding of Pot Herbs, whereby they may be produced fitter to be eaten. And this is by Cropping the stalks of them.

"Basil will grow the sweeter,"

If you Crop the stalk of it. For at the second springing, the stalk will be sweeter and pleasanter. A most evident reason whereof is assigned by Theophrastus. So,

"Lettuce will be the sweeter."

At the second springing. Theophrastus says, that the sweetest Lettuce springs up after the Cropping of the first tops. For the first tops of their first springing, are full of a milky kind of juice, which is not so pleasant, because that it is not thoroughly Concocted. But they which grow at the second springing, if you take them when they are young and tender, will be far sweeter. He shows also, how,

"Leeks may be made sweeter,"

By Cropping them once or twice, and afterward let them grow. The cause whereof he has assigned to his book of causes, namely, that their first shooting up in the weakest and the most unperfect. The like is to be thought and practiced in other Pot Herbs. For the Cropping or cutting off, does make the second sprouts to be the sweeter, almost in all Herbs. There are also diverse other sleights in the Husbanding and dressing of such of Pot Herbs, whereby they may be may be made sweeter to be eaten. As for example,

"Garlic may be made sweeter,"

For Sotion is persuaded, that if you break the cloves of Garlic before you set them, or else supple them with the Lees of Oil, when you do set them, they will gather and yield a far sweeter Relish. By another sleight far differing from this,

"Onions may be made sweeter,"

For we must consider, that diverse things do exercise a mutual discord or agreement and concord of natures toward each other. Whereby they either help one another, if their natures agree. Or, if their natures differ, they hurt and destroy one another. Nuts and onions have a sympathy or agreement of nature. And therefore if you lay up Nuts among Onions, the Onions will cause the nuts to last the longer. In lieu of which kindness, Nuts do gratify Onions with another good turn. for they ease the Onions of their sharpness, as Palladius has observed.

Chapter XVIII

"How fruits that are in their growing, may be made to receive and resemble all figures and

impressions whatsoever."

Many things do fall out by chance, and haphazard, as they say, which an ingenious man lighting upon, does by his great industry, of often experiments that he makes of them, turn and apply to very good use. Whence it is that the poet says, manifold experience, and much labor and practice, sets a broach to the world many new arts and rare devices. And because the most part are not acquainted with the cause of such things, thence it is, that they are esteemed to be miraculous, and to come to pass besides nature's rule. We have often seen in Citrons, diverse kinds of stamps and impressions, which were made there by chance. As by the hitting of some carved matter, or any stick, or such like, which has caused the same impressions. Whence, the wit of man has devised to cause diverse kinds of fruit, to grow up with diverse kinds of figures upon them. If you take an earthen vessel, and put into it an Apple that is very young, as it hangs upon the tree growing, the Apple will grow to fill up his earthen case, and will be of any form whatsoever you would desire, if you make the case accordingly. Also if you pound down any colors and mix them together, and dispose of them in places convenient on the fruit, on the inside of the case, the fruit will wear and express the same colors, as if they were natural unto them. Therefore it comes to pass, that often the yellow Quince is made to grow like a man's head. Having it the lively resemblance of white teeth, purple cheeks, and black eyes. And in all points expressing the color of a man's head, without any greeness at all. Which is the natural color of that fruit while it is growing. And this is the sleight that Africanus prescribes, whereby,

"A Citron may be made to grow in the likeness of a man's head, or the head of a horse, or any other living creature."

