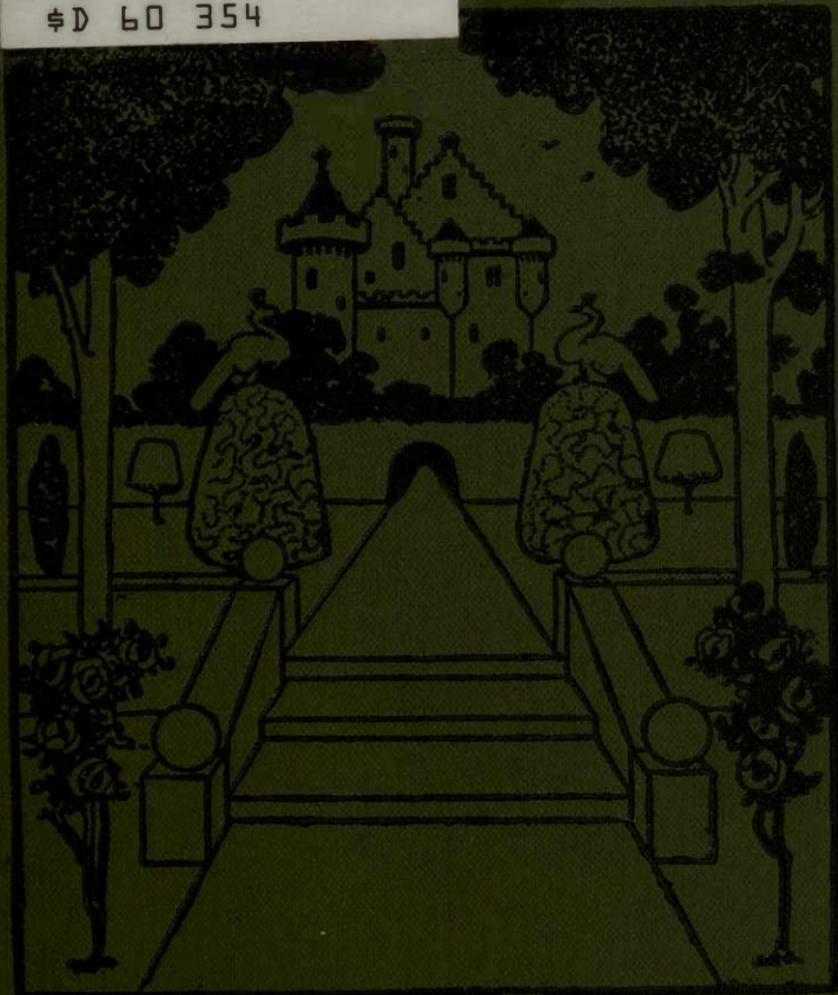


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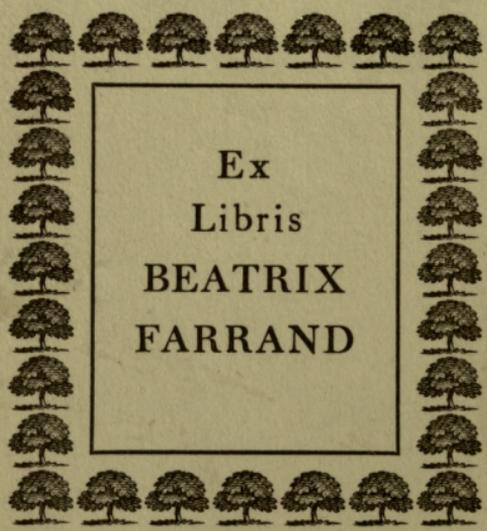


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John Reid.

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THE SCOTS GARD'NER

To me . . . he stands essentially as a genius loci. It is impossible to separate his spare form and old straw hat from the garden in the lap of the hill, with its rocks overgrown with clematis, its shadowy walks, and the splendid breadth of champaign that one saw from the north-west corner. The garden and gardener seem part and parcel of each other.

“An Old Scotch Gardener.”

(ROBERT LOUIS STEVENSON in

“Memories and Portraits.”)

A gardener is Scotch, as a French teacher is Parisian.

(GEORGE ELIOT in

“Adam Bede.”)

THE SCOTS GARD'NER
TOGETHER WITH
THE GARD'NERS KALENDAR

BY
JOHN REID

EDITED BY
ALFRED H. HYATT



WITH AN APPRECIATION BY
THE EARL OF ROSEBERY

T. N. FOULIS
23 BEDFORD STREET, LONDON,
W.C.; AND AT EDINBURGH. 1907

Add'l

LANDSCAPE
ARCHITECTURE

APPRECIATION

BY

THE RT. HON. THE EARL OF ROSEBERY, K.G.

If I might parody what I saw was said by an Irish Judge, lately deceased, it is that, "I yield to no one in ignorance of scientific horticulture." I am not sure that this is not one of the cases in which the ignorant have almost the best of it. I admit that, when I walk with an expert through a garden, I feel an ignorance, a humiliation, which is almost abysmal. But I recollect, after all, that I may be the happier of the two. The expert knows all the weaknesses and all the shortcomings in his garden. As he shows you his hothouses he is stung by the recollection of superior hothouses belonging to a rival; as he shows you his fruits he remembers other fruits which have defeated him at an horticultural show, and he is always haunted by the recollection of the orchids which he does not possess. On the other hand, the ignoramus walks blandly along enjoying without cavil the simple beauty of the flowers, enjoying what Lord Bacon has so finely called their breath, enjoying all their perfume and all the variety which a garden can give without question and without afterthought. If he sees a weed which would distress the expert, if he sees groundsel growing

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where it should not grow, he thinks only of his canary; and as for orchids, when he asks his soul and his conscience, he infinitely prefers a sweet pea. This, then, if I am right, is one of the cases so finely summed up by the poet when he says:—

*“ Where ignorance is bliss,
'Tis folly to be wise.”*

And, indeed, one does not covet the wisdom of the expert when he reels out those long Latin names, in false and barbarous Latin, of the various plants that you admire—names which he sometimes remembers, but, if I am not wrong, more often invents—and which the ignoramus, like myself, only listens to with pitying wonder that a science so beautiful as horticulture should be bound up with such technical terms. There is another way in which we ignorant people can enjoy gardens. There is the literature of horticulture. Publishers, I believe, will tell you that there is nothing that pays so well as a book on gardens. But the books that I love best on gardens were published at a time when one may safely say that publishers did not care whether they brought in a profit or not. There is, for example, Lord Bacon's essays, containing one exquisite essay on gardening which sums up in a sentence the best that can be said of gardening:—

A P P R E C I A T I O N

“God Almighty first planted a garden. And, indeed, it is the purest of human pleasures. It is the greatest refreshment to the spirits of man, without which, buildings and palaces are but gross handiworks.”

Well, you can say nothing better of gardens than that. But I take up another book, written by an author not nearly so well known as Lord Bacon, but one who has a homely interest for ourselves. He is Mr John Reid, who published a book in the reign of Charles II., which is called The Scots Gard’ner. It is a delightful book to read, perhaps even more delightful for those who know nothing about the subject than for those who do. I strongly recommend anyone to turn up this old book of Mr John Reid’s, published in 1683. He tells you all about the Scottish garden of that time, he tells you all about the kitchen garden, and the pleasure garden, and, what I think he attached more importance to than anything, the physic garden—where he grew those medicinal herbs in which, I fear, we have come to lose some confidence. How many of those herbs are now growing in Scottish gardens, and what benefits are to be anticipated from them? These are: garden rue, golden rod, fever few, vernain, celandine, wormwood, comfrey, Solomon’s seal, callamint, masterwort, wall pellitory, garden germander, betony,

A P P R E C I A T I O N
*camomile, swallow-wort, southernwood, lovage, dwarf
elder, hart's tongue, maidenhair, asrum, dogwort,
birthwort, horehound, spignell, bear's-breech, sea
holly, madder, rhubarb, dogmercury, angelica, scurvy
grass, blessed thistle, tobacco, stinking arag, oak of
Jerusalem, and so forth. I might indefinitely pro-
long the list. What then I say is this, that we ig-
noramuses who know very little about it, can derive
a pure pleasure, not merely from the contemplation
of gardens, but from the reading of books about them.
When people are very much wearied by business, I
do not know of a better recipe to cheer and soothe their
minds than by taking up one or two books. One is a
book about gardens, which, if you shut your eyes after
reading it, enables you to see the picture before you,
and to lull yourself with imaginary sights and im-
aginary scents. Let me give you a passage out of Lord
Bacon's essay which will illustrate what I mean. He
says this :—"For the heath, which was the third part
of our plot, I wished it to be framed as much as may
be to a natural wildness. Trees I would have none
in it, but some thickets made only of sweetbrier and
honeysuckle, and some wild vines amongst ; and the
ground set with violets, strawberries, and primroses.
For these are sweet and proper in the shade. And these*

A P P R E C I A T I O N

are to be in the heath, here and there, not in any order. I like also little heaps in the nature of molehills (such as are in wild heaths) to be set, some with wild thyme, some with pinks, some with germander that gives a good flower to the eye; some with periwinkle, some with violets, some with strawberries, some with cowslips, some with daisies, some with red roses, some with lilium convallium, some with sweet-williams red, some with bear's foot, and the like low flowers, being withal sweet and sightly." Now, after you read that and shut your eyes, can you not picture that wild heath before you? Can you not derive from the imagination a sense of enjoyment from that printed page? If you cannot, I think you should be able to, and that in our short Scottish winter days we should from the literature of gardens be able to conjure up something of our own summer delights.

EDITOR'S NOTE

The Scottish gardener is well known to be pre-eminent in all things relating to the art of "floristry" and horticulture. This valuable and practical little treatise, *The Scots Gard'ner*, by John Reid, was published at Edinburgh in 1683. In his book he sets forth in the plainest and homeliest way his idea as to what a model house should be, and how the garden, both profitable and pleasant, should be arranged. Explicit in every detail, and exact in each matter of procedure, John Reid takes those whom he would instruct step by step from the initial moment of planning a new house to the formation of the garden, and still further on to the matured pleasance.

I give on the opposite page a facsimile of the title-page of the book as originally issued.

In the second edition of the volume published in 1756, and edited by "an eminent hand," we are told that our author was gardener to Sir George Mackenzie of Rosehaugh. The gardens of this mansion, situated at Avoch, Ross-shire, were at this latter date noted for their beauty. We are informed in the pages of a contemporary topographical dictionary of Scotland that "Rosehaugh

THE SCOTS GARD'NER

IN TWO PARTS

THE FIRST OF CONTRIVING AND PLANTING
GARDENS, ORCHARDS, AVENUES,
GROVES

WITH NEW AND PROFITABLE WAYES OF LEVELLING; AND
HOW TO MEASURE AND DIVIDE LAND

THE SECOND OF THE PROPAGATION AND IMPROVEMENT OF
FORREST AND FRUIT-TREES, KITCHEN
HEARBES AND FRUITS
WITH SOME *PHYSICALL HEARBES, SHRUBS, AND FLOWERS*

APPENDIX SHOWING
HOW TO USE THE FRUITS OF THE GARDEN

WHEREUNTO IS ADDED

THE GARD'NERS KALENDAR

PUBLISHED FOR THE CLIMATE OF SCOTLAND BY
JOHN REID, GARD'NER

EDINBURGH: PRINTED BY DAVID LINDSAY AND HIS
PARTNERS, AT THE FOOT OF HERIOT'S BRIDGE, 1683

E D I T O R ' S N O T E
House is surrounded with extensive plantations and well-cultivated grounds." Their beauty was probably due to the care bestowed upon them by the untiring efforts of this wise old gardener.

We must return to the old authors of gardening books, such, for instance, as the work before us, if, to quote Bacon's well-known words, we would know "the true pleasure of a garden."

The Scots Gard'ner was published fifty years after Parkinson's ever-delightful *Paradisi in Sole, Paradisus Terrestris*, and, in many ways, the charms of both books are similar. In the case of John Reid, we must not be too exact about fine writing, and forgive him for his faulty syntax. The following pages stand as originally written; only in a few places have grammatical errors been remedied.

My thanks are due to Lord Rosebery for so kindly allowing me to add his appreciation of the book which was embodied in a speech made by him in Waverley Market, Edinburgh, September 1901.

To what he has already said it would be superfluous for me to add further words in praise of *The Scots Gard'ner*.

ALFRED H. HYATT.

Autumn 1906.

TO ALL
THE INGENIOUS PLANTERS
IN
SCOTLAND

I desire you to peruse this book, for there are many things in it of singular use, which I could never find in any, and the substance of what I could find material (in the practical part of gard'nery) improv'd and apply'd home; whereby I presume it may be satisfactory to you, when you operate in the choice of husbandry. Several weighty reasons induc'd me hereunto; as, the great necessity of right contrivance, whereby you may do your works both orderly and cheap; the in-expressible need of inclosing and planting, whereby you may improve your estates to the best advantage, both for profit and pleasure. And because the many books on gard'nery are for other countries and climates, and many things in them more speculative than practical: this ensuing treatise the rather be acceptable; albeit obnoxious to the undoubted censure of criticks, yet when I reflect on my innocency in the design therein (the good of my country), I receive encouragement. And that my endeavours may prove successful, is the earnest desire of

JOHN REID.

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THE FIRST PART
TREATING OF
CONTRIVANCE

THE SCOTS GARD'NER

CHAPTER I

HOW TO MAKE THE WORKS ABOUT A HOUSE REGULAR

As the sun is the centre of this world ; as the heart of man is the centre of man ; as the nose is the centre of the face ; and as it is unseemly to see a man wanting a leg, one arme, &c., or his nose standing at one side the face, or not streight, or wanting a cheek, ane eye, ane ear, or with one (or all of them) great at one side and small on the other ; just so with the house-courts, avenues, gardens, orchards, &c., where regularity or uniformity is not observed.

My designe, by contrivance, is to prevent the consequences of inadvertency, or the abrupt procedure in inclosing and planting. Herein the entrance you may take a view of a house which I have invented. It is but little, yet very commodious and cheap. There are only four rooms on a floor (you may have closets within the wall), all of which have their entry from the stayer (yet communication betwixt), and the door is in the middle ; and there are ten steps up to the first story (which is hall or dining-

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room, withdrawing-room, bed-chamber, and wait-
ing-room), and ten steps to the lower story, which
is half underground and vaulted, this is the kitchen,
cellars, larders, &c. That above the dining-room
story may be bed-chambers, library, and with-
drawing-room; and above these you may have gar-
rets for wardrops. The roof may be divided into
three, so as the middle part may be flat and covered
with lead, and the two sides more steep and slated.
There is also a stayr coming down from the hall to
the parterre of grass and gravel, on whose corners
are two pavilions, opening without the line of the
house, and set off in place of jammes; one of which
may be a store-house, the other a dove-house: the
stables, baking and brewing-house are on the op-
posite side most conveniently situated.

Situate your house in a healthy soyl, near to a
fresh spring, defended from the impetuous west
winds, northern colds, and eastern blasts: and mind
regularity, viz., make all the buildings and plant-
ings ly so about the house, as that the house may
be the centre; all the walks, trees, and hedges run-
ning to the house. Therefore, whatever you have
on the one hand, make as much, of the same forme
and in the same place, on the other. But if you

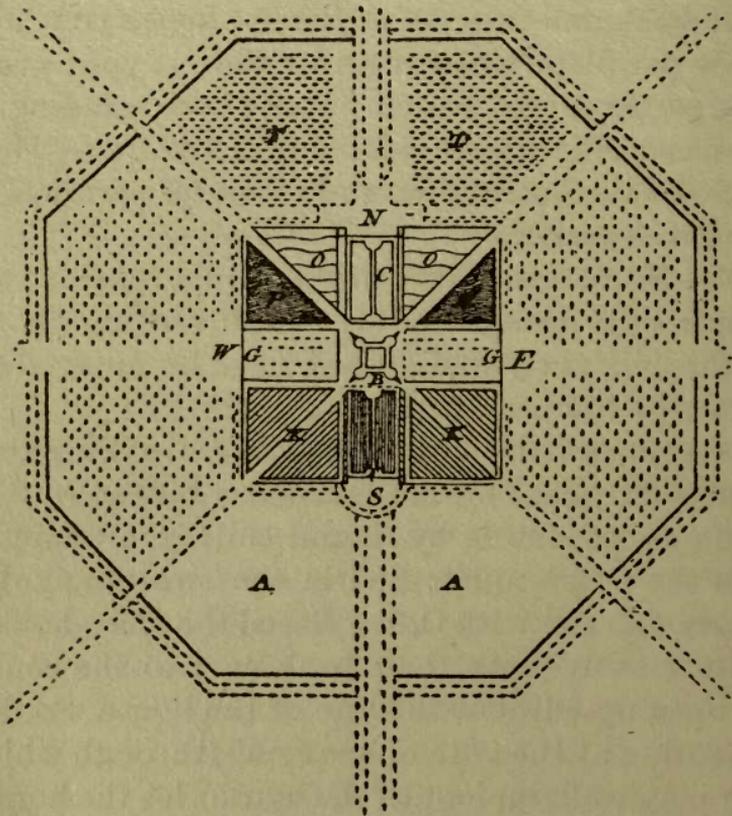
TREATING OF CONTRIVANCE

would go to work right, beginne orderly, that is, find the central line, by erecting a perpendicular on the middle of the house-front, to extend as farr, both back and fore, as requisite : hence you may draw parallels, measure and stake out your avenues, gardens, etc., as you please ; ever minding to measure alike at both sides of the central line. How to find this central line, and to set off parallels, is taught elsewhere.

Yet for further illustration of this, take an example by a draught of my own inventing (fig. 2), which, if rightly understood, may be applyed diversly and improven elegantly.

It is here a small scale. The house is in the centre, and at B : round by the house are ballisters : the common avenue is by N, and ends in a triangle. C is the outer court ; and in the two triangular courts marked with O, are placed the office-houses most notably (with their back part to the court, C), opening without the line of the house. So dismounting at the gate of the court (through which you may walk on foot to the house), let the horses be taken to the stables by the way the ending of the avenue leads. The two plots, P, may be ponders ; the two with G, cherrie gardens ; a proper place

Fig. 2.



PLAN I. SITUATION OF THE HOUSE AND GARDENS.

TREATING OF CONTRIVANCE

also for raising gooseberries, currants, and strawberries. On the south side of the house there is the pleasure or flower garden, called the parterre; at the two sydes thereof, kitchen-gardens, marked with K, then another walk ending in a semicircle, S, leading out to the lawn or deer-park. The vistaes, or walks of view, that run from the four angles of the house, are very pleasant and convenient, and are good shelter, for which cause there are two thickets on the north side, marked T; on the south side are two such marked A, for nurseries; and at east and west are two orchards. The whole is environed with two rows of forrest trees without the wall. And if the paper were large, I would show you that the park-wall should be parallel to these, that is, every where equi-distant from the house as its centre at least, the whole an *octagon* near to a regular *polygon*, consisting of equal sides and angles. The walks with their fences (being run forward from all the four sides and four angles of the house, till they touch at the middle of each side of the park-wall) serve in the park for divisors, which divisors may be hawthorn hedges, and these in the gardens holly; except the court in the entrie and office-house courts, methinks walls are requi-

THE SCOTS GARD'NER

site there. There should also be an ascent to the house (if possible); as, at the first court-gate, two steps: at the second, four steps, &c. But leaving it to every man to apply as his ground and ability will best admit, I come to speake of regularity, where confined. But as work or to make regularity among conforments requires ingenuity, so is tethered difficulty in teaching the same because of the great variety of places, which it is hardly possible to correct by precepts. Therefore, to what I have said above of the centre and central line, I shall only add one single instance.

In a confined situation of ground, I add what I can, but diminish nothing: I take a survey of the works, and when I find several regular and irregular things done on one side of the house, and nothing correspondent on the other, I mark out the very same on the opposite side: and this I continue to do, till two irregularities produce one uniformity. Or, should an avenue lead obliquely to the house, on account of a precipice on the west, I immediately view the ground from the top of the house, and find that, by turning my face towards the east, I shall have stately avenues, with gardens on each hand, at pleasure.

TREATING OF CONTRIVANCE

CHAPTER II

HOW TO MAKE AVENUES AND WALKES

ALL walkes should front the gates or entries, whether they lead to a house, garden, gate, door, park, wood, or high-way. When you have determined on the end of your walk, as the door of the house in the middle of the house-front, set off a perpendicular to find the central line, as aforesaid, and for your more exact performance, prepare the following instrument, viz., take two straight rules of three or four foot long; joyn them crossways one another, so that the four angles where they cut may be exact squares; then at each side of these joyn a straight piece of wood, standing up about four or five inches; and in the exact middle of each of these pieces, make a slit or hole quite thro', and in these put a piece of small silk threed; place the cross on the top of the three-footed staff, with a plummet, whereby you may plant it horizontally upon occasion: on this likeways place your protractor, with the box and needle, when you intend to survey ground.

As to the avenue, set one side of your cross parallel to the given line (the house-wall); this you may do with great ease, by taking one end thereof within

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the door, till the side touch your cheeks, and you may also view across by the side-wall, backsight and foresight, till it stand exactly parallel thereto: then turne, and standing within the door, view straight out by the silk threads, and so direct one to drive stakes all along as farr as you can see, in a straight and perpendicular line. You may also find this perpendicular central line, tho' walls, hedges, houses, trees, &c., obstruct your view, if you can see over them from any window, or off any battlement, if there is any.

And as by this instrument you may raise any perpendicular, so by the same you may let a perpendicular fall: for you may alter it hither and thither upon the given line, till it direct to the angle or point assigned.

The mid or central line of your avenue being found out, you must place your cross thereon, and thereby set off half the breadth of it at each side; do this at both ends and middle, that they may be exactly parallel; and therein drive stakes almost to the head. And when you come to marke out for the trees, or to plant them, set a straight pole at each driven stake for your direction in going straight betwixt the same.

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If the length of the walke be confin'd, divide it by the distance you mynd to plant it; and if there be any odd, add or subtract till all the distances be equal; which distance you must take on a chain (for a line will reach or shrink) and begin at one end, and go straight to the other, thrusting in a small stake at each length; minding to let both rowes go on squair together, that is, one on each side.

And though the ground be unevenly, yet you must hold the chain level, wherefore you may have a squair and plumb fixed at your pole or staff for your more exact performance thereof.

When you have staked out the ground, prepare the rounding-string, viz., a piece of line doubled, and tyed near the point of a stick, and so put the double on the stakes where the trees must stand; and stretching the same, make a scratch with the point of the stick round, and, with a spade, follow that compass, and make the hole.

If you observe what be said, you may stake out any kind of walk, having found one line; wherefore I shall shew you how to find one line, whatever obstruct.

As first, suppose you would run a line or walk through a wood; when you have concluded on the

T H E S C O T S G A R D ' N E R

end thereof, there erect a perpendicular as above, and run it as farr into the wood as you can; then at each side thereof set off a parallel line, two or three foot from the central line, or half the breadth of the intended walk; so shall you have three parallel lines running on in straight lines together. And where any one runs on a tree, run foreward the other two, and set it off again (when past the tree) as it was parallel to its fellowes; and so proceed till you be through the wood or thickets, still marking the trees that fall in the intervall to be cut.

A second way is by means of lanthornes with burning candles, in a calm night, hanged on stakes: you standing in the wood, may plant stakes at pleasure; let the candles furthest from you be highest, and remove foreward the lights as need requires.

But if both ends of your walk be determined, and you cannot see betwixt, by reason of lengthes, hills, woods, houses, or some such obstruction, in such a case let two, having each a pole, go to the middle, or to such a place betwixt, where they may (by looking backsight and foresight) perceive the two extreams, (where should be a pole with white paper on the slip-boards to make them the better

TREATING OF CONTRIVANCE
appearance), turn your faces towards each other, standing at a large distance asunder, but so as you may both see your respective objects. And let A direct B to set the pole in a line with his, and that at the north-end; and B direct A to hold in a line with his, and that at the south-end; so each directing the other by words or signes; let both alter to and fro, till they have their desires at once; then shall these two, and the extreame, be all four in a straight line, whereby you may set as many as you please. This way I have I found out by experiment, and think it worthy a place amongst the mathematicks.

But if you cannot see the two ends, when standing in the middle, altho' the poles be never so high, then, if it be wood or hedges, the foresaid lanthornes and candles will do the business.

But if the obstructions be hills, walls, or houses, for which you cannot see, either by lanthornes or high poles, tho' standing in the centre, then work by parallels thus: set off a parallel line so far, as that it may run quite beyond the obstruction, on the side most convenient; then set in the parallel again at convenient places; so shall both agree, as will appear when the obstruction is removed.

T H E S C O T S G A R D ' N E R

But if none of these will do, run a line over by guess, but if it miss (as no wonder), take notice of your error at the end, by letting a perpendicular fall on the determined poynt (by means of the squair or cross), and the measure betwixt discovers the error: then measure the length of your intended walk or line, and, at the $\frac{1}{4}$ thereof, set off the fourth of your error; at the middle the $\frac{1}{2}$; at the $\frac{3}{4}$ of the length, set off the $\frac{3}{4}$ of your error; this will lead you straight to your purpose.

Trigonometry will also solve this, if you could work exactly; for here you have two sides and one angle given you.

If you have a given line, and desires to set off a parallel from it, but cannot measure off freely at both ends, there being trees, waters, hills, walls or houses, obstructing, you may measure, squair or perpendicular off at any part of the given line (that is most convenient), so far as you mind to go with your parallel, at, or upon which point, erect another perpendicular to run backsight and foresight, the which shall be exactly parallel to the given line, as was required.

Having given some directions for staking out walks for planting, yet your avenues and walks

TREATING OF CONTRIVANCE

must end in some figure or another, whether triangular, circular, oval, &c. For coaches and carts to turn in, as also where walks meet, or cross one another, it is requisite that there should be an example laid down for that reason.

How avenues may end in semicircles and triangles.

—If an avenue ends in a semicircle, it may begin with the same, or rather, if the ground will suffer, it should begin with a whole circle, having four opposite opens the breadth of the walk. If it ends with a triangle, it may begin so likeways; but rather with a square, whose entries or opens must be in its angles, and also where the walks meet or cross one another. You ought to lay down a plan of your avenue, but so as the trees in the whole may be every way lineal, except in the segment of a circle, where they deviate a little. The figures should be at least three times the breadth of the walk, but so as the ground will admit. Let not the trees in the figure stand much above the distance of those in the walk, but divide equally; make the breadth of the walk in proportion to its length. I think an avenue a mile in length may be 40 ells in breadth. Neither short, broad, nor long, narrow walks are handsome, except in case of walks of

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shade, and also of avenues where the front of the house, jammes, courts, or pavilions are to be observed: for the breadth of the court should be at least the whole length of the house-front; and if two jammes, the middle walke of the avenue may be the breadth of the jammes; or the mid-walk the breadth of the whole front, and the side walks the breadth of the pavilions, which are on the corners of the court; or divide the house-front in three, making the middle walk the just breadth of both the side ones: so shall they be every way lineall, but do not mask a fine front or veyle a pleasant prospect. The length of the avenue, it should run so farr as (when we stand at the house) we may lose sight of the farr end, if possible. When it runs over a brae, then to the eye it appears *infinitum*, and where that cannot be had, it doth very well where the sight terminates in a grove or circle of firrs.

The distance of trees is sometimes according to the quality of the ground, or trees to be planted; sometimes to the number of rowes, or as the figure to be planted will best admit. If a good soyl, plant at the wider distance; if 4 rows, as in an avenue, plant at 5, 6, 7, or 8 ells distance; if two single rows,

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at 4, 5, or 6 ells; if circular figures, or the like, at
2, 3, or 4 ells, or as the figure is small or great: and
plant so as they may shew the figure to this use
well.

Some trees require a wider distance than others;
and of consequence these that grow greatest must
have the largest distance assigned them.

Note that you intermix not great trees and small
trees in planting, neither quick growers and slow
growers: for I observe a kind of emulation amongst
them.

CHAPTER III

HOW TO PLANT THICKETS AND ORCHARDS

As the ground where you plant must be inclosed,
so must the trees stand at some distance off the
fence: if it be a wall whereon are wall-trees, let
the standards be at least four of their own distances
from the same, that the sun may not be kept off
the wall by the height of the trees; and if you design
fine walks round the wall, plant the row next to it
with dwarf-trees or some low hedge, and the trees
half a distance off such; if the enclosure be a hedge,
observe the same rule. Also let the trees be parallel
to the enclosure: but every plot will not suffer to
be planted every way lineal, and stand parallel to

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the enclosure too. Therefore it will be necessary, first, to enquire a little, what figures they be that may thus be planted; secondly, how to plant such as will not admit of this order; and lastly, how to plant these several wayes.

The figures that may be planted every way in rows are many; yet for brevity's sake I shall mention but few, as oblong and geometrical squares, see figs. 5, 6, 7, 8, 9; rhombus, see fig. 10; rhomboides, see fig. 11; oxygon or equilateral triangle, see fig. 12; orthogon or right-angled triangle, see fig. 13; ambligon or triangle with one and two acute triangles, see fig. 14; a sort of trapezium, see fig. 15; hexagon, see fig. 16; octagon, as the whole of fig. 2. These regular polygones are the nearest way for planting a circle.

Many more figures there are, both regular and irregular, that will admit of this order; but these may suffice for illustration. As for these that will not, you may plant them parallel to as many sides as you can, and let the rest fall as they will.

Now as to the several wayes, so farr as I know, there are but three principal wayes of planting, every way lineal, although there be more built thereon, viz. squair, rhombus and triangle. In the

Fig. 5



Fig. 6



Fig. 7

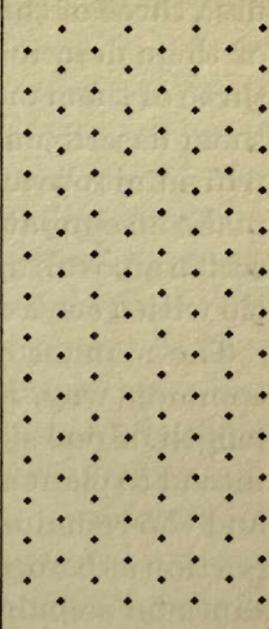


Fig. 8

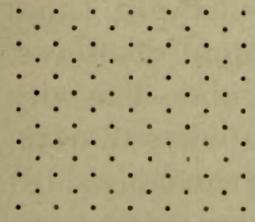


Fig. 9

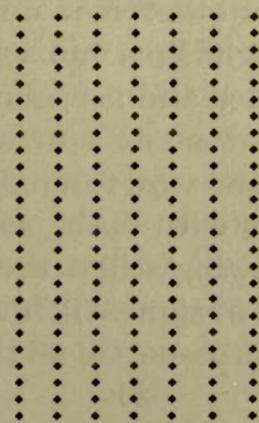


Fig. 10

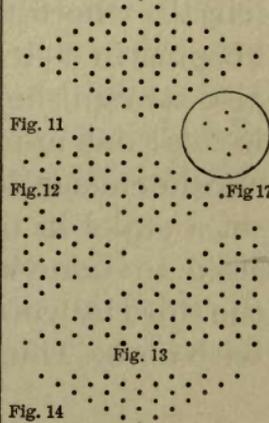


Fig. 11

Fig. 12

Fig. 17

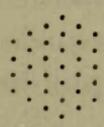
Fig. 13

Fig. 14

Fig. 15



Fig. 16



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first, three of them make a right triangle, and four of them describe a circle, see fig. 5. In the second, three of them make a triacute triangle, and four of them describe an ellipse, see fig. 6. But this way will admit of variation. In the third, three of them make an equilateral triangle, and four of them describe an oval, fig. 7, and seven of them make a circle with a centre, fig. 17.

The manner of planting the first, which is the common way, is exemplified in fig. 5. Take the length of one side, and divide by the distance you intend to plant at, and the product tells how many; and the remainder, if there be any, you may proportion as before. Then, with your determined distance on a chain, begin at a corner and go round the outline exactly, thrusting in a stake at every length, where the outer row must stand; these keeping in a straight line, and at equal distances, also straight-boyded and perpendicular. The way is this: one must stand at west, and view to east; another at south, and view to north; causing a third set a stake in line with both: so, removing from stake to stake (viewing still to the opposite), direct the third by words or signes till his stake be in a line with both. Thus proceed, till all the plot be staked

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out the way the trees should stand when planted, as at fig. 5.

But if the ground be unequal, cause the stake-setter hold up a long straight pole (with a plumb-rule for holding it perpendicular), and when he removes, thrust a stake exactly where the pole stood; but if the pole will not do, let the viewers mount them on three-footed or standing ladders; and if that will not do, betake yourself to the rule, mentioned in the last chapter, for taking a line over a hill, where both ends are confined, as I have done in the like case.

But because some scarcely know signals, the stake-setter must be told that, when the viewer stands with his face northwards, and waves his right hand eastwards, he must go a little eastward with his pole; and when he waves the left, then westward; when both his hands point at once east or west, then he must hold the head of the pole so, if he have no plumb for his direction; but when the viewer moves both hands, or hat, up and down, then the stake-setter must fix there.

If you plant the second way in a squair, where the out-line round is not at equal distances, tho' the opposite sides are; here, in this example, one side

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 is about twelve and one half ells distance, and the other fifteen, and the view being angular, and not from opposite sides, makes the trees stand at about ten and one half ells.

The Scots ell, according to several Acts of Parliament, is three foot one inch, or 37 inches long: six ells long multiplied by 6 ells broad, is 36, a fall-squair: 10 falls in length and 4 in breadth, is 40, a rood-squair: 40 falls in length and 4 in breadth, is 160 per acre. See the table of superficial squair measure. And those who desire long measure, six ells is a fall, forty falls a furlong, eight furlongs a mile. See the table.