You must take some Potters Clay, or soft Mortar, and fashion it to the bigness of a Citron that is at his full growth. But you must cleave it round about with a sharp instrument, so that the fruit may be taken out of it handsomely. And yet in the mean space the sides of the case must be so closely and firmly joined together, that the fruit growing on, may not break it open. If the Counterfeit or case which you make, be of Wood, then you must first make it hollow within. If it be of Clay, you may clap it on, as it is, so that it be somewhat dry. But then when the fruit comes to be of a greater and stronger growth, you must prepare earthen vessels made for the purpose, with a hole in them at the lower end, that the stalk of the fruit may there let in. Into these earthen vessels you must enclose the fruit, and bind them about with a strong band, for otherwise the growth of the fruit will break them open. And when you have procured the fruit to grow up into his Counterfeit, or sheath as it were, that it is come to the just size of a fruit of that kind, it will bear the same shape and figure which you would have in it. The like we have shown before out of Florentinus. Pontanus also speaks of the same device. If, says he, you would have a Citron to grow in diverse shapes, you must cover it being young, with some Counterfeit of Clay, or Wood, or Earth, wherein it may be swaddled. As a tender infant in his nurse's bosom. And that Counterfeit will fashion the fruit into any form. And when it is taken out, it will resemble any image that you have carved with the Counterfeit. So also you may deal by,

"Pomegranates, Pears, or any kind of Apple, making them to receive any kind of form,"

For the same author writes, that if you bestow the same pains and diligent care upon any other sort of Apples, you may frame them to every fashion. For so it is in brief, says he, that Apple fruit may be made to grow up to the shape of any living creature. If you first carve the same shape into a Counterfeit of Wood or Earth, and let the fruit be shut up into that Counterfeit, that it may grow up within it. So may you make,

"A Quince grows in the shape of living creatures,"

As Democritus affirms. By putting them into some Counterfeit that is carved within to the same proportion, and so let the Quince grow within it. But it is easiest to make,

"Cucumbers grow to any form,"

For if you take earthen vessels of any fashion, and then cloth the Cucumbers when they are very young. And bind them fast about. They will receive any shape or impression very easily. If you take a Cane, and make it hollow all along, and bind it fast about, and then put into it a young Cucumber or a young Gourd, it will grow so pliable within it, that it will fill up the whole length of the Cane. Pliny says, Cucumbers grow to any fashion that you would frame them unto. So much so, that if you will, make a Cucumber grow in the shape of a Dragon, winding himself many ways. Likewise, a Gourd will be made to grow picked and sharp by many means. Especially if it be put into a case that is made of such pliant twigs as Vines are bound all about. This should be done as soon as it has cast the blossom. But if you lay a Gourd between two platters, or dishes, it will grow to the same plainness and roundness. And of all other fruit, this is the easiest and fittest to be formed to any fashion. You may make them to grow like a Flagon, like a Pear, great at one end, and small at the other, if you would tie it hard in that part which you would have to be the less. Afterwards when it is come to full growth, dry it, and take out all that is in it, and when you go abroad, carry it about you. It will serve for a cup to drink in. Hence we learn how it may be effected that,

"An Almond should grow with an inscription in it."

Take an Almond, and Steep it for two or three days, and then brake the shell of it very charily, that the Kernel receives no harm. Then you must write in the Kernel what you will, but write it as deep in as you safely may. Then wind it up in some paper, or some Linen cloth, and overlay it with Mortar , and soil it with Dung. And by that device, when the fruit does come to be of full growth, it will show you your handy work, as Africanus records. So may you make,

"A Peach to grow with an inscription in it,"

As Democritus shows. After you have eaten the fruit, you must steep the Stone of it for two or three days, and then open it charily, and when you have opened it, take the Kernel that is within the Stone, and write upon it what you will, with a brazen pen. But you must not print it too deep, then wrap it up in a paper, and so plant it. And the fruit which that will afterward bear, will show you what was written on the Kernel. But,

"A Fig will grow with an inscription in it,"

If you carve any shape upon the bud, the Fig will express it when it is grown. Or else if you carve it into the Fig when it is first fashioned. But you must do it either with a Wooden Pen, or a Bone Pen, and so your labor shall be sure to take effect. I have printed certain characters upon the Rind of a Pomegranate, and of a Quince pear, having first dipped my Pen in Mortar. And when the fruit came up to the just magnitude, I fount it in the same impressions. Now it remains that we show how we may,

"Fashion Mandrakes,"

Those counterfeit kind of Mandrake, which Couzeners and Cony-catchers carry about, and sell to

many instead of true Mandrakes. You must get a great root of Brionie, or wild Nep, and with a sharp instrument engrave in it a man or a woman, giving either of them their Genitories. And then make holes with a punch into those places where the hair are found to grow. And put into those holes Millet, or some other such thing which may shoot out his roots like the hairs of one's head. And when you have dug a little pit for it in the ground, you must let it lie there, until such time as it shall be covered with a bark, and the roots also be shot forth.

Chapter XIX

" How Fruits may be made to be more tender, and beautiful, and goodly to the eye."

Now at length, that nothing may pass us, we will set down diverse kinds of sleights in Husbanding and trimming of Herbs and fruit. Whereby they may be made not only tenderer, sweeter, larger, and better relished, but also fresher colored, and more sightly to the eye. And first,

"How an Apple tree and a Myrtle tree may be bettered."

We may learn out of Theophrastus, who counsels to water their roots with warm water, and promises the bettering of the fruit by that means. Nay, it will cause the Myrtle fruit to be without any Kernel at all. And this, says he, was found out by chance, in certain of these trees growing near unto a hot bath. If you would procure,

"Better Figs then ordinary,"

Columella shows, how you make them grow more plentifully, and to be a sounder fruit. When the crops of the Fig tree begin to be green with leaves, you cut off the tops of the boughs with an Iron tool. And still as the leaves begin to bud forth, you must take red Chalk, and blend it with Lees of Oil and man's Dung. And with this, cover the roots of the tree. And by this means, the tree will bear more store of fruit. And besides, the fruit will be a fuller and better fruit. Pliny and Palladius record the same experiment out of the same author. When the Fig tree begins to show her leaves, if you would have it yield you more and better fruit, you must cut off the very tops of them when the bud begins to show itself. Or, if not so, yet you must make sure at the least to cut off the top which grows out of the middle of the tree. Palladius writes, that some have reported, that the,

"Mulberry tree will bear more and better fruit,"

If you bore through the stock of the tree in diverse places, and into every hole beat in a wedge. Into some of the holes, wedges made of the Turpentine tree, and some of them, wedges made of the Mastick tree. Didymus says that,

"The Palm, or Date tree, and the Damosin tree will grow to be of a larger and better size."

If you take the Lees of old Wine, and after you have strained them, water the roots with it. And he says, that it will take the better effect, if you cast upon it a little Salt every now and then.

"The Myrtle tree will have a better leaf,"

And also yield a better fruit, if you plant it among Roses. For the Myrtle tree delights to be in the company of the Rose, and thereby becomes more fruitful, as Didymus reports. So,

"Rue will grow tenderer, and more flourishing,"

If it is Engrafted into a Fig tree. You must only set it into the bark somewhat near the root, that you may cover it with Earth. And so you have a most excellent Rue.

"Artichokes grow without sharp prickles,"

Varro says, that you must take the Artichoke seed, and rub it upon a Stone, till you have worn it blunt at the top. You may cause also,

"Lettuce to grow tenderer and more spreading,"

As Palladius shows, and Columella. Palladius says, that if your Lettuce be somewhat hard, by reason of some fault either in the seed, or place, or season, you must pluck it out of the Earth and set it again. And by doing this, it will become more tender. Columella shows, how you may make it spread broader. Take a little tile Shard, and lay it upon the middle of the Lettuce when it is a little grown up. And the burden or weight of the shard will make it spread very broad. Pliny says, that works also to smear the roots with Dung when they are set. And as they grow up, to take away their own Earth from them, and so fill up the place with Muck. Florentinus says, when you have a Lettuce growing that has been transplanted, you must rid away the Earth from the root after it is grown to be a handful long, and then smear it with some fresh Ox Dung. And then having cast in earth upon it again, water it. And still as the bud or leaf appears out of the earth, cut it off till it grows up stronger. Then lay upon it a tile Shard that has never been seasoned with any Pitch. And so you shall have your purpose. By the like device you may procure,

"Endive to be tenderer and broader."