A Table of Superficial Squair Measure according to Scotland.

Acres	4	160	5760
	Roods	40	1440
		Falls	36
		Ells	

A Table of Superficial Long Measure according to Scotland.

Ells				
6	Falls			
240	40	Furl.		
1920	320	8	Miles	

But if you will plant rhombusoidally, as is designed, then 'tis done by the equal division of its four sides, and by viewing its opposites, as is represented

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by the rhombus A, B, C, D, in fig. 6; for tho' its angles be not squair, nor equal, yet its sides must be equal, and angles opposite. And here it may be varied according to the shape of the ground, by stretching longer, or opening wider; A C is its breadth, and D B its length. Or you may also plant by the rhomboides, as I have done in D A F E, and consequently many more figures may be planted thereby, as well as these varied or altered, and yet the whole continue in this regular order.

In the third way, take an example in fig. 7, where the length of one side must be divided by the determined distance, viz., the distance of the fence being subtracted, the length of the side A B is 119, and I designe to plant at eight and an half ells; therefore I divide 119, by 8, 5, decimally; the product is 14 distances; then there will be 15 rows: here one side is staked out, whereby you may plant the whole plot thus; take two distances on the chain, that is, hold one end exactly at A and the other at C. Again, with that measure on the chain, hold one end at the first stake, A, and the other at the second, I; cause the third take the chain exactly by the middle, and (holding it stiff) thrust in a straight stake at the angle of the chain, N; so these three make an equi-

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lateral triangle: then remove, holding one end at the second stake, I, and the other at the third, C; stretch the chain and thrust in a stake at its angle or middle as before. Thus you may proceed from stake to stake till that row be planted; and so on from row to row, till the whole plot be staked out. Remember to set the stakes straight and perpendicular, considering their thickness also; in all which if you be not very exact, you cannot avoyd error, before you come to the other side.

A fourth way of planting, is that which is ordinarily used in thickets, fig. 8, for when the trees grow large, every other row (suppose the short ones) may be taken out, that the rest may have freedom, and so benefited by the sun and air; thus one fruit-tree at large will bear more than four crowded ones, and yet continue in as good order; and will answer, in some measure, the expectations of those who complain, while their orchards are young, of their having few fruit, seeing the more trees they have, the more fruit is to be expected: therefore, when their branches begin to meet, they ought to remove them, lop and plant them by their hedges, I mean by the divisors of their corn-land, and the trees, being now full grown, and able to defend themselves.

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This is also applicable to forrest-trees, seeing, while they are young, they afford little shelter, except they are more than ordinary thick ; and yet, when they grow up, cannot prosper to that stately magnitude you would desire, unless the same care is used, viz., the removal of each second row, which may be effectually planted about the bordures of your corn-land, meadow, and pasture; which now needs no fence, except a few thorns stuck about to keep the cattle from rubbing. In orchards, if the short rows be cherries and plumes, they, not being long-lived, will be past their best before the apples and pears, which may be in the long rows, require their room from them.

The methode is this ; you must mark out the plot round about, and view from angle to angle of each geometrical squair : but then the distance of the outer-row must be greater than in the first way ; otherwise the trees will stand much nearer : as 7 is to 5, so is the distance of the trees through the plot.

Or you may plant it by viewing from opposite sides, as in my first way, only you must plant the out-line of stakes round about, at half the former distance, and let the stake-setter pass by every other

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distance (except you intend to plant goosberries and curran-standards in these blanks, and then the trees and shrubs together stand as in the first way), and now the proportion is, as 7 is to 10, so is the distance of the outer-row round, to the distance of the trees : or as 10 is to 7, so is the distance of the trees to the distance of the outer-row round. Such proportion doth the side and diagonal of a geometrical squair bear the one to the other, and abundantly exact for our purpose.

The fifth way is, and very notable, where orchard and kitchen-garden are all one, or where you have corn or grass among your trees ; or trees, whether barren or fruitful, among your corn or grass, see fig. 9.

If for a kitchen-garden, divide it in ridges, making the tables or pathes in the middle of the widest interval ; and then subdivide it so as the trees may fall in the middle of the beds or bordures. If for corn-land, the ridge must be between each row plowed within four foot on each side the rows or ranges of trees ; which eight-foot bordures must be delved each spring ; or, if stiff clay at both equinoxes, and no vegetable suffered to grow thereon : for a man, or two, with large and handsome hows,

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10 inches broad, will quickly go through them in summer, and cut the weeds at their first peeping: this would certainly be a great improvement: and whether you apply to corn or grass, fruit or forrest-trees, I would advise you to keep them thus clean of weeds, and if ever you repent it, blame me.

A sixth way of planting trees, is, to make all the walkes or intervals open from the house proportionally, so as, when you stand at the house, the walkes may appear all of an equal breadth to the eye; this would suit well my contrivance of the house, being like the sun sending forth his beams.

The distance of trees in thickets and orchards, is either according to the quality of the ground, trees to be planted, or methode of planting.

If a good and deep soil, there trees will live long, grow to a great magnitude, and require a large distance. Apples planted the first, second, and third way may be from eight to ten ells distance. Pears soplanted, at ten, or twelve ells: and of these planted the fourth way, may be at the least distance mentioned; because they will stand near the greatest, when every second is removed: but if planted the fifth way, they may be from sixteen to twenty ells one way, and from eight to ten the other. Cherries

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and plumes from five to seven ells, being planted
the first, second, third, or fourth way. As for the
distance of dwarfs and wall-trees, see the next
chapter.

At the same distance with pears, plant oak, elm,
ash, plane, beech, walnut, chesnut: with apples,
plantgreens, service, limes, poplars. At the distance
of plum and cherrie, plant maple, horn-beam, hassel,
birch, laburnum, aspen, alder, willowes, pine, firr,
yew.

If the ground be level, plant such trees as grow
lowest, at the south side, and still higher by degrees
towards the north, that the tallest and strongest
may be on the north side; so shall the northern
blasts be guarded off, and the sun-beams the better
received in amongst them. If the ground be not
level, plant such as grow low on the highest ground,
and the contrary. And set alwayes the crooked or
leaning side towards the south-west, whence come
the strongest winds, which in a few years will make
them the more erect; for you may observe that all
trees that are not well sheltered from these westerly
winds, lean or decline towards the east.

When the ground is all marked out with stakes,
put on the rounding-string, and make the holes: I

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use not to make them less than six foot diameter for ordinary trees; and you may suffer the outer-row of stakes to stand till you plant the rest, that you may view thereby.

CHAPTER IV

HOW TO MAKE THE KITCHEN-GARDEN

THE kitchen-garden is the best of all gardens. In every garden it is ordinary, first, to make a bordure at the wall; secondly, a walke; and thirdly, a bordure on the other side of the walke: thus the walke, with a bordure on each side of it, going round the whole plot, parallel to the wall: but if your ground be large enough, I bid you to make a larger distance betwixt the walke and the wall. It is also ordinary to divide the garden into four plots, by two walkes crossing from side to side: but I am not for any cross-walkes in gardens; yet if you would have more than one, which divides the whole into two parts, make them all parallel through the plot, leading to the house, and equi-distant from the middle, still making the gates, doors, or entries front the walkes.

In your kitchen-plots, and in nurseries for trees, plant no trees through the ground; for when they

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grow up, they cover and choak the ground, so that you will be necessitate to seek for another. Therefore, make only three bordures next and parallel to the walks around, on each hand; plant the first, or that next the walke, on both sides with a holly-hedge; the second with goosberries and currans, and the third with dwarf-trees; keeping the ground all open and void within for kitchen-herbs and roots; which must be orderly divided into ridges; and these again divided into beds, furrowes, and drills, for your more orderly and convenient planting and sowing.

As for proportion, note that your walkes extend in breadth according to their length, viz. a thousand foot long, thirty foot broad; five hundred foot long, twenty foot broad; two hundred and fifty in length, fifteen in breadth; and an hundred foot long, ten foot broad.

Make the bordures six foot broad; the tables or pathes betwixt the level ridges, wherein the ground is divided, three foot broad; the beds, six foot broad, with foot and half furrowes: you may make seven of these beds in each ridge, and the whole length of the plot all running from the house: but if your ground be small, you may make your bordures and

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beds narrower; yet still let the whole plot, ridges, bordures and beds, be equally divided, and their areas or edges three inches higher than the furrowes or pathes, and so much higher than the side of the walkes as the middle of the walk is higher than its sides; all handsomely clapt up with the rake-head, by a line: and the like order you may observe in your seminaries and nurseries of trees; then plant and sow by lines and drills, both for beauty and conveniency.

When you set about this, divide the bed, bordure, or ridge, at both ends, into so many equal parts (by the help of the long rule and small sticks); then stretch the line from end to end by these sticks, and with the corner of the rule make a marke by the line, and therein set your herbs and plants; and for setting of seeds, measure out, and stretch on the line as before, and with the setting-stick make the holes by the line (not too deep) and therein put the seeds. And if you sow in drills, make a scratch, or little ebb gutter, with the point of the stick by the line, and therein sow. If the rowes be two foot distance, let the first be one foot within the edge; if six inches asunder, make them three inches off the edge, and so proportionally. Note that I have told the dis-

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tances of each sort of kitchen-herbs and fruits, Part II., Chap. VI., where is intended six foot broad beds ; but where they are less, there must be fewer rows.

The kitchen-garden may be placed nearest the stables, for the conveniency of wheeling in manure, and out of sight of the front of the house : because of the impropriety of the view, to see manure in that garden where the eyes of the persons in the house should be more agreeably entertained, by lawns, avenues, vistas, and other more agreeable prospects than which is necessary in kitchen-gardens : and when you plant or sow, place every species by themselves, except such mixture as is mentioned, Part II., Chaps. I. and III., and where you have not a whole ridge, or at least a bed of a kind, you may compleat them with such as are nearest of growth and continuance : also plant such as are of long duration, and such as must be yearly renewed, severally, each in ridges or beds by themselves ; the order is to make every sort opposite itself. For example, plant perennials, such as artichocks, &c., by themselves, that they may not interfere with that ground which is to be wrought up annually for the annual productions of this

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garden, such as onions, carrots, turnips, leeks, parsnips, &c. Perennials are such plants as continue many years in the ground; annuals are such as usually die immediately after they once bear seed, and that is usually, tho' not universally, the first or second year.

As for physical-plots, you may have them in that ridge of the kitchen-garden next the bordures: and if you incline to have no other pleasure-garden, you may have flowers there, and on the bordures next the walks also: another ridge or interval betwixt the walk and wall will be excellent for all early, rare, and tender plants. You may rill your physic-herbs in tribes and kindreds, planting every tribe by themselves, and you may also place one of each kind in alphabetical order.

As for walls, bricks are best; next to these, stone and lime; four ells is low enough, five or six if you please. Make your walls of south aspect in straight lines, but not in semicircles, which is by some erroneously practised; for there the wind being pent up occasions squirls, and retards the ripening of the fruits there planted; nor should there be any hot-beds nearer the wall than twenty feet, excepting cucumbers in the ground for picklers. The distance

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of wall-trees will inform you what quantity to make them; as for example, fifteen foot is the distance of cherries and plumes, (except such as the May-cherrie, which, being dwarfish, requires less), eighteen foot for apricocks and peaches, twenty foot for apples, twenty-four for pears; therefore, if you make the semi-circumference eighteen foot for apricocks and peaches, (you may plant two dwarf cherries therein); let the plain if straight wall betwixt each semicircle be just one tree distant likewise.

Also in straight walls divide equally, and plant none in the corners: measure first off six foot on each side the gates or doors, for honisuckles, jasmines, &c. And whatever be the distance of your trees, set them half therefrom, as also from the corners; except where you make all their heads ply one way: if on a low wall such may stand three foot from the corners, or the honisuckles they lean from, and a whole distance from these they lean towards. You may plant a goosberrie and curran in the intervals of your wall-trees, while young, and when the trees approach, remove them. Let the roots of your wall-trees stand near a foot from the wall, with their heads inclining towards it. Wall-trees

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in orchards (whose standards are in the quincunx) should stand opposite to the middle interval of the standards.

The distance of dwarf-standards is sixteen foot, where there is but one row; and in following this rule of the three bordures, they will stand just sixteen foot off the hedge, observing to plant in the middle of the bordures. The distance of gooseberries and currans may be six foot. But in all your plantings and sowings divide the ground so as each kind may stand and grow equally.

To conclude, these three bordures surrounding each side of the walkes, handsomely made up and planted as aforesaid, will secure the ground within from hurtful winds and colds, and make people keep the walkes; doors handsomely paled being on the entries to the hedges, so as they may neither hurt you nor themselves. Also the hedges, dwarf-standards, shrubs, and wall-trees being well pruned and pyled, with the bordures and walkes kept clean and orderly, will make it look like a garden of pleasure, and hide all the ruggedness that happeneth in kitchen ground by delving, manuring, turning and overturning throughout the year.

THE SCOTS GARDNER
CHAPTER V

HOW TO MAKE THE PLEASURE-GARDEN

PLEASURE-GARDENS use to be divided into walkes and plots, with a bordure round each plot; and at the corner of each, may be a holly, or some such shrub, train'd up, some pyramidal, others spherical; the trees and shrubs at the wall well plyed and prun'd, the greens thereon cut in several figures, the walkes layed with gravel, and the plots within the grass (in several places whereof may be flower-pots), the bordures boxed, and planted with variety of fine flowers orderly intermixt, weeded, mow'd, rolled, and kept all clean and handsome.

Plain draughts are only in use, and most preferable: that which I esteem most is, plain straight bordures and pathes running all one way, that is, from the house, with one walke parting it in the middle, leading to the house-door: and if the ground be large, you may make one round by the wall too. Let the bordures and pathes be both of a breadth, viz., six foot; box the bordures, plant them with flowers; lay the pathes, as well as the walkes, with gravel; plant the walls with fruit and flower-bearing trees variously.

Outer-courts have only one bordure at the wall,

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planted with laurels and other greens; one pathed or brick-walk in the middle, leading to the middle of the house-front, with a long grass-plot on each hand.

The bordures of your kitchen-garden, round by the walkes, may be boxed with thyme, lavender, hysop, rue, &c., the next with parsley, straw-berries, violets, July-flowers, &c., cherrie-gardens and physick-gardens, with sweet-brier often cut, or box cut three times *per annum*, in April, June and August, remembering to cut their roots at the inside every second year, that they exhaust not the strength or nourishment of the flowers or herbs. But that which I preferre for flower-gardens above all, is *dwarf-juniper*, raised from seed and planted thus: when the ground is levelled, measure out the bordures (but raise them not above the walkes, except you minde to lay gravel), stretch a line, and, with the edge of the rule, mark along thereby, and therein set the young slips of box, or the young plants of juniper, at two years' growth; then prepare the bordures, by delving in consum'd manure of cows and sheep, covering on a little lime, topt with a little sand to lye all summer, kept clean from weeds by hawing. At the beginning of winter delve and mix together,

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to lye all winter un-raked, and at the spring re-delve,
stirr and mix it thoroughly, and trim and plant
your flowers and other plants in their seasons. See
Part II., Chap. VII.

In making the walkes in any garden, first level up
the bordures at its sides : secondly, drive a row of
stakes in the middle of the walke, and level them
accordingly, *i.e.* stretch a line across the walke be-
twixt the two level bordures, and marke where it
hits the stake in the middle of the walke ; do this
at both ends, and by viewing betwixt, you will level
the rest ; see the next chapter of levelling. But
you may minde, that the walke must rise a little
in the middle, and yet the middle of the walke and
top of the boxing of the bordure must be level, *i.e.*
the boxings so much above the side of the walke,
as the middle of the walke is above its sides. Where
your boxing is timber or stone, fill up the bordure
of earth to the top thereof ; but where your boxing
is of box, juniper, or the like, the earth within the
bordure, and edge of the walkes and pathes with-
out, must be equal.

As for the rise or swell the walkes have, which
makes them the segment of a circle, grass, or brick-
walkes may have, for thirty foot broad, six inches

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of swell; for twenty foot, four inches; ten foot, two inches; and let gravel have an inch more proportionally; agreeable to the rule of proportion in arithmetick, as twenty is to four, so is thirty to six. If gravel or brick-walkes or pathes lye by the side of grass, make the grass an half inche higher than such. If the walke be grass, make two foot tables, or pathes of gravel, betwixt it and the bordure.

To lay grass, first level the ground, whether a walke or plot; and 'tis the better to lye a year so made up, before you lay the turf; because it may be levelled up again, if it sink into holes: if it lye wet, bottom with stones and rubbish; and, if the earth be fat, take it out, and put in sand: however, lay the sand a foot thick immediately under the turf; then by the squair, stretch lines, ritt with the ritting-iron (which is an half round put into the end of a crooked stick) and raise the turf with the turf-spade (which is broad mouthed, otherwise all one with the husbandman's breast-turfing-spade); let the turf be of equal thickness, near inch and half thick, a foot and half broad, and as much in length; lay their green sides together when you put them in the cart, but do not roll them when brought home: lay them all even and close, feeling each particular

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turf with your foot, so as you may discern any inequality, to be helped immediately; in laying, still beat every two or three rows of turf, while moist, with the wooden-beater, and when the whole is laid, and well beat, roll it well with the stone roller, which should be as big as a hogshead. The spring and autumn is the best time. And if you mind to keep a good pile of grass, suffer it never to grow inch long; beat, mow, and roll it often, especially in the mornings and moist weather.

But if you would lay the hard tile or brick-walkes, prepare as for grass, minding it wants the breadth of the brick of the true height; for you must set them all on their edge, close by one another on a bed of lime, laying the side of every second row crossing the ends of the other, and place one in the middle of the walkes, that both sides may be regular.

To lay gravel, cleanse first the bottomes of the walkes of fat earth, and root-weeds, and bottom it with stones; and lay over that about half a foot of clean round gravel, and about three inches top-gravel of equal greatness, which may be like beans and pease; you must make it thus equal by sifting, and so rake, tred and beat; and when completely levelled, beat it well with wooden-beaters,

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while moist; then roll soundly with the wooden-roller, and afterwards with the stone-roller, especially in rain, for which the spring and autumn is best: but if in dry weather, you must dash water on the roller (continually in rolling) with the watering-pot, and if you are forced to use sea or water-sand, you may beat some good clay to dust and mix with it before you lay it; weed, and roll frequently.

For the orderly planting of flowers there may be three ways; as first, in bordures of pleasure-gardens or courts, plant five rows in the bordure, and intermix them orderly, *i.e.* divide and plant every sundry sort, through the whole garden, at equal distances, and not only so, but of every sundry colour thereof also: let never two of a kind, nor two of a colour, stand together, without other kinds and colours interveening, so there may not be two or three of a kind or colour at one end, bordure, plot, or place, and none of them through the rest, but universally and ornamentally intermixt: and when you find a breach by some being past the flower, you may have various annual flowers sown in pots, ready to plunge into the vacancies of the bordures for continuing this beauty.

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Secondly, in my sort of flower-gardens, which has bordures and pathes running all one way, viz., from the house, plant five rows, and intermix them, not as in the last way, but set five rows of each kind cross the bordure, so as twenty five of each sort may stand in a geometrical squair; for instance, a squair of tulips, a squair of boars-ears, a squair of crocuses, a squair of July-flowers, a squair of anemonies, and a squair of cowslips; and so a squair of tulips, another of boars-ears, &c., again intermixing through the whole of that bordure the colours of each sort: then may you make the next bordure so intermixt, but differing; minding, that as you intermix the bulbous and fibrous plants in each bordure, so must they be also in the crossing, that the squair of fibrous in this way, oppose the squair of bulbous in the next; and likewise whatever bordure such sorts are in on the one side of the walke, set the very same in the bordure equi-distant from the walke on the other side, that the whole may be regular and uniformly intermixt all the year, looking from all sides, ends or angles.

Thirdly, in nurseries of beds and ridges, plant every kind in thickets by themselves, and annuals and perennials by themselves, (except only that

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you intermix their coloures), that is, make a whole bed or ridge of each kind, six rowes in the bed ; the dwarfish may be eight rowes : thus every thicket of them flowering in their own order will have a great show, and at a great distance. Here also observe uniformity, that is, alike on each hand, for if you have a ridge or bed of July-flowers, or the like, on the one side, plant another thereof at the same place on the other, &c.

And because flowers must be removed, some in one, two, or three years, and the earth renewed or enriched, and properly prepared, else they degenerate (because in a length of time they exhaust the substance of the ground, at least that part appropriate to them), therefore you have a good conveniency for effectuating the same by these last two models prescribed ; for then you will have some beds or squairs where your annuals stood, into which you may re-plant your tulips, anemonies, or the like unto ; and so another sort where these stood, and your annuals again where these last were : and because here you remove a whole bed or squair of a kind at once, you may very conveniently prepare, delve, stir, beat, sift, and mix it thoroughly with the proper soyl, a thing most necessary ; and this you could not

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well do, where they are scattered as in the first way.
See the rules mentioned in Part II., Chap. I. and
Chap. VII.

As to terrase-walkes, if the brow on which you make them be not too steep, the work will be the more facile: if you build them up with walls, be careful to sound deep enough according to the level; and if the middle of the terrase be on the central line of the house, or of any walke, make the stayr of the upmost and downmost there to part at a plat on the head, going down at both sides; so much of the stayr-case may be within, as that the outer-edge thereof may be in a line with the bordure at the wall; by this it marrs not the walke; the rest may be at the ends: plant the borders at the upper-side of the walke with wall-trees, the under-side (being but an ell high) with laurels, &c. But if your terrase consists only of walkes and sloping-banks, you may have the bordure at the head and foot of each bank, on either side the walkes, planted with standard-cherries, &c., and the banks of violets, strawberries, or grass.

As for pondes, make them large and broad, such being best both for the health of fish and fowll; squair, triangle, circle, oval, or what figure fits your

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ground best ; let them be five or six foot of solid
water at least, with sluces to let it run in and out
at pleasure ; keep them clean ; for such water is the
more preferable for watering plants.

I am against arbust and close-walkes, except trees
naturally closing, whereby we have both shade and
air.

CHAPTER VI

HOW TO LEVEL GROUND

I HAVE often wished that there might be some rules
found, whereby this expensive work might become
more easy. There are two sorts of levelling, viz. the
horizontal and sloping : the first is best known, but
the last more profitable and convenient. For ex-
ample, I have made a plot slop four foot by two
hundred long, and eighteen inches by three hundred
and eighty foot the other way : this was not per-
spicuous to vulgar eyes ; yet to have made it hori-
zontal would have been ridiculous, as to time, paines,
and expenses. And in levelling the walkes about a
plot (which sloped naturally) so as to make them
correspond with the ground around, I behoved to
make the middle walke agree with the side ones,
whereupon it slops ten foot in three hundred and
seventy long : now if I had made this horizontal,

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it would have been five foot, or ten steps lower than the one side walke, and as much higher than the other, and so worse and more inconvenient than before, both as a walke, and anent correspondency with the rest of the ground within: therefore I am for levelling any ground in a sloping manner, that it may turn a little to the sun, if possible, for draining water, and that it may correspond with its adjuncts, and above all, in order to prevent the more costly way; for 'tis certainly a principal observation in levelling, not only to cause the ground of itself serve itself, but also to level it as it lyes most conveniently, which is the cheap and easie way of levelling. When you have a row of stakes set in a straight line, and at about twenty foot distance, as in the edge of a bordure or middle of a walke, the way of levelling, rather horizontally or sloping, is to mark and put a nail in the two stakes which are at the extreams or ends thereof, and to view betwixt: cause marke all the rest which are betwixt in a level line therewith. This is the easiest, the exactest and quickest way: and, by the same methode, you may go round any plot, and consequently cross it every way according to this direction.

If what you would have horizontal, place the long

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rule and the level at one end, suppose the sole of the door, till the plumb fall right in recovering, and view alongst the said rule, (as on a fowling piece) that you may see what part of each stake it hits, and cause one, with a piece of whitepaper, or white hafted knife, hold the same at each stake its haft tending out, as the nails which bear up the line, and direct him by words or signes to hold up or down till it be just level; when they are all marked, measure down so much on each stake as was raised up for conveniency in viewing; there marke, put in nailes a little, stretch on the line, and level up the earth or gravel thereunto.

And where you would have determin'd slops, set on the level, and make the far-end stake in a level line therewith; then measure down upon the said stake or pole, from the place marked, so much as you designe to slop, and put in a naile with white paper about it; and at the upper-side of the rule in the stake at the door, put in another nail, and by viewing betwixt these two, mark all the rest as before. If the distance between the extreame be farr, so as the sight may dazzle, let the viewer descend from his station, and come forward at every five or six stakes; and holding his knife at the last

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marked stake, cause his assistant or stake-marker proceed.

To level as the ground lyes, let its slop be what it will, you need neither level or rule, (except you please to try how much it slops, after it is done, for satisfaction); only set stakes as before, and viewing the ground narrowly, put nails in the stakes, which are at the extreams, where you think the ground will run when levelled, to make it serve it self, and as it lyes best or easiest for levelling; and when you have concluded upon the level at the extreams, mark all the stakes in the interval, by viewing as above.

But to proportion the level to the ground, is the whole art of levelling. 'Tis true it is easy, if you have a plot or walke a foot higher at one end, to take half a foot thereof, and lay on the low end, so as the two ends may be horizontal; or, if it be horizontal, to take nine inches off the one end, and lay on the other, that it may slop eighteen inches; but if some places of it lye one way, and some another, and some neither the one nor the other, this increaseth the difficulty. Wherefore you must first drive stakes at the corners of the plot; then view the ground about and put nails in the stakes where

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you would have the level run, or at least where you think by your eye it fall most conveniently, to make it contain it self, and the more easy to be levelled: also set up several stakes in the intervals and cross-ways through the plot from opposite angles, and by viewing betwixt the foresaid nails every way, marke all the stakes level; but if you cannot see the markes of this supposed level which are on these corner stakes, seeing there may be some below the ground, little hills, or some such obstructions lying in the way, then measure equally upon each of them, so farr as you think convenient for getting your sight, and mind to take down the same again after viewing.

When all is marked with this supposed level, go over it, and note narrowly how it will agree, and so, as your reason shall teach you to alter, you may take up one end or let down the other, or both, till you bring it to such a proportion, as to do its own business it self. Or you may work more exactly thus:

Suppose you have a bordure, or middle of a walke, with sixteen stakes driven therein at twenty foot distance, all marked with a supposed level, and ten of these markes above ground, and six under

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ground: First, measure how farr the markes on each of the ten stakes are above ground, and write them down particularly; and adding their measures together, you find thirteen foot four inches. Secondly, measure how farr the markes of the six stakes are under ground, write down, adding them together, and you find it twelve foot; subtract the one from the other and the difference is sixteen inches, which must be divided by sixteen stakes in the bordure, that is, one inch to each stake; so that this supposed level is an inch higher over all than the true level, which being taken down, will make the ground there level it self, and no more. This may suffice for an example, but I could say more, if I did see your ground. And if you can thus proportion the level to one bordure, walke, or one row of stakes, you may, by the same rule, find the level for the stakes round and across the plot, and consequently level the same accordingly: for having once concluded on the level, drive stakes over all the plot as in my first way of planting trees, and marke and put nailes therein, as above is taught for carrying the line. Except you mean to follow my method of levelling the kitchen-garden, or the same for planting or sowing, which is only to level one bor-

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dure thus by stakes and lines. Round each plot, and by the eye, level up the ground within correspondent thereto, all along in trenching: albeit this is not so proper for courts and grass-plots, yet, as by this means I use to level ground without a level, so do I think this way of finding out the true level, by means of a supposed one, worthy your notice, and if rightly improved, will save you much money and paines.

Be cautious in founding your walls, lest you undermine them in levelling: nor is it convenient sometimes to confine your level to the foundation of walls already built; for in so doing, you may lose more than it would cost you to cast down and rebuild; but in such cases, you may rather build under gradually.

There are some bad lying plots and walkes, with an ascent at the head, hollow in the middle, and level at the foot; these and the like are very troublesome to level under one denomination; for the taking down the hill, bares it so, that plants cannot prosper thereon. Some are necessitate to take out the gravel, tile, or stones, so much deeper, and travell earth again; but I rather advise to make terrases: you need not confine yourself to the number of

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banks, but only to the proportion and uniformity. If it tend all one way, high at one end, and low at the other, then it is proper enough for perpendicular walkes that front the house; but if low in the middle, and high at both ends, or low at both ends and high in the middle, then more proper for parallel walkes (whose extremities are equi-distant from the central line of the house): remember to divide and slop these equally.

This minds me of some abuses which I have seen, as a plot of sloping levelled ground, with another horizontally levelled lying at the foot thereof, (at least not under one slop); or horizontal walkes and bordures lying by the foot and head of sloping plots; these are unseemly; for you should always make them slop under the same denomination, except in steep and high banks: I have made walkes of eighteen foot broad slop eighteen inches from one side to the other, because the whole plot sloped the same way, so much proportionally; yet to the eye it appeared very pleasant. But where such horizontal and sloping pieces lye contiguous, the defect is easily seen; therefore if you be necessitate to lay some plots so, (albeit I know no reason for laying walkes so), make rather a hedge to inter-

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cept; and in all your works let there be a connexion.

There are some more obstructions in levelling, as in a long walke, when you have the two ends found and marked, either with a supposed or true level, and cannot see betwixt, so as to do it exactly by reason of length: here two may go to the middle, or near it, where you may conveniently see both ends, looking at a distance backward and forward; there drive in two stakes near to the length of the long straight rule, at which hold on the rule, and let one view amongst the same, till the marke at the west-end be level therewith, and likewise the other towards the east, so that both may alter up or down till they have their desires at once. Then fix the rule, and having as many stakes set as is needful, you may view backsight and foresight thereon, and level them all exactly.

But if a wall, a house, &c., intercept, measure perpendicular, and exactly up to the top thereof, and on the other side measure down the same again; and so set forward the level, but so as it may communicate with the rest when obstructions are removed.

But if a hill, go to the top, set a true level, and

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laying ane eye thereto, cause one with a long pole go down, till its top be level therewith, (he holding it level by a plumb-rule), then descend from your stations, and set the upper end of the rule where the pole stood, there level it, and do as before; thus from station to station, to the foot of the hill, (if it be so great), keeping accompt in a note-book what poles and parts it contains, which may be as easily taken down on the other side by the same method.

But if it be possible to see over the obstruction on three footed standing ladders, by help of long poles or pikes, as I have done in the like case, raise your level thereon, and having viewed and marked that on the other side, measure down the same there, &c.

In levelling any ground, for kitchen-ground, orchards, or nurseries, take not away its good earth or surface, as you bring down the heights, but alwayes turn over the upper part thereof behind you, carrying away that which is below, so much deeper, that it may contain that surface, and put the bad earth in the bottom of the hollowes, with better mould above it.

In the practice of levelling, or other works, contrive the working so, as there may be still a motion

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amongst all the partes: and albeit carts are cheaper for levelling than wheel-barrowes, if the way of carriage be not very short; yet if you do not set as many men to fill the carts, as may have the one full against the other come in, and no more, you lose considerably; and this will be according to the distance of the carriage, or as the earth is capable of being wrought: and so with wheel-barrows; three barrows for two wheelers and one filler sometimes doth well; sometimes more fillers or fewer wheelers; yet still let them have a spare-barrow; and if this could be done with carts also, it would be of great advantage. Wherefore, in my opinion, there is no way so expeditious to worke this effect, as the carts with three wheels, whereby two men with two of these carts, and one horse, can do as much as three men, two horses, and two carts; for one man to fill the spare cart, the other man to drive the one horse; and when he comes in, he has nothing to do, but take the traces and hooks of the empty cart, and puts upon the rings of the full one, and so drive on. This cart has no trams or limbers, but a swingle-tree or breast-board before, where the rings that keep the traces are: it has a handsome folding body; the third wheell is about thirty inches in diameter,

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all of iron, and runs in ashiers of the same, fastened perpendicularly under the middle of the fore-breast, with a turning pin of iron: the other two wheels are common, but if they have an iron axis, the better.

To bring in water in pipes to your houses, courts, gardens, pondes, parks, &c. consider on the level; for as the place into which you convey it must always be lower than the fountain from whence it comes, otherwise it cannot flow thither; so you must take notice, that no hill in the way of its conveyance be so high as the fountain it self. You may find the level by placing your instrument at the well or fountain, as is directed in walkes; and if a hill intercept that sight, plant on the top thereof, that by backsight and foresight you may find the difference, and hence you may know whether you can carry it about the obstruction; but if the distance be far, you must needs be the more exact. As for the instrument, the cross described in Chap. II. whose sights may be two prospect glasses, may do well enough, whether for one or many stations. Let one stand at the spring-head, another betwixt and the place to which you desire to carry the water, a large distance asunder; but so as a third man about the middle may see both their marke-boards,

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that is, on their pike-staves, and direct them to hold level by his back and foresight, desiring them to keep accompt what feet and parts; and so come foreward till the assistant at the well plant where the foremost stood; and thus proceed quite in a straight line, from station to station so long as needful. At length, add all the measures of back-stations together, and also those of the fore-stations; subtract the one from the other, and the remainder of levels betwixt the fountain and the appointed place.

Allow for the fall of the water, for every thousand foot in length, twelve inches of slop at least.

I confess, I need to apologize for these and the like digressions, but the earnest desire of severals forced me.



THE SECOND PART
OF THE SCOTS GARD'NER
TREATING OF
THE CULTURE OF PLANTS

THE CULTURE OF PLANTS

CHAPTER I

OF THE SEVERAL WAYES OF PROPAGATION

I AM not to describe the varieties in the tribes and kindreds of plants (seeing I am not now writing a herbal), but only what is most material to their propagation and improvement. Wherefore I shall shew :

First, in general, the several wayes of propagation; and then particularly some of the most usefull.