When it is grown up to a pretty size, then lay a small tile Shard on the middle of it, and the weight of that will cause the Endive to spread broader. So also you may procure,

"Coleworts to be more tender,"

If you sprinkle them with Salt water, as Theophrastus writes. The Egyptians, to make their Coleworts tender, do water them with Nitre and water mixed together.

"Cucumbers will be more tender,"

If you Steep the seeds in Milk before you set them, as Columella reports. If you would have,

"Leeks to grow cloven,"

The Ancients have taught us, that first you must sow them very thick. And so, let them alone for a while. But when they are grown, cut them, and they will grow cloven. Or else, you must cut it about some two months after it was set, and never remove it from their bed. But help it still with water and

Muck, and you shall have your purpose, as Palladius says. Now we will speak of some monstrous generations. As of the generation of the Herb Dragon, and of a cloven Onion. And first,

"How to produce the Herb Dragon."

It is a received opinion among gardeners, that if you take a Hemp seed or Line seed, and Engraff it into an ordinary Onion, or else into a Sea Onion as it grows near the sea, or else into a Radish root, then will grow the Herb Dragon, which is a notable and famous salad Herb. But surely, howsoever they boast of it that this has been often done, I have made sundry trials, and still failed of my purpose. By the like setting of seeds, they show,

"How to produce cloven Onions,"

By making a hole into an Onion, and putting into it a clove of Garlic, and so planting it. for that will grow to be an Ascalonian, or a cloven Onion. Now let us see how to make,

"Parsley to grow frizzled or curled."

Theophrastus writes that Parsley will grow frizzled, if you pave the ground where you have sown it, and ram it with a Roller. For then the ground will keep it in so hard, that it must grow double. Columella says, if you would have Parsley to bear curled leaves, you must put your Parsley seed into a Mortar, and pound it with a Willow Pestle. And when you have so Bruised it, wrap it up in Linen Clouts, and so plant it. You may effect the same also without any such labor. Even by rolling a cylinder or roller over it after it is a little grown up, wherever or however it is sown. Palladius and Pliny record the same experiment out of the same author. I have often seen,

"Basil growing with a kind of brushlike hairs upon it."

The seed of Withywind being planted near to Basil, as soon as it shoot up, will presently wind itself round about the stalks of the Basil, and by often winding about them, will wrap them all into one. The like will be effected also, if the Withywind grows elsewhere, and a twig of it be brought and planted near the Basil. For by either of these means, the Basil will grow bushy and so thick of hair, and that in a very short time, that it will be most pleasant to look upon. So you may make the,

"Ivy to bear very sightly berries,"

If you burn three Shellfish, especially of that kind which is called Murex, and when you have pound them together, cast the ashes thereof upon the Ivy berries. Or else, if you cast upon them beaten Alome, as Cassianus teaches. Theophrastus mentions and experiment that is very strange, whereby to make,

"Cumin grows flourishingly,"

And that is by cursing and Banning of the seeds when you sow them. And Pliny reports the same out of Theophrastus. And he reports it likewise of Basil, that it will grow more plentifully and better, it be sown with cursing and Banning. If you desire to produce long,

"Cucumbers, and such as are not waterish,"

You may effect it by this means. If you take a Mortar or any other like vessel filled with water, and

place it near the Cucumbers, about five or six inches distant from them. The Cucumbers will reach the vessel with a day or two, and extend themselves to that length. The reason is, because Cucumbers have such a great delight in moisture. So that, if there be no water in the vessel, the Cucumbers will grow backward and crooked. To make them that they shall not be waterish. When you have dug a ditch to plant them in, you must fill it up half full with chaff, or the twigs of a Vine. And then cover them, and fill up the pit with earth. But you must take heed you do not water them when they are planted. By all these things which have been spoken, we may learn to procure,

"A tree, which of itself may yield you the fruit of all trees."