The several wayes of increasing them; and these are :

First by seeds, kyes, kirnells, nuts, stones.

Secondly by off-sets, suckers, and slivings taken from the mother-plant.

Thirdly by cuttings, stems, and slips, set without roots.

Fourthly by laying the branch of a growing plant down into the earth.

Fifthly by carrying up soil to it, where it will not bend down.

Sixthly by various wayes of graffings.

Lastly by several wayes of inoculation.

The business of this chapter is, to shew the manner and time of performing each of these wayes.

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And first by seeds: chuse them from the fairest plants, full ripe, the day fair, and plants dry. Lay them in the sun and open air a little, some for rubbing out, others for winning in their husks: and, as you should not sow fruits, kernels, nuts or stones, with their fleshy part on, but eat, or rub it off by rolling in sand, and then dry them a little; so neither wash, weat, nor steep them; neither keep any longer after they are ripe. Most part of them will keep till spring, but then many will lye till the next, especially stony seeds, berries, and kernells. I do not mean ash, holly, yew, mezerion, hawthorn, &c. which naturally lye a year longer, albeit sown immediately when gathered; yet even some of these, namely the holly, will lye sometimes a year longer than their usuall time, if the fleshy part be not rubbed off.

I might say something of the timely interring of tulips and others, but I come to the manner of sowing: which is, to cover seed with the mould: of this there are several models, according to the nature of the seed, soil, season or fancy, either to sow the ground and turne the seed in under the furrow or by drawing trenches in the soil, and then drawing the earth over them with a haw; or sowing the bed,

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ready drest, and hacking in the seed with the same instrument; or by harrowing, raking with a rake, or drawing bushes over the sowed ground to cover the seed; or to put off the surface of the whole bed with the rake-head, and sow thereon; then draw on the mould again with the same; and having cast up the furrows with a shovel, smooth the bed with the rake; or make drills by lines in made-up beds, sow and cover the same with the rake-head, not disordering the ranks; or to set the single seeds with sticks by lines, or to sow the bed, and then to sift fine mould thereon, &c.

Sow the strong and hardy deeper than the small and tender, and sow ebber at spring than before winter, and deeper in a light than a stiff soil.

Albeit I use for the most part to plant and sow every species by themselves, yet you may sometimes use mixtures, as carrots and radish in one bed; because the radish may be gone ere the carrots require much room. Amongst new-set liquorish you may sow onyons, radish, lettuce, parsley, carrots and parsneeps together, gathering each in their seasons; the parsneeps will stay till winter; and drop beat-rave or parsley in your onyon beds, to stay winter, after onyons are gone; also beat-rave, skirrets, and

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beans at a considerable distance in the intervals of newly planted artichocks ; also at a great distance among cabbages, or in the edge of the furrows of other beds.

The most natural time for sowing is, when the seeds, of their own accord, fall to the ground ; nevertheless, tho' many do well at this season, as stony-seeds, and such as can endure winter, yet the tender, which are many with us, do best in spring ; but for convenience, we sow at several other seasons, as in summer, at which time they require watering and shade ; and in autumn, which is the only season for some, which, if tender, require defence and shelter ; nor can we have others early at spring without hot-beds, which is required especially by such as come not to perfection in our short summer.

Endeavour to sow when the soil is in good temper : a hot furrow is good, but some grounds will not harrow or rake when delv'd or plow'd, which, when exposed some time to air, frost, sun and showers, doth crumble and fall tender ; hence ought such to be prepared by fallowing ; see more particularly the manner and season for each sort in their respective chapters following.

Suckers are those which grow, run, spring off or

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about the mother-plant, whereof are made off-sets, by severing or parting them therefrom.

Take off these on trees and shrubs, with a violent, but cleanly pull; be careful of bulbous roots and anemonies, that you wound not the mother-plant.

To force as are unapt to put forth suckers naturally, you may bair the root of those of a woody substance; cut it into the pith, slit it down a little, and put in a stick to keep the gap open; level in the earth again, so shall the slip raised spring, and so much the better, if there was an eye immediately below the cut. When the fibres are grown, cut off this plant to live by it self.

Another way is to cut the root through, a little distance from the tree, with a cleanly slop downwards, and raise up the butt-end of the root so cut off, till it be a little above the surface; as for root-graffing, hereafter to be described, level in and tread the earth again, so shall the piece left at the tree send forth young roots, and the root so cut and raised send out a top.

Rich free earth for bulbs and other roots, will assist them to put forth suckers.

Cutting the tops of fibrous-rooted herbs, in grow-

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ing-time, before they flower, will help them to off-
set, and to last long too.

The season for severing off-sets of hardie-trees that lose the leaf, is the latter end of October, and beginning of November; albeit, you may have them also any time till March, if the weather is open.

For young tender trees, with hardie greens, let the winter frost be over, and before the sap rise. April is best for greens.

Bulbous and tuberous-roots, when they have done springing, *i.e.* their stalks and leaves beginning to wither.

All fibrous rooted herbes, when springing, and before they run up to flower; altho' you may plant many after the flower is past, stalks and leaves cut, and they springing afresh. But the first spring is best.

If drought, water shrubs and fibrous rooted plants upon their first planting; at least shade them from the ensuing scorchings, by covering the surface with some vegetable or litter, and water the same thoroughly if needful.

And though you must water fibrous and some bulbous roots in drought, once in two or three dayes;

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yet be sparing, and defend them from too much raine.

To propagate by cuttings, is to cut off the branch or stem of a plant, and so set it in the earth without roots.

Strip it of leaves and branches, twist the branch, if it not too brittle; plant deeper than these with roots, and in a rich and moist soil, keeping it watered and shaded, until rooted; cut off their tops, except greens, as if your cutting be twelve inches long, let nine be under, and three above ground.

The better to effect the rooting, if a hard substance, as yew, quince, &c. twist their ends a little, or cleave them a piece. If tender plants of great pith, as jasmines, July-flowers, &c. cut only at a joint or knot, and plant them, and cover these cuttings, especially July-flowers or pinks, with bell-glasses, and in the sunshine shade them, nor suffer them to have any air until they are well rooted and are growing; for air rots cuttings, but it is otherwise in layers. If large stems of pithy trees, as poplars, &c. sharp their ends down to a point, reserving the bark whole on one side.

If stock-July-flowers, slit the bark near the end in several parts round the stem, fold up the bark so

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cut, and, taking the peel'd part close off, plant the same with this bark, spread as you do a root.

The time of planting cuttings is, if trees and shrubs, a little before they spring; and if herbes, when springing, as above for off-sets; and let the stems of July-flowers and wall-flowers be well shot, *i.e.* something firme, and take such as have not had a flower.

To increase by laying, is to bend down some branch to the ground, and, with a hooked stick thrust into the ground, stay the same in its place, and cover with earth of deepness as you see fit. Let the soil be good, watered, and shaded in drought from the scorching sun, and sheltered in winter if needful.

To force their rooting (if July-flowers) prune off the under and withered leaves, and cut it at a joynt into the pith, *i.e.* half way through, and slit it up to the next joynt; thrust down the cut part gently into the ground, making it fast, and cover it as before. If trees and shrubs, prick the rind full of holes at the place interred, or cut away the bark round at the same place; but if the branch be small, use it as July-flowers, and if any refuse, bind them hard and fast above the slit with a piece of pack-threed or wyre, to stop the sap in its course, that it may pro-

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vide for rooting. Cut off all your tops as you lay them, except greens, and some very pithy trees.

The time for laying all trees and shrubs that lose the leaf, is October, as also March, if secured from drought. All greens in April, which therefore must be shaded. July-flowers in March, April, or July.

The trees or shrubs will be rooted that time twelve months, at which time transplant them. The July-flowers layed in March may be transplanted in July, or if layed in July may be transplanted next March or April.

Circumposition is used in all cases, as laying, except only that the earth must be raised up to the branch, because it will not bend down to it. Therefore fasten a pot, a basket, old hat, or the like, on the tree, by a stake or some supporter ; let it have a hole in its bottome, through which you must put the branch to be propagated, and then fill the pot with rich earth, having ordered the branch, as before, to cause it root ; water it often. Willow-earth or rotten willow-sticks at the bottom of the pot, helps to retain the moisture. I have effected this with clay and cow's manure well mixt, after part of the bark has been taken off round, clapt about with a double or triple swaddling of straw, or hay ropes.

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This a mid-summer as well as a spring work, and very notable for propagating such as can scarcely be otherways obtained.

Graffing is to take a cyon of a tree, and place into another, call'd the stock, fit to receive the same, that the inward bark or rind of both may joyn, and the saps unite, &c. Whereof there are several wayes, as,

First, of graffing in the cleft; saw off the head of the stock in a smooth place, about half a foot above ground, for dwarfs and wall-trees; as also standard apple and pear, (for they will shoot up for a body), but betwixt three and four foot for standard-cherrie and plumb. Pare its head ragled by the saw smooth; cleave it a little beside the pith, and with your pen-knife cut away any jags, roughness, or blackness, that remaines after cleaving on each side the cliff within; then prepare the graff, by cutting on both sides from some knot or bud in forme of a wedge, suitable to the cleft, with little shoulderings, not ragling the end. For if the bark be raised at the tail or lower end of the graff, especially the cherrie, it impedes its growing; cut off its top about three inches above the shoulderings, close behind a leaf-bud, then open the cleft with a graffing iron; set the graff (or

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two graffs if the stock be great) in the clift so as the inward part of the rind of the graff may joyn exactly and close to the inward part of the bark of the stock; and if it pinch, as great stocks will, bind it not as you must do the smaller. Or put in a little wedge gently to keep it; take a slice of bark from the cut-off head, and cut a hole therein, so as it may slide on, and join round the butt of the graff, and cover the stock close over in forme of a hawk's hood. Lastly, cover it with clay, tempered with horse-manure that hath a little short litter in it, or with soft wax for smaller stocks. This is to preserve it from cold and drying winds, and from wet which harms most.

Note. If the stock stands perpendicular, set the graff on the west-side; if not, then place it on the upper side; if you fear winds, support them with sticks, as splinters to a broken bone.

Unbind, when you find their bands harme them, towards mid-summer; at which tyme top such as have shot so large as to be in danger of breaking with the winds, especially these graffed in the bark, hereafter to be described.

Pull up suckers close and cleanly from the roots; also rub off buds that appear on the stock. Graffs cannot thrive or prosper, if the stocks be uncleanly

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or ill-thriving, and this is occasion'd through bad
training.

Another way of clift-graffing, is, to cleave the
graff and not the stock. Thus: prepare the stock and
graff as for shouldering (next described) then with
the pen-knife cleave the inward face of the grass
in the cut part, and cut up the stock with a slop, so
that one lip of the clift-cyon may be bound on the
one side of the stock, and the other longer lip on
the outside, as in shouldering.

The graff sits here as on a saddle, with a leg on
each side the stock, and therefore will better resist
the winds; as also, the wound caused by the clift
will sooner recover. I have them wholly healed
the same year wherein I graffed them.

Shouldering is to cut off the heads of the stock,
and smooth it as at first; then cut the graff from
a knot or bud on one side, sloping about an inch and
a half long, with a shoulder, but not deep, that it
may rest on the head of the stock. The graff must
be cut from the shoulder, smooth and even, sloping
gradually, that the lower end be thin; place the
shouldering on the head of the stock, and mark by
the end of the cut part of the graff, and cut away
so much bark off the stock as the graff did cover;

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then place both together, that the cut parts of both may joyn, and saps unite one on the other; bind them close together with bass, and hood them with clay tempered with manure or wax, as before.

Graffing in the bark may be used in greater stocks, or in re-graffing of old trees, and is only for apples, because later in performing, which may be the latter end of April, when the bark of the stock will peel; for when both stock and graff is prepared, as in shouldering, instead of cutting away some bark off the stock, for receiving the graff, you must slit it on the south-side from the top, almost as long as the sloped part of the graff, and loosen the bark at the top of the slit, with the point of the half round wedge, made a purpose, tapering downwards to a point; which also thrust down between the bark and stock, to make room for the graff; but first cut a little bark at the thin end of the slop of the cyon, that it double not in going down, yet leave it with a sharp edge; and because, when the cyon is put in, it will bear the bark hollow from the stock-nick or slit, press the bark on each side the cyon, so that it may fall close to the stock, and to the edges of the cyon, then bind and cover as before.

Graffing by approach, is good for these that hold

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not well otherwayes; but herein the stock must be placed so near the tree where the graffs are, that the branch may reach it; then you may clift or shoulder-graff the twig you mean to propagate into the stock; and as soon as graff and stock do unite and are incorporated together, cut off the cyon or graff underneath, close to the grafted place, that it may subsist by the stock only.

Root-graffing is, to take the twig of any tree you mean to propagate, and a piece of root of the same kind, cut and raised up a little, and graff them by shouldering, uniting the butt-ends of graff and root, causing the rind of the root joyn to the rind of the graff, and so bind them. The next year they may be transplanted to a nurserie: these will be easily dwarfed, and readily hold; besides that the defect of stocks are supplied, and they are fit for transportation.

There are many other wayes, but these nam'd are the most material.

The time of graffing is, when the sap begins to stir in the spring; you must begin earlier with cherries and plumes, some later with pears, ending with apples.

Choice not your graff from such trees as are ill-

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bearers, neither from such as have not come to bear at all; but from constant and well-bearing trees, and the fairest and fullest of buds thereon. Let them have a piece of the precedent year's shoot, whereof make the tail and shouldering immediately below the butt of young wood; and if the stock be large, make the graffs wholly of the last year's shoot: and such (having blowing buds actually upon them) I have seen bear fruit the same year. But some old bearing trees yield no graffs; wherefore you may cut out some great branch, that it may shoot anew; or rather take off the same branch by circumposition, and plant, and the new tree may furnish you with graffs. Cut your graffs, ere they sprout, and keep them or carry them with their ends in clay, or dry in a box, their tops being cut off.

Inoculation differs from the former wayes of grafting, and is most proper for apricoks and peaches: any sort will more readily hold by this than by grafting, except cherries; they come quickly to be a tree: for I had a plum shoot above six foot ten inches the first year; and tho' they miss, yet the stock is not the worse. Therefore,

In some convenient and smooth part of the stock, at the same height as for grafting, with the pen-knife

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cut the rind overthwart, and from the middle thereof, gently slit the bark about an inch long, in form of a T, not wounding the stock; then nimbly prepare the bud, by cutting off the leaf to a little of the tail; then slit the bark on each side, a little distance from the bud, and, about half an inch above and below the same, sharpen the end below, that it may the more easily go down; and having a quill cut more than half way, about an inch long at the end, for dividing the bud and rind from the stalk, therewith take it off dexterously, and leave not the root behind; for if you see a hole under the bud on the inside, the root is gone; cast it away, and prepare another when the bud is ready; then with a bone, made half round, and sharp at the point, tapering on one side, raise the bark or rind on each side the slit carefully, not hurting the inner rind, and with care put in the bud, thrusting it down till its top joyn with the cross cut; then bind it close above and below the bud with dried rushes or bass. Or,

You may slit the bark of the stock upwards from the cross cut. Or,

Cut the edges of the bark about the bud of an oblong squair, and the bark of the stock fit to receive the same. Or,

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Reserve one fourth of this squair piece of bark of the stock untaken off at the upper end, which must be raised, that the shield may slide up betwixt the same and the stock, and so bind it gently, as before.

The time for inoculation is, when the sap is most in the stock, namely from June till August; near a month after unbind, *i.e.* cut through binding and bark, with a gentle slit on the back side of the stock leaving the binding to fall away of its own accords, at which time you will see which holds. In March following cut off the head of the stock four inches above the bud, and at that time twelve months, the stub too, that it may heal over the wound. You may prune as graffes, and pull up suckers, &c. See Chap. IV. for more.

Choise your buds from good bearers, as before; take them from the strong and well grown shoots of the same year, and from the biggest end of the same; and if you must carry them far, first cut off their leaves and top of the stalks, and wrap them in moist leaves or grass.

This much at present in general, for the time and manner of the several wayes of propagation.

In planting all plants, prune their roots, that is,

top them a little with a sharp knife, except asparagus. Also cut their heads, except greens, and tops of forrest trees ordain'd for timber; but the side-boughes most, that the head may be proportion'd to the root.

Plant no trees deep, (albeit some deeper than others); when their roots run near the surface, there they receive the beneficial influence of the sun and showres, which make vegetables fair and fruitful.

Lay litter, or any like, above ground, the compass of their roots, especially the first year of planting: and indeed, all plants require some shelter and shade with moisture when first planted, till they get rooting and strength.

Cut the leaves and stalks of flowers and herbes, when they are past flower or have yielded seed, nor at any tyme suffer too many; rather purge them in tyme. Suffer no more branches, flowers, or fruits, on any tree or plant than the root can nourish perfectly.

Neither plant or sow every year the same plants on the same ridge or bed, for it improves them to be changed; see more fully planting, pruning, preserving, &c. in their respective places following.

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CHAPTER II

HOW TO CULTIVATE AND PREPARE GROUNDS

HAVING shew'd the several wayes of propagating plants, it is also most requisite that you prepare the ground for effectuating the same. And that is, in the first place,

To trench it, viz. begin at one end of the ground, (you mean thus to cultivate and open) by a trench from one side thereof to the other, three or four foot broad, from one to two foot deep, as the quality of the ground admits, and the plants require, as liquorish, which must have it deeper. This being opened, measure off other four foot parallel at its side, turne that into the open trench, with the turf or surface in the bottome and the clean earth on the top; the filling whereof emptieth another; therefore cut off other four foot, and turne in as before; thus trench by trench till the whole be finished. I presume you carry the earth of the first trench to fill the last, or have other wayes filled hollowes therewith, and left the last trench open (if convenient) for receiving weeds. Or if the ground be hollow in the middle, begin there, and trench both wayes to help the level; if high in the middle, begin at both sides or ends, till

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the two open trenches meet at the height, for the same reason.

The latter end of harvest the ground is softest for trenching, and it lying all winter open to the weather is thereby meliorated. For as trenching doth well prepare hard, barren, and untoil'd ground, so doth it such as is exhausted by long and unskilful usage; and if at every trenching you apply proper manures mixt with the second spading, or under the last shovelling, and in five years re-trench, it will become to your wish, for all gardens, and plantations.

The next excellent way of preparing ground, is fallowing: begin as soon as you reap the crop; but let the ground be something moist, altho' you should stay for a showre; if it be not late in autumn, you may fallow in November, especially if stiff ground, and re-stirre in March or April when you plant or sow: and altho' you should neither plant nor sow it that year, keep it clean of weeds in summer by hawing, &c. and at autumn fallow again; but as in trenching, so in this work, you should mix it with proper soil.

Make use of the English fashion of spades, which are now common, and let every two delvers have a

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shoveller to cast up the small mould that falls in the bottom of the furrow; and the delvers should turne up the point of the spade, and nimbly break and chop all the clods thoroughly; this is very material, as well as the thorough mixing of the manures with the soil; so that mixing, stirring, re-stirring and fallowing, is most pertinent for the cold, chilled, barren, rugged-natur'd ground in Scotland, all which softens and tenders it, and so fits it for nourishing good seeds and plants, as I can tell experience; therefore,

I advise our husband-men also to the fallowing of their land as one requisite; slit-folding the same, as a second; watering or overflowing the land, as a third; burning the turf, as a fourth; draining excessive moisture, as a fifth; applying proper soils and manures, and that at proper seasons, as a sixth; laying the land to rest, as a seventh; and above all, inclosing and planting about their land, as the last and best improvement.

Example: At the autumnal fallowing, delve or plow deep, and apply hot unrotted and uncompounded manures; at spring re-plow or re-delve, and apply such manures as have layn mixed and rotted with earth; then mix, rake or harrow. The

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summer following is to destroy the weeds, and that may be done by turf, plough or hawing.

The husbandmen's slit-folding is equivalent to gard'ners covering the surface, especially of dry and barren ground, with litter &c. The manure of cattle washes evenly into ground, and should be turned down by the summer and autumnal fallowing, lest its substance exhaust by the sun and air, except that for grass, then only harrowed with a bush of thorns; instead whereof gard'ners should top their coverings of litter with a little earth or sand, and at autumn delve all down together.

Husbandmen's watering is, by running plough-furrows and trenches where needful, alongst or cross their land, so as the water may gently sweep over the whole. This is to be done in the winter on dry and barren grounds, which leaves a sulphureous deposit behind it, and strongly improves either for grass or corn; but what this husbandry ought as well to be practised on wet grounds, is evident, because the running of this carries away the sour quality of the other. I shall speak of gard'ners watering more particularly.

Burning land is, to pare its surface with the turf-plough, and lay the same in heaps to burn, and so

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spread the ashes. But if moss and heath, set fire through, without turving it; this destroys the noxious sour nature, and the salt remains in the ashes, for the strengthening the spirit of the earth.

Draining the wet, bogie or dropsical ground, is, by trenches a little deeper than the spring, (how deep soever), and then apply lyme, soot, ashes, pigeon manure, &c. As for the abounding of superficial water, that is easily helped by common water-sowers, or in some grounds by sinking holes down to the channel.

As the husbandman should have his land layed out or divided into several closes, some for corn, some for meadow, and others for pasture; so when he has taken five, six, or seven crops of corn, he should lay it out for pasture, otherwayes it will wear out of heart; and likewayes the pasture must be plowed up for corn, especially when it begins to grow mossie.

The way that the gard'ner turns his ground to rest, is by trenching and re-trenching, whereby it can never wear out, albeit, he must also observe to change the crops as well as the husbandman.

How to enclose and plant your land see Chap. IV.

Among all the varieties of soils, that next the sur-

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face of them is best, because prepared by the influence of the sun and showers.

That called a loam or light brick earth, is the most natural ground for gardens and plantations; strong blue, white, or reid clayes are worst. But the nearer they are to a mixture of loam, or if they have stones naturally in them, they are the better: also the nearer gravelly or sandy grounds incline to loam, so much the better. Therefore if your ground be stiff, trench with ferns, straw, bean-ham, thatch, litter, earth under wood-stacks, small sticks, &c. If gravelly or sandy, then trench and mix with loam or the upper part of clay; the turf of both is good.

If strong clay, trench and mix with fat sand, highway earth that hath drift-sand in it, rubbish of buildings, lime-rubbish, gravel, &c. And if it be for gardens or orchards, enrich it with manures mixt with drift-sand, or light mould heaped up *stratum super stratum, i.e.* laying by laying. And if the ground be cold, the more pigeons and poultrie-manure you put upon it, the lighter and warmer it will be. Or make *stratums* of earth, manure, and unslaked lime-stones to ly a year, and then apply this composition, which has been hitherto a great secret: therefore prize it.

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Binding grounds, which will not rake as you delve, if dry and hard, trenching and fallowing exposeth them to be softened by weather as is said. But if wet and tough, mix with ashes, sea-sand, &c. in culturing.

For preparing my composts, I use a pit, wherein sometimes I make a hot-bed, made oblong, about four foot deep, as I set manures, vegetables, and soils to fill it. Here I lay all kindes or sorts with *stratums* of earth, as horse, neat, sheep, pigeons and poultrie-manure, ferns, weeds, leaves, soot, ashes, sticks, saw-dust, feathers, hair, bones, urine, scouring of pondes, ditches, blood, pickle, brine, sea-water, the cleansing of a house or office, &c. I let them lye a year at least, but not above two. Then I take them out, and then stirre, air, mingle and work them with fresh earth or by themselves, as I have occasion, till they become sweet and of an agreeable scent, yet retaining their virtue; this frees them from the noxious qualities they other wayes retaine, and consequently are not so apt to gender or produce worms, weeds, and mushrooms, instead of wholesome and pleasant plants, fruits, and roots for the table.

Observe what manures are proper for the soil.

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All hot-manures are proper for cold, stiff, and moist grounds. So all rotten and cold manures are proper for dry and hot grounds. All manures that retain moisture, are for poor, sandy and gravelly soils.

Horse-manure is for stiff and cold ground ; sheeps for hot and dry ; ashes for cold, stiff and moist ; old woollen-rags for poor and dry ; lyme is most excellent for moorish and heathy land ; hair of beasts for dry and stiff ground ; pigeons and poultrie-manure for cold and moist ; rotten saw-dust for dry ; rubbish of buildings for stiff cold grounds ; salt for cold and moist, but use it moderately, for it destroys vegetables on dry ground, especially at first, but when melted by winter-rains, it fertilizeth : some have sowed it on moist moorish land to great advantage, for being farr from the sun they have little volatile.

In your applications you are to consider, that rotten-manures are proper for trees and such slow growing plants, and un-rotten manures for annuals, they being of quick digestion.

Let not the root of any tree stand on manure, far less unrotten-manure, which burns them ; but upon prepared and proper soil, and composed, well mixed, aired, stirred or fallowed. Most fit is the cleansing

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of streets and highways, together with the mud and scouring of ponds and ditches. If first laid on heaps in the open air to rot and sweeten, and if you mix it with *strata* of lyme, that adds much to its goodness and fertility.

Forest-trees require not so much manure as fruit-trees; but well mixed and fallowed soil.

Kitchen-herbes and roots require very fat, light, warme, and well-cultured ground.

Flowers and fine plants cannot endure soil too rank with manure, neither can they prosper if it be poor; but fresh, clean earth, with rotten neats-manure, well beaten and mixed together, and a little rotten willow-earth a little below the roots: then comes in that delicate soil, the turf of the pasture, mix'd with a little lyme, cow's and sheeps-manure, well rotted and mingled as before. See more particularly what soil each kind or sort of plant delights in, or loves best, in their respective chapters and sections following.

As for making the hot-bed for raising early and tender plants, dig a pit four foot deep, because in the spring the ground is often wet in this country, and of length and breadth as you have occasion, in a convenient and warm place, lying well to the sun

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and sheltered from winds, which you may keep by art, if not naturally so ; fill it with manure and litter from the stables, about a fortnight's gathering, and, when well trodden, and even on the top, lay about four inches thick of rich, light, but fresh and clean, sifted mould thereon. Arch it over with sticks, and cover it with mats four or five dayes to cause it heat ; then uncover and give it air a day or two, that its violent heat may pass off ; then sow your seeds and cover the bed again. And the next day, if you find the bed too hot, give it more air ; if too cold, cast some straw on the covering, untill the heat returne ; thus, by airing and covering, you may keep it in a constant temper. When the seeds come up, give them air to dry the moisture raised up by the heat of the bed. How to cover the seeds with glasses see Chap. VI. But as there is great trouble in rightly ordering this sort of hot-bed ; so it is here remedied by a better, which is only to fill and tread the pit full of new manure and litter, not covering it with earth, and place wooden cases therein, about nine or ten inches deep, and about three foot broad, having wood-handles at the end ; bore them full of auger or wimble-holes at the bottome, and fill them with the foresaid earth, and therein sow your seeds ;

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instead of these some use baskets or pots, which are very fit. But these cases with the earth in them must be kept warme during the whole season, wherein a hot-bed is necessary; and if they lose heat, add fresh manure and litter under, about and betwixt the cases, consequently the trouble of transplanting from one hot-bed to another is hereby saved. There is dew on the glasses while the heat remains, but if exhausted, they will be dry. Provide a shelter over the whole, if you please, and frames of glass over some of the inside cases, where there is most need; others you may leave open, as your seeds require. By this your pit and cases are every year ready to your hand, requiring only a supply of fresh manure. But this pit will be so much the more excellent, if lyn'd round at the sides with brick: and where you can conveniently sink it for water, you may build the same above ground. And when this pit is empty, it will be also ready for wintering of flower-pots, with July-flowers, &c.

In watering plants, use not well-water, especially for tender plants, neither rivers that run long and quick on sharp gravel: these yield no nourishment to plants, but rather chills them; therefore if you must use such, let them stand some time in the sun

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and open air, uncovered in tubs, mixt with manure, and powr it off the dreg when you use it.

When manure lyes above ground about any plants, as I use to do with trees, artichocks, &c. the water descending through the same is very relishing to the roots, if you powr the water at a little distance round the tree; for, when lashed on the stem, it washeth the earth from the roots.

Water no plants with standing, stinking ditch-water, nor any water that stinketh: rain-water and large ponde-water is excellent, but keep it not too long; yet, if in a large vessel, the oftener you stir it, the longer it will keep sweet. So the larger your pondes or rivers be, and the opener to the sun and air, and the more moved by horse, geese and ducks, in their sweeming, the sweeter it will be. And, if the washings of stables, streets, dung-hill water, &c. run into them, that adds much to their fertility, providing they have some stirring, to make them sweet.

If you fear dry weather, differre not too long, but water while your ground is yet moist; differre not if you mind to water at all. These that root deepest, water most; and also when you begin, continue it as long as you find occasion. In watering trees

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and greater plants stir and waken the earth a little about their roots with a fork, so it may drink the more evenlier, minding to tread it firme again. And for the same cause you may sink the earth a little, in forme of a shallow dish, round your cole-flowers, artichocks, &c. Dip your flower-pots in a tub of water, to drink through the holes at the bottome.

When you water beds of small seeds with the watering pot, shake it nimbly, that it may fall like a showre of small rain. I have often made use of a handful of small straw or hay, drawn as thatch, tyed in the middle, and at one end powred water with a cup, and shaken the same, that it appeared like a gentle bedewing rather than a glutting rain.

Some that are desirous to have the ground alwayes moist about any plant, generally place near it a vessel with water, and in it a piece of woollen clothe, with one end thereof hanging out to the ground, and the other in the water. The cloth being first wet, it will drop continually, if the end without be lower than that within the vessel; and when the water within fails, it may be augmented. If it drop not fast enough, the clothe may be increased, if too fast diminished.

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Early in the spring while the weather is yet cold, I intreat you to be cautious in watering the leaves of the young and tender plants, only wet the ground about them. When your plants or seeds are more hardy and the nights yet cold, water in the forenoons; but when the nights are warme, or dayes very hot, then the evening is the best time.

Plant in wet, and sow in dry; I do not mean over wet or over dry. Withall let them have good air, which conduceth much to their health and life, without which nothing can live.

CHAPTER III

HOW TO PROPAGATE AND ORDER FORREST-TREES
OMITTING here the distinction of species, (having confin'd them to one chapter), I shall speak briefly, yet, I hope, plainly, of their government, thus :

Albeit the most of forrest-trees may be increased by suckers, layers, &c., yet if you desire trees worth your while, raise them from the seed. Therefore prepare a seminary or seed-plot, together with a nurserie well ordered and handsomely made up in beds, as in Part I., Chap. IV. And there sow and set your seeds and plants in their respective seasons; keep them clean from weeds, and water them when

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need is. Also dig up and dibble in these cast up by the frosts, as well as shade and shelter them in time of necessity. Let them stand, some but one, others two years in the seminary after they rise; then remove and plant in the nurserie, in distance a foot one way, half a foot the other, or five rows in the bed (if six foot broad) in straight lines, having first prun'd their roots, especially toped the main root that runs straight down; so shall they send furth syde or seeding roots and agree well with transplanting thereafter. Also proportion the head to the root, by pruning up the side boughes, reserving some of the smallest afterwards all the way on the body, to stop the sap in its course, that the tree may grow great with its hight, and this will prove the best fortification against the winds.

Cut not the tops of these trees you ordain for timber, except some grow crooked in the nurserie; these, save greens, may be fell'd near the ground in the spring, or at mid-summer, and train up the streightest shoot again to be the tree. When they have stood three years at most in this nurserie, replant them at a wider distance in spade-bit trenches, three foot one way, and two the other, where they may stand till they be ready for planting out in

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your avenues, parks, groves, &c. which will be in three years, if these rules be observed. But if you think them yet too small for setting out, you must transplant them at a wider distance, and at every removal top all their roots with a sharp knife, and thin the side-boughes for lightening the head; but do not prune all up, as is the custom of ignorants, whose trees are so long, small and top-heavy, that they cannot stand. But of pruning more hereafter. If you neglect this transplanting and pruning the top-root, while young, your essayes to do it when old will prove ineffectual, nor will they ever be worth the while.

All the time that your trees remain in the nurserie, and at least the first and second year thereafter, be careful to cleanse them from weeds and suckers, by delving, hawing, &c. The advantage here will soon counter-balance the cost.

Choice your seeds from the high, streight, young, and well-thriving trees; and the fairest, weyghtiest and brightest thereon; for it is observed, that the seeds of hollow trees (*i.e.* trees whose pith is consum'd) do not fill well, or come to perfection, as Langford sayes of pears, concluding that the kernells of fruits depend much upon the pith. And

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I bid you reject such as were never set by art, as peevish parents for children, that must be thus accommodat with uncouth lodgings, as well as dyets in their travels: It's a mischief in many people, that accompts all things ridiculous that they have not been bred up with, or accustom'd to; so with trees in some respect.

As for oak, the acorns which we set from* put forth a lustier root than ours; nor do I approve of them in natural woods; they ripe beginning of October; gather them in a dry day, and lay in some open room to dry a moneth, turning them with a broom; then lay them in a couch of dry sand till the latter end of February; dibble them in the ground two inches deep, twelve rows on the bed, if six foot broad; they will come up the same season; and although they will grow on any ground, yet they grow better on the best, that is, a good loamy earth. Order them as is directed in the nurserie.

The elm that grows with a clean and taper body is best worthy your care. We have extraordinary clean and smoothed barked elms from Holland; but I think they take more paines in preparing and mak-

* A blank space has been left in both the first and second editions.—A. H. H.

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ing the earth fine for them, which certainly is most conducive to their smoothness. Their seed falls the beginning of June, tho' it doth not fill every year; when they begin to fall, gather them and spread on a clothe a little, then sow them immediately promiscuously over the bed, and very thick, covered with near an inch of earth; I had them come up within ten dayes; they love a light earth something moist.