A thing which I have seen, and in merriment have often called it, the Tree of Garden-dainties. It was of a good height and thickness, being planted with a vessel fit for such a purpose. The Mould which was about it, being very fat, and moist and fruitful, that so every way, as well by the liveliness and strength of the plant itself, as also by the moistness and thriftiness of the ground, all things that were Engrafted into it, received convenient nourishment. It was three forked. Upon one bough or arm, to bore a goodly Grape. Without any Kernels in it, party colored and very Medicinable. For some of the Grapes were good to procure sleep, and some would make the belly loose. The second bough or arm, carries a Peach, without any Stone in it. And the smaller branches thereof bearing here a Peach, and there a Peach-nut. If at any time there were any Stone in the fruit, it was commonly as sweet as an Almond. And it did resemble sometimes the face of a man. Sometimes of other living creatures, and sundry other shapes. The third arm carries Cherries, without any Stone, sharp, and yet sweet overall. And Oranges also of the same Relish. The bark of this tree is everywhere covered with flowers and Roses. And the other fruit, all of them greater then ordinary, and sweeter both in taste and in smell, flourishing chiefly in the Spring. And they hung upon the tree, growing even after their own natural season was past. But there was a continual succession of one fruit after another, even all the year long, by certain degrees, so that when one was ripe, there was another budding forth. The branches being never empty, but still clogged with some fruit or other. And the temperate nature of the air served every turn so well, that I never beheld a more pleasant and delightful sight.

Chapter XX

"How diverse kinds of fruits, and likewise Wines may be made medicinable."

The Ancients have been very careful and painful in seeking out, how to mix Wine with diverse kinds of Antidotes or preservatives against Poison. And how to use it best in such Receipts, if need should be. A thing that might very well be practiced. For indeed there is nothing more convenient for that purpose. And therefore they have tried and set down more curiously then need required, many things concerning this argument, strange to be reported, and yet easy to be effected. Which Theophrastus copiously set down. About Heraclia in Arcady, there is a kind of Wine, which makes the men that drink of it to become mad. And the women to become barren. And the like Athenaus records of that Wine which they have in Troas, a place in Greece. And in Thrasus there is a kind of Wine, which if it be drunk, will procure sleep. And there is another kind of Wine made in that sort, that it will cause a man to be watchful. And there are diverse confections of Wine which you may read of in the most exact writers of Physick, and of matters of Husbandry, which are easy both to be learned, and also practiced by those that are well acquainted with the operations of Simples. And

they are such as a man's own conjecture may well lead him unto. And indeed they are nothing else almost, but such qualities operative as the property of the place where their Simples grow, does endure them throughout. And surely I would counsel that these kinds of Confections should be ministered to those that are timorous and uneasy in the taking of medicinal Receipts. That so they may be swallowed down pleasantly, before they should seem loathsome. And first,

"How a Vine may be made to bring forth Grapes that shall be medicinal against the bitings of venomous beasts."

Florentinus bids you in the first and second book of his Georgicks, to set a Vine branch, and to cleave it in the lower part of the root. That the cleft may be some four inches long. There you must pluck out the Pith, and instead of the Pith put Hellebore into it. and bind it fast about with some pliant twig, and so cover it with earth. And by this means it will yield you grapes that being eaten, will make your body Soluble. Or, if you would have the Grapes to be more operative in this kind, you must supple the Vine branches in some Antidote or counter Poison, and then set them in the head of a Sea-Onion, and so cover them with earth. But you must still pour upon it the juice of that Antidote, that the sets may drink their fill of it, and so the strength and virtue of the Grape will last a great deal longer.

"How to make that kind of Wine which is called Phthorium, and kills children in their mothers wombs."

That Hellebore which grows in Thassus, as also Wild Cucumber, as also Scammony, are good to make Phthorium Wine, which causes abortions. But the Scammony or Black Hellebore must be Engrafted into the Vine . You must pierce the Vine with a Wimble, and put in certain Withy boughs, whereby you may bind up unto the Vine the other plants that are Engrafted into it. So shall you have a Grape full of sundry virtues. So you may procure,

"Figs that shall be Purgative,"

If you pound Hellebore and Sea-Lettuce together, and cast them upon the Fig tree roots. Or else if you Engraff them into the same roots. For so you shall Fig that will make the belly loose. Florentinus says, that you may make a Fig to grow which shall be good against the biting of Venomous beasts, if you set it after it has been laid in Treacle. So we may procure,

"Purgative Cucumbers,"

You must take the roots of the Wild Cucumber, and pound them, and steep them in fair water two or three days. And then water your Cucumbers with that Liquor for five days together. And do all this five times. Again, you may make them Purgative, if, after they are blossomed, you dig round about their roots, and cast some Hellebore upon them and their branches. And cover them up with earth again. So you may procure,

"Purgative Gourds,"

If you Steep the seeds of them in Scammony water nine days before you set them, as the Quintiles report. Now if you would procure a man to be loose bellied and sleepy also, you may cause,

"Purgative Damosins that be good also to cause sleep."

You must bore through a bough, or through the whole stock of a Damosin tree. And fill it up with Scammony or the juice of Black Poppy wrapped up handsomely in paper, or some such covering. And when the fruit is ripe, it will be operative both for sleep and Purgation. Cato shows also, how you may cause,

"A Vine to be Purgative ."

After the Vintage, at such time as the earth is used to be rid away from the roots of Vines, you must uncover the roots of so many Vines as in your opinion will make enough Wine to serve your turn. Mark them, and lop them round about, and Prune them well. Then pound down some Hellebore root in a Mortar, and cast them about your Vines, and put unto them some old rotten Dung and old ashes, and twice to much earth among them. Then cover the Vine roots with Mould and gather the Grapes by themselves. If you would keep the juice of the Grape long that it may last you a great while for that purpose, you must take heed, that the juice of no other grapes can come near it. When you would use it, take a cup full of it, and blend it with water, and drink it before supper. And it will work very mildly without any danger at all. Late writers have taken another course. They rid and cleanse Vine roots, then pour upon the juice of some Purgative Medicine to water them all about. And this they do for many days together, but especially at such time as the bud begins to full out. When they have so done, they cast earth upon the roots again, and they take special regard, that the roots never lie naked and open when the north wind blows. For that would draw forth and consume the juice of the Medicine that is poured upon the roots. This if you diligently perform, you shall have Grapes growing upon your Vines, that are very operative for loosing the belly. I have effected,

"The same by another means."

I pierced the Vine with a Wimble, even unto the very Marrow, and put into it certain Ointments fit for such an effect. (It will suffice, if you put them with the Rind.) And this I did in diverse parts of the Vine. Here and there about the whole body of the Vine. And that about Grafting time by Inoculation. For then the Vine is full of moisture. Whereby it comes to pass, that the moisture itself is ascending at that time into the superior parts, does carry up with it the virtue of the Ointments, and conveys it to the fruit, so that the fruit will be operative either for Purgation or for child bearing, either to hurt or help, to kill or preserve, according as to the nature of the Ointment being introduced.

Chapter XXI

"How to plant Fruits and Vines, that they may yield greatest increase."