The ash seed is ripe in November and December; having spread them a little to dry, put them in a hole *stratum super stratum* of earth and seed; take them out at spring come twelve moneths, and sow them as elm, for then they rise, and love a tender soil not too moist.

The great maple, commonly, but falsely called plane, its seed is ripe in September; sow it at spring, it comes up that season; affects a soil with ash, or rather better.

The smaller maple is rather for hedges; its seed lyes as ash.

The beech seed ripens the end of September, but it fills not well every year, nor are we so very plentiful of old trees as could be wished; for that cause we send abroad for seed. As soon as it comes to our

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hand it may be sown, or rather kept in a couch of sand, as the great maple, till the spring; for it comes up that season; it affects a light soil, no clays.

The walnut and chesnut, albeit they be fruit-trees, I plant without the orchard walls; their nuts ripe in the beginning of October. When they begin to fall, take them off, and rub off the outward husk, but do not weat them; then order them as acorns they come up the first season, and affect a light loamy earth. I could wish for more of the seed of horse-chesnuds from Turkie.

The black cherrie or geen is a tree that I love well in avenues and thickets; there is a sort at Niddrie-castle, where I was born, seven miles west from Edinburgh, whose fruit is preferable to any cherrie: I take it for a sort of heart, but it's a great bearer (which propertie the heart-cherrie wants), they are best stocks for standard cherries. The learned Evelyn and the ingenious Cook take notice of this tree.

Gather their fruit when full ripe, the beginning of August; eat off the fleshy part, *i.e.* the fruit, and lay the stones to dry a little; then lay them by *stratums* with earth, which prepares them, if sow'd at spring, to rise that season, otherwayes, they ly

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till the next. They affect a light, sharp soil, and, if you may, mix it with compost, and then it shall be fit for cherries of all sorts.

The wild service, commonly called rons-tree, their fruit ripens in September, which you may eat or rub off by rolling in sand; then prepare and sow them as cherrie. They love a moist ground or shade not wet; if you will plant them in better soil in avenues, methinks they would be very pleasant, when spread over with their umbel-fashion'd bright red fruit.

The line or lidne tree commonly called lym, the broad leafed, with odoriferous flowers is best; the seed ripens the beginning of October, but fills not well every year with us; and indeed we have but few that come to any considerable perfection; yet I have seen them bear seed at Hamiltoun: it should be a little dried in an open room, and couched in moist sand till winter pass, and then sow'd in a little shade in May; they must not be too much exposed to the scorching sun. They come up the same season; but if not prepared through the winter, they lie till the next. They love a fresh loamie earth, and, in planting them, I advise you to cover the surface of the earth about them with litter, topt with earth, the first year at least.

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The hornbeam may be ordered as small maple; they like a dry stiff ground; they are for copses.

The hassell and filboards' seed or nuts are used as walnuts; they delight in dry banks, nor are they stately forrest-trees.

The birch is a proper tree for much of our poor, dry and barren grounds. I never raised any of them by seed, in the wood they are so plentie by suckers, &c. Many of these handsome trees I have planted successfully.

The seed of the bean-trefoil, vulgarly called pease-cod-tree, ripens in October; and being kept dry all winter, and sown at spring, it comes up that season, and affects a moist ground, but sweet.

The white poplar, vulgarly called abele, is a quick grower and pleasant tree; so is aspen; they are easilie propagated by cuttings, so is the last by suckers: see Chap. I., Part II. They love a good soil, something moist.

The alder is so propagable, and loves the marshes; and so are the willowes, sallows, and oziers, they all affecting a moist ground, and must be so kept till rooted.

But I come to greens; as,

The pine-tree and pinasters, whose husks you may

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expose to the sun till they open, and seeds fall out, are to be sown in March; but, if late before they come home, (they require the summer sun to open them), if you then sow, they cannot get strength sufficient to withstand the ensuing winter; therefore keep them in dry sand all winter, and sow them in the spring, for they rise that season where in they are sowed. They love a good and tender soil; they are something tender while young, (as all greens are); the great pine is tenderer than pinasters, and nice in transplanting; therefore observe the rule in Chap. VII. Shade and shelter in both extremities of heat and cold while young. But there is none so proper for us as,

The Scots firre: many a one of their husks have I gathered any time between January and the latter end of March; lay them on a cloth in the sun which opens them, to be sown the latter end of Aprile They come up that season, and love a soil with the pinus. See how to order in nurserie: for they must be dibbled in again the first year, as spued up by frosts. They of any tree will grow on most sorts of ground, if well ordered and prepared, and secured from drought the first year. And therefore help where it is not to purpose, (they will repay you or

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yours for your pains); if you plant in gravelly, or dry sandy ground, mix it with clay and turfe a large distance round about the roots; or, if in stiff and moist clays, trench eight or nine foot on each side round the compass of the roots, adding small gravel, fat sand, &c., and plant ebb. But enough of this in the last chapter.

The silver fir is so ordered: only it is tender while young and subject to blasting.

The pitch-tree (as common firre) is a hardie tree, and no wonder; seeing, as I am informed, it growes by nature plentifully in Norraway.

The yew is also a hardie tree, and only requires some defence while young; their berries ripe in November: rub off the flesh or clammy substance, and lay them to dry a little, (but not by the fire), then box them *stratum super stratum* of earth and seed, placing them in the shade till the spring come twelve moneths; at which time sow them, and then they spring. It affects a good soil, not stiff.

The holly is to be used as yew, for they ly as long; it's the most proper for hedges of all plants in the world. Next thereunto is the hawthorne, (tho' not a green), whose seed ripes in October, and is to be used as holly; for it riseth not till spring come

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twelve moneths : and the better you prepare and
mix the ground, the larger will they shoot. Nor let
any imagine, that holly also loves not manured
ground; nay, (say they), poor and gravelly soil: but
I know the contrary by experience.

I shall speak of some shrubs in Chap. VII. for I
must leave them here, and come to shew you how
to transplant and prune the stately forrest-trees.

In transplanting, remove with earth about their
roots, if you can, especially greens : at least take all
the roots up a good distance from the stem, by
making a trench round, but be not hastie. Then top
all their roots with a sharpe knife, the slop tending
down as a horse foot ; cut off all the bruised and
broken parts till you come at firme wood ; top the
small roots like hair to make them stiff, so as they
fold not when the earth is put in, and rot thereby.
Proportion the head to the root by thinning it,
prune the side-boughs, reserving alwayes some for
tapering the tree : these you may cut close and
smooth by the body, slanting upwards, and they
will soon over-grow the wounds, if the branch cut
off be not great. Cut not the tops of oaks or beeches,
they cannot endure it, neither any tree that you
ordain for timber ; albeit I have been necessitate

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to lop great old trees, whose heads could not other-ways be conform'd to their roots, which necessarily are diminished upon removal. But this is not the case of well-trained trees in a nurserie.

The rule for removing old large trees out of woods or other places, who were never before transplanted, is to make a trench at two sides of the tree, at a considerable distance, till you can force the tree upon one side; then cut the top root through, saving as many collateral roots as you can; lessen its head, or top it, if it will suffer, and so set up the tree again, and tread in the earth about it, as it was. Let it stand two years to emit fibrous or feeding roots to nurse it when planted out.

But to my nursed trees again. When you remove, as is directed, carry them as quickly to their new quarters as you can. Let the soil where you set them be as *connatural* to the nurserie as possible; see the last chap. for preparing grounds. For the orderlie wayes of planting see Part I. Chaps. II. & III.

The best way is to make the holes a year before you plant, and in summer stirr and turne their earth, that no weeds grow thereon. Make them betwixt twelve and eighteen inches deep, and betwixt four

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and eight foot diameter, if ordinarie trees. But if
the ground be bad, and not proper for the trees,
then trench, mix and apply, till such becomes more
agreeable.

When you plant, lay the surface in the bottome
and fill up the hole with fine earth, till it can only
admit the upper part of the root to stand level with
the surface ; (this is not to plant deep, for they that
do but cheat themselves). Then set on the root of
the tree in the middle of the hole, and if no earth
adhere to the same, make a little hut in the middle
of small earth, and so lay the roots right spread
round about with your hands, that none ly folded
or disorderly ; then put in fine small earth amongst
the roots, and shake and move the tree, so that the
earth may go in amongst them till no cavity or void
be left to let in the air ; such roots as fold, raise up
and level in their wonted posture with your hands,
shovelling on more earth, and tread gently ; then
fill one more, and tread well with your heels, till it
be as farr filled up about it as it stood in the earth
before ; make the bulk about level on the top, and
just the breadth of the hole, and it will be about
half a foot above the surface, if ordinary nursed
trees and good ground. You may put on the round-

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ing-string to make its edges circular and handsome, or, if you will to make it like a geometrical squair, then straight lines from side to side of a thicket will make up the bulks, that the whole will appear as walks and bordures two wayes. Lay new horse-manure, and litter or ferns above the bulk, so as it touche not the stem, covered with a little earth to keep it from drying : the rains will wash in its substance, and refresh the roots. Besides, it keeps out summer droughts and winter frosts.

The first year at least go through, now and then, and tread them right after winds. I am not for staking trees, but for training them so as they may not need it, except you drive three stakes about each tree at the outside of the bulk ; then the double straw-roaps tyed from its body to all three stakes will secure it : and if you fasten cross-sticks, briers and thorns, this shall be a fence about each tree. Rub off buds that offer to break foorth near the root, or any place where you would not have them ; but still leave some here and there on the side to stop the sap from running too much in head ; keep them clean of suckers and weeds, by hawing in summer, and delving, and loosening the mould about them in spring and autumn, *i.e.* at the two equi-

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noxes; and tread them fast again, as fearing
drought and winds.

Observing what is said, you may expect ornamental, clean, and well-thriving trees, if right prun'd, and well inclosed.

Neglect not your time of early planting, that is, as soon as they give over growing, and before the frosts come on, and you shall see them far outstrip these set in the spring, though I have often planted in the spring through necessity; but then I was alwayes something more than ordinary careful to defend them from the ensuing droughts, by covering their bulks, watering, &c., yet I preferre the spring for firr and other such greens, which therefore unavoidably require the same care.

I shewed before how to prune in the nurserie while young; now continue it when planted out: whilst they are small, prune every year; when a little older, once in two years; then once in four, and never seldomer than in five or six.

And as you prune up the body till it arrives at the desired height, leave small branches here and there by the way, that it may bring greatness with its height, and be by consequence the more able to stand; let never a tree get a greater head than its

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root is sufficiently able to nurse and bear ; neither be rash in loping them, except they be already top-heavy, which brings crookedness ; if so, cut at a crooked place, slanting upwards, clean and smooth, and train up the straightest shoot again to be the tree ; or rather if you can save its head by thinning, viz. cut the under-side thus at mid-summer, and slit the bark in the spring, so may it grow straight and taper. Purge still the head when needful, and prune superfluties ; cut off all that cross, rub, fret, and gall one another. Permit not trees to fork ; train them with one straight and taper body, and a handsome, round, pyramidical head. And when you prune, cut close and smooth by the body or bough with the knife, or chissell and mell ; or, if the branch be great, cut with a saw, nicking it first underneath, and smooth it with the chissell, so will it the better heal. But if the tree be very old, and the branches great, such will never be able to overgrow the wound ; therefore if you must cut such, do it at a little distance from the body, the wound declining to the horizon. Thus train pines, firrs, pitch, and these of the conical tribe in stories only, which methode they naturally follow ; you may cut out some of the greatest branches of the under storie, but so as you leave

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them regular or equally furnished round; so may you leave one storie, cut out the second, leave the third, &c. Cut not their tops, yet you may crop some of their side-boughes, if the tree be top-heavy, and afterwards, as the tree gets footing, cut these clean off.

There be two seasons for pruning such as lose the leaf: the first for those of little pith, is October and November, or any time in winter; and for those of soft wood and great hearts, and greens, let the frosts be over, and before the sap in them rise, except firrs, and other rosinous trees, which must be prun'd in November; because if prun'd in March they bleed, and in September and October they have not given over growing.

The second time is mid-summer, which is ordinarily about the end of June; this is a safe time to prune those of great pith, and such as are unapt to bleed; but especially for young shoots of this year: extirpate all such buds and shoots as you desire not to grow, and hereby you may make clean bodied trees, albeit never so apt to break out in side-boughes, as some elms are. For the diseases of all trees, with their cures, see Chap. V.

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CHAPTER IV

OF HEDGES AND INCLOSURES

AS there is no countrey can have more need of enclosing than this, so none is more needful of enclosing; for we well know how vain it is to plant, unless we inclose.

I spoke of brick and stone-walls; now for hedges I prefer holly and hawthorn, raised from seed, albeit there be several others. Mix not hedges, because strong-growers over-grow the weak; neither suffer briars, brambles, docks, or thissels therein.

Your hollies having stood two years in the seminary, and two in the nurserie, remove them by a trowall, or a spade, with a clod of earth at their roots, cropping such roots as appear without the clod with a sharp knife, and lessen its head by cropping the side-boughes, but cut not its top; plant it in made up bordures, or at the back of ditches, at a foot distance, in good earth. Let them stand two years untouched, except weeded: then cut their tops at a bud to make them furnish thick, and ply their side-boughes to grow through one another, like slicing or feathering; and next year fall to work with the sheers, cutting both sides and tops as we used to do with box, &c. never supporting or binding any

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hedge, as is the custom of some. Plant your hollies
in Aprile, and, when ready for the sheers, cut in May
and July therewith, and so train them close from
the bottome, but neither too broad nor too high.

The hawthorn having stood two or three years in
theseminary, pull them up, and cut the ends of their
roots, and their tops within four inches of the root,
and plant them within the fence or back of the
ditches in the good earth; delve them in spading,
byspading all alongst two rowes, at a foot distance,
standing in equilateral triangles, still thickening
your bordure by adding good earth, &c. Let them
stand three years untouched, except weeding and
repairing where any is dead; then fell them with-
in half a foot of the ground, so will they shoot forth
a thicket of young shoots, which next year may be
train'd with the sheers as before is instructed.

If you would plant your hedge on the face of a
ditch as in wet and tough grounds, then stretch
a line on both sides of the intended ditch, and ritt
with the spade alongst the same, slanting inward;
for if the ditch be seven quarters wide, it must be
five deep, sloping to a foot in breadth at the bottom;
then cut the turf or surface of your ditch, and lay
a gang or row of the first spading along by the brink

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of the ditch, sloping at the face according to the slop determin'd, with half a foot of table intercepting, because so much will crumble down by the frosts, &c. On the top of that lay one row of quicks, their tops standing up a little towards the ditch; cover their roots with fine small earth, and lay another spading above them, and, if you will, lay another row of quicks above that, every one opposing the mid-intervall of the other, and so cover on the rest of the mould till the ditch be finished, being always sure to put good earth next the quicks, tho' you should bring it from the highway or a ridge of land next thereunto; and every year scour the ditches, clapping it up about the quicks. Or a farr better way is,

To cast half of the earth that comes out of the ditches to each hand, and quicks on both sides; accordingly this will make an invincible fence; for then the hedge grows up on both sides, and the gutter betwixt makes it terrible. But that I am against the common double (which is two ditches near one another, and the earth which comes out of both laid betwixt them with a row of quicks in the face of each ditch) is, because here the quicks are obnoxious to the cropping of cattle; besides they take much

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ground, and the quicks are too much burdened with earth. Rather, if you be for such, make a little space betwixt of plain ground, where you may plant the hedge.

But if you would have a row of trees planted round by your ditches, then make these two ditches the breadth of a walk asunder, but parallel, and in that mid-interval plant one single row of trees, and the two hedges at the back of the ditches. Here you shall have two excellent walks of shade; nor is the ground lost between these hedges; you may have good hay, and in a large quantity. And in effect, this is the best way that ever I thought upon for inclosing and sheltering our grounds and plantations: and you may also make the interval betwixt these hedges wider, so as you may have two rows of trees.

Now for fencing the quicks, in all their several sorts, from the cropping of beasts, as indispensably necessary while young.

If the hedge be planted all along the bank or inside of the ditch, then the strong ditch with its earth casten to both sides will fence it; and if you think that not sufficient, set, stake and raise a hedge on the top of the bank, or rather (which is indeed much better) cuttings of thorns set therein a spade-

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bit trench, well backed. Or for want of these, back up the ditch with turf, which is like half ditching. But all this time there is but one side of them fenced, and that next the pasture; therefore no beast can come on the other side to eat the forrage, except tethered horses. But if you make the hedge or hedges and trees betwixt the two ditches, you may cast half of their earth to each hand, and back them as is said, which fences from all hands most elegantly. And if you plant your hedges in the face of the ditches, the same backing on each hand will also fence them.

But where you plant trees at a great distance through your fields or parks, you may fence every particular tree by cutting a little trench round, four foot from the tree, and about two foot wide, facing it handsomely up like a ditch, laying one row of turfs or spadings above another, till it be three foot high from the surface, backing them with the small earth or shovellings, battering inward to the tree. Here the tree must be high planted; tho' the more the soyl inclines to wet, or the sour it be, plant so much the higher above the surface: you may stick some briars or thorns on the top of this tump.

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CHAPTER V

HOW TO PROPAGATE AND ORDER FRUIT-TREES

THE only fruits for this country are aples, pears, cherries, plumes, (and apricocks, and peaches at south-walls) currans, goosberries, raspberries, &c.

Before I begin, I shall premise observations on graffing, &c. a sure means to obtain fruits of the desired species, and that in short time; for by taking the twig or bud of such a sort as is a good fruit, and bears well, and graff or inoculate into a proper stock, you are sure to have the same fruit, because the graff domineers, albeit it may have a little smack of its stock whereon it is now graffed. And you may expect fruit, because it may have actually the fruit-buds, as being taken from a bearing tree. But if you sow the seed, they will be long ere they come to bear, and at length perhaps have no fine fruit; and for the seed of graffed trees, they will not bring the same fruit. Pears and aples will rather bring a fruit of the nature of the stock whereupon they have been graffed; and although you should take a cyon of the same, and graff in it self, that will not alter the fruit, nor better the tree, except to check a little its aspiring, which may as well be effected by pruning.

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We can also be sure of the desired fruit by cuttings, layings, and circumposition, but from such are alwayes dwarfish and short-liv'd trees, as wanting a main-root, which all seedlings have. Hence ariseth one reason, why stocks should be raised from the seed : suckers are not so clean and lustie, therefore not so able to nurse the graffs, and they are apt to send suckers again. Only I look upon plum-suckers as very good, because when they spring off a root at a distance from the stem, they strike a good root of themselves, very much resembling seedlings. Moreover you may graff on a root, or a stock sprung off that root, which is near equal to a seedling.

The seeds of crabs, or wild aples and pears, may be fit to make stocks of for such trees as are designed for the fields, or more rugged grounds ; but for a cultivated soil I would choice theseeds of finer fruits : and so the great white-plum is the best stock for apricocks, or for want thereof, any other white-plum with great shoots, albeit it doth on any plum ; but we reject itself for a stock, as being too spongie, and not so durable. But peaches and nectarines take only best upon peach-stocks ; so cherries on geens, and plumes upon plumes.

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Goosberries and currans need not graffing; they do well by suckers, layers, and cuttings.

To make dwarfe-aples, graff or bud on the paradise, or any that hath burry-knots, codlings, red-stracks, &c. Dwarfe-pears on the quince; but no pear holds well on it (that I have tried) save red-pear, achan, and longavil; but you may re-graff for varieties. And if you be very curious for these stocks (which I am not) you may cut them at the spring, when ready for graffing, within two inches of theground; and at August come twelve moneths, inoculate in that young shoot, and perhaps they will prosper the better. But I think graffing in the roots of pears will produce dwarfs.

Dwarf-cherries may be graffed on morella, or on the common red cherrie, or on that red geen spoken of in Chap. III. which is more dwarfish than the black.

The mellow, warme and light ground is for fruits; and although the best, warmest and lightest land yields most excellent corn, yet the strong, stiff, cold or moist, yields not so good fruits, plants, grass, hay, &c. Aples affect a pretty rich loamy soil, tho' they will bear in a clay, mixt with lyme, manure and turff.

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Pears will prosper well enough, where the soil is mixt with gravel; but both aples and pears are better relished in warme grounds that are not over moist, than in cold and wet. Yet there are some grounds that have sweet moisture, others sour, which last is very bad, and therefore must be helped by draining, and application of proper medicines.

Cherries, plums, apricocks, peaches, affect a light sharp soil, thoroughly prepared and mixed with rotted manures. As to their propagation :

By grafting are raised aples, pears, cherries, plumes, quince, medlar, walnut, chesnut, filbeard, service, &c.

By inoculation or budding are apricocks, peaches, nectarines, almonds, goosberries, currans, aples, pears, plumes, walnuts, &c.

By suckers, are currans, goosberries, barberries, rasberries, quince, vine, fig, mulberrie; it is the white mulberrie that feeds the silk-worme; but that's to little purpose here.

By layers and circumposition are all sorts raised.

By cuttings, are currans, goosberries, vine, quince, aples, especially these with burrie-knots.

By nuts and stones, are walnuts, chesnuts, filbeards, almonds, peach, plum, cherrie.

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By kirknells or seeds, are aples, pears, quinces, goosberries, currans, barberries, vines, mulberries, &c.

I have told whereupon to graff aples, pears, cherries, plumes, apricocks, peaches; and as for the quince, you may graff it on it self, or on hawthorn; almond on itself; medlars on pears or on the service; filbeards on the hassell; service, walnuts, chesnut, goosberrie, curran, all on their own kind.

In raising the stocks always observe that

Aple and pear-seed must be separated from the fleshy substance, and spread to dry a little, especially the cyder-marie, lest it heat; you may roll it in sand to help the separation: keep it in a couch of dry sand till winter pass, then sow it as soon as the frosts are over; it comes up that season.

Peach, plum and almond-stones must be used in all cases as cherries; only you may break the peach-stones. Use the quince-seed as aples. As for the rest, I have shewed how they are increased, and how to performe the several wayes.

But you must prepare a seminary and nurserie, as before for forest-trees. Sow every species by themselves, keep them clean of weeds; and the next,

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or second year after the seeds rise, if they shoot lustily (draw out the biggest first) transplant them into the nurserie in single rowes, at two foot interval, and half a foot in the rowes, for conveniency in hawing, graffing, pruning, &c. and observe to prune the root and side-branches in planting, as I directed with forrest-trees. Only, when you have got them to a convenient height for graffing, you may cut their tops, to make their bodies swell the sooner; albeit this be not permitted with forrest-trees. However, graff and inoculate while the stocks are young, ere they be an inch in diameter, and they will sooner heal the wound. Let them have a year's settlement in the nurserie before you graff; but you may inoculate that same ensuing summer after planting, especially if they be very free and lustie. Next year after graffing remove them to a wider distance, viz. three foot one way, and a foot the other; prune their roots at every removal, that they may provide for a well-shapen head; cut them near now while young, if you would have all their branches of an equal greatness, and of order proper, as anon I shall inform you.

In setting your stocks in the nurserie, I presume you will set every kind by themselves, *i.e.* pears with

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pears, aples with aples, &c. And when you graff or
bud, write down in your nurserie-book their species
as they stand, viz. begin at the end of such a nur-
serie, and say: the first row is graffed with such
a sort, and so furth; and, if you have more than one
in a row, then set in a stake betwixt each species,
and so write thus: from such an end of such a row,
to the first stake are so many of such a sort or species;
thence to the second stake, and so many to another,
&c.

When you transplant fruit-trees into orchards,
do as I directed with forrest-trees in groves; plant
not deep, neither trench too deep; but tempt the
roots by baiting the surface with manures, to make
them run ebb within the reach of the sun and
showres. Therefore mix the earth in the holes,
which should be six or eight foot diameter, with
rotted neats manure, and earth well turned, sweet-
ened, and prepared. Prune their roots at every re-
moval, as in forrest-trees. Experience forbids me
to make exception of the peach, or any other, as
some do. Always proportion their heads to their
roots by pruning. But here note, that, as forrest-
trees are train'd up with high bodies, and unlopt
heads, so fruit-trees with low bodies, their heads

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lopt, and branches topt, and therefore are easily proportion'd, as aforesaid.

Standards four years old, may be planted out of nurseries into orchards, and also wall-trees two years old.

The season of the year is as soon as they give over growing ; if the leaves be not off, cut them, saving a little tail of their stalks. It's true you may plant any time in winter, the weather being open ; but rather let the frosts be over, and the spring approaching, if you have missed the fore-end of winter, which is the better season.

For standards, are aples, pears, cherries, plumes, goosberries, currans, barberries, quince, walnut, chesnut, filberd, service : but I think all these deserve not a place in the orchard.

For walls are apricocks, peaches, nectarines, almonds, vines, figs, currans, aples, pears, cherries, plumes, &c. But you need not take up much with almond, vine, fig nor nectarine.

On the south-side of the wall, plant apricocks, peaches, nectarines, vine, &c. On the east and west-sides, cherries, plumes, aples, pears, &c. On the north-side, plumes, some pears as great bergamot, some aples, currans especially, and rasps, &c.

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When you elect them in the nurserie, hang sticks tied at them figured, and write the same figure on the paper at their name, to distinguish their species; and afterwards, being planted, write them as they stand.

Begin betimes to prune your fruit-trees; spare them not while young; reduce them into a good shape and order while such, so they will not only soon overgrow the wounds, their branches being but small, but also, when they should come to bear fruit, you shall not need to cut so much; only purge them of superfluities; and this is the way to make trees fruitful as well as pleasant.

Some ignorants are against pruning, suffering their trees to run and ramble to such a head of confusion, as neither bear well nor fair; for the root is not able to maintain such; farr less fruit too, and therefore is their fruit so small and imperfect. In the meantime the tree spends its strength, and so cannot live long, nor make good service in its time; yea, sometimes the root is not so much as able to bear such monstrous heads. I knew one windy day prostrate above half a score such in a little orchard.

Others again that are for pruning, usually run on the other extream, by cutting too much and un-

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timely; and some sparing what they should cut, and cutting such as they ought to spare: but the general error, even among the learned, is, that they spare them when they should prune, viz. the very first, and second year especially; yea, the first five or six years, and then they fall a-massackering, at which time the branches being grown, some of them greater than others, now run away with all the nourishment from the smaller, insomuch that no man can reduce them into order again, having thus neglected the time; albeit you should endeavour it by cutting deep, or exterminating these great branches, which, I confess, is the next remeedy; but then as these wounds bring cankers, hollowness, &c. so doth the work retard their bearing fruit. And indeed it's about the time that trees ordinarily begin to bear fruit that these unskilful men begin to prune; and the more they are thus cut in the head, the more they spring out to wood, and the less they bear fruit. But experience has taught me to begin while young.

And when you do begin, consider on the height of the body; for, as high trees are unprofitable, so too low trees in orchards are inconvenient; for apple and pear standards, two or three foot; plum and

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cherrie, three or four foot; dwarf and wall-trees, half a foot; then cut the top that runs straight upwards, making it to spread out in branches round. Suffer no branch to aspire beyond others in hight, nor any to cross, rub, or gall one another; and whatever branch or twig you cut off, cut close and clean by the body or branch, except in the case of old trees and great branches, as I observed in pruning forest-trees; and in topping of branches, cut close and smooth immediately above a leaf-bud, slanting downwards to cover the wound. And when you prune, spare the fruit-buds, (the full ones I mean) except you see them too many, then purge by the knife. Likeways, if afterwards you find more fruit knotted than the tree can be able to nurse to perfection, thin them in time.

But your first work is to proportion the head to the root by pruning; cut the tops at a convenient hight, that the tree may grow equally furnished round; for cutting, as it diminisheth, so it forms and shapes the head, insomuch as it furnisheth with new young shoots, that may be train'd as you please,

Standards should have but four arms breaking out for a head, opening equally round; these divided into branches, and again subdividing the twigs.

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And, that you may the better understand what to cut, you may stand under, go about, and look up through the tree where you may espysuperfluities ; keep them clear, void, open within like a bell, and level on the top ; make some larger opens towards the south, for the sun-beams' entrance. Let no branch grow cross through the heart, nor shoot spring up therein ; minding to prune such as cross, rub, and gall one another, as is before noted ; and any branches, shoots, or twigs, that grow not the way you would have them, cut them at the place whence you think they will send furthshoots, which may lead them the way you desire them ; cut close, smooth, and slanting, at the back of a leaf-bud tending that way. By this I bring trees to order.

Wall-trees especially should be cut near while young, that they may send forth small shoots, for furnishing your walls from the bottom equally ; and if you continue to top them every year at a convenient hight (perhaps about half a foot above the last) that will make them shoot all their branches of an equal uniformity of greatness, hight and thickness, so that no long, bair, or naked branch may be seen there, neither one or two great, and all the rest starved and small, which is the common

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fault of our wall-trees and is occasioned through neglecting to cut while young, even the first year, as is said above.

But albeit a tree right begun, and so going on, yet one year's neglect, or wrong pruning, may spoil it. For as I was once pruning wall-trees, an ingenious person standing by, said, I cut them too low, alleding thereby, the wall should be long uncovered, desiring me to cut them a little higher. I told him that was wrong; but for to satisfy him, I cut two of them about eight or nine inches higher than I designed, or should have done. The next year these two trees left about a foot naked round, and above the same crown'd like nests, while the rest were equally and orderly furnished. When he beheld this, his minde was changed, and I was obliged to cut exactly where I should have done the precedent year, which was now a little below the middle of the naked place, and this put them several years behind the rest of bearing fruit.

You may nail them at Michaelmas that year of planting, and continue so to do at the seasons hereafter described. Prepare double plancher-nails, and tags of hats (which is better than leather); shape the tags about half an inch broad, and betwixt three,

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four, and five inches long, making a gash with the knife near the ends by folding, to put through the nail; then spread the tree, laying, plying and nailing on every individual branch by it self, all at equal distances from one another, not close in one place, and wide in another; and let none cross the other; the superfluous, and these that will not ply easily, and the exuberant or lustie that robs the rest must be cut away.

Well pleyed trees will appear like peacocks train spread; drive the nail but half way in, and on the upper side of the branch, else it will lean and gall; at every nailing alter the old nails, and beware of pinching the young branches by making the tags or binding too tight.

The time for pruning old planted and hardietrees, is any time betwixt the fall of the leaf and the spring; but let the frosts be over before you prune those that are new-planted, young and tender, and before the sap rise; otherwayes the frosts will penetrate the wounds, and make a sore. But if you must cut before the frosts, because their heads may be obnoxious to the winds, such as are ordinarily the new-planted standards, then you may cut a little at spring, and at spring cut off cleanly the pieces left,

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as is before noted. Also let the frosts be over before you prune your wall-trees and before they bud; only I use to let peaches bud furth a little ere I prune them, otherwayes pieces of their branches sometimes perish after the knife.

And besides, you must rub off all unnecessary buds, and pull up suckers and weeds from the roots: you must also give all your trees a mid-summer pruning, which is ordinarily the end of June, and beginning of July, a good time to cut any shoots of this year.

Any shoots or buds as tend not only to the deforming of your trees, but to rob them of that sap, which may be otherwayes spent in nursing the tree and its fruits, but the spring is the time of cropping or cutting their tops, until the wall be covered; then crop at both seasons. Thin and purge these gently, to let in the sun, but not to scorch your fruit. This is also the time of furnishing your trees with pedastools or bearers. Therefore in re-pruning, save as many of the likelyest shoots as are well placed, and cut them at the third or fourth bud from the tree; but cut quite off the lustiest and greatest of this year's growth (which ignorants do spare) and nail up such as are for filling up the defects of the wall.

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You may go through them in harvest, and purge the fruit of superfluous leaves, which hinders the sun; but do it so, as there may be leaves sufficient to screen the fruit, and cut quite off the lustie shoots of this second spring, which rob the tree and fruit.

As for goosberrie and curran-standards, train them to a foot stem, with a handsome round, but thin head; these at walls, half a foot stem, with a well-spread head, supported with rods laid across, fastened with nails and tags. Rasps may grow in shadowy bordures or beds, a foot distance, kept clean of suckers, weeds and dead wood.

But because some years, in some places, we have ripe grapes, especially what goes under the name of frontinak; therefore if you think a tree or two of them worth your while, plant them at a south-wall, in a pure and fine mould, not wet, sour and croud, but a light sweet soil, mixt with some cow's manure, rotted in heaps with the mould. Plant ebb, and trench not deep; prune them every year, low in February, and at the true mid-summer. Cut off the lustie young shoots and tendralls with sheers betwixt the second and third joynt above the fruit, and in August purge it of superfluous leaves, but reserve so many as may screen the fruit a little.

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There are some sorts of fruit-trees that will blow and bear themselves to death, when young or middle aged; from such, cut most of the blowing buds, and thin the head to make it shoot again.

I got some cherries, and other stone-fruit from Holland, which tooke this decay; wherefore in the spring, I cut off the blowing buds and the branches, near the place where the tree headed, reserving only some buds for receiving the sap, in case they should have put furth at the middle of the body, or a little above ground; this made them shoot new wood. Therefore I conclude, that by this, and delving about, you may keep ill-thriving trees.

There are also some aples and pears, that will be full of false-bearing buds, that do not blow: such have got more head than the roots can well maintain, and consequently have not strength sufficient to spare sap for blossoms, farr less for fruit, which by pruning and thinning the head, and by slitting the bark of the body in spring, may be made afterwards to bear well, when they have put furth new shoots at the head.

Some trees there be that will not bear of themselves till they be old; but if you cut off the head of the shoots, as soon as ever the spring-shoot is

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over, (which is at true mid-summer), and take out some great boughs then, if you minde your time, and do it with discretion, you may force that tree to put furth blowing buds, and blow and bear the year following, as I shall informe you in the next sections. But,

One main business is to inclose your plantations; avoid planting too deep, too dry, too cold, or