That we may conclude this whole book, with a notable and much desired experiment. We will now show in the end, how we may receive a large increase from the fruit, Pulse, and Vine which we have planted. A matter surely that must be exceedingly profitable, for a man to receive a hundred bushels in Usury as it were, for the one Bushel that he has sown. Which yet I would not have to be so understood, as it a man should still expect to receive a hundred to one, precisely or exactly so much. For sometimes the year, or the air and weather, or else the ground, or else the plants may not perform their parts kindly. And in this case, the increase may not be so great. (but yet it shall never be so little, but that it shall be five times more then ordinary) But if those things do perform their

parts kindly together, you shall receive sometimes for one bushel, a hundred and fifty by increase. This may seem a Paradox to some. And they will think that we promise impossibilities. But surely if they would consider all things rightly, they should rather think it a paradox, why half a bushel well sown or planted, should not yield two hundred bushels increase, seeing that one grain or kernel that is planted and takes kindly, does often spread his root, as we see, and grow in those stalks and many stems, sometimes up to fifteen, and in the ear of every one of those stalks, are contained sometimes threescore grains? I spare to mention here the ground that lies in Byzantium in Africa, whereof Pliny speaks, which, for one grain was planted in, did yield very near four hundred stalks. And the governor of that country sent to Nero, three hundred and forty stems growing out of one grain. But let us search out the cause whereby this comes to pass. Some think that the increase commonly falls out to be so little, because the greater part of the fruit which is cast into the ground, is eaten up by Worms, or birds, or Moles, and of other creatures that live in the earth. But this appears to be false, because one bushel of Pulse being planted, never yields above fifteen. Now Pulse or Lupines, is of itself so bitter, that none of those devouring creatures will taste of it, but they let it lie safe and untouched. And when they are grown up, you shall commonly find about a hundred grains in the Cods of every stalk. Others refer the cause hereof unto the weather, as if the fruit were annoyed with over much cold, or heat, or rain, so that the fields are sometimes frozen with cold, and sometimes parched with heat, so that sometimes they are more fruitful, and sometimes more barren. But this cannot be the true reason, because that though the weather be never so kindly, yet that cannot make one increase into thirty. But not to wander or range any further about. We must know that all grains that grow within the ear or husk, are not prolific, that is, they are not all fit to yield increase. For God has appointed some of them of them for the food and sustenance of living creatures, and others for feed. There are some grains in an ear, which are as it were abortives, such as Degenerate from their natural kind, and will not Fructify at all, but rot and waste away into Putrefaction. There are other grains in an ear, such as are easier to be stripped out of their husk, which are fitter for propagation, and are better enabled by nature thereunto. Besides that, sometimes it falls out, that seeds or grains are not planted in due season. Or if they are, even then the Husbandman does not give that due labor and industry in looking unto them, which the kind of the fruit requires. Wherefore if we can meet with all these impediments, we may procure increase according to our hearts desire. For the seeds will be larger in the roots, and when they have spread their roots under the earth of a good length, then will they send up a greater number of stems, and bring forth a good store of ears. Therefore you must make choice of your seeds or grains. Not of the most forward, nor yet of the most backward. Because they commonly are the weakest. But of the middle sort. Then wash them and cleanse them from all other seed. And smear them with fat Ointments, and old Goat's grease. And let them be continually supplied with sufficient heat, and sufficient moisture. Then lay them in soft and worm Mould, carefully manured. For the livelier that the heat of the Mould is, the better will the seeds close with it, and become more eager to propagation. And embrace it more sweetly, and the male would do by his female. So shall your seeds be made more lively, and bring forth a more legitimate and larger increase. Let them be planted in the full of the Moon or about then. For the larger the Moon is, the more bountiful increase she will procure. Concerning the Vine, you must see that her leaves are not wanting, if you would have a good store of Wine. For if the leaves be away, the Vine has little heart to bear. And besides, she should be without an issue for her superfluities, which commonly the leaves do receive into themselves. Only you must pare off those twisted curls that are found to grow upon it. For so, her pride being taken away from her, the juice will be more delightful, and more pleasant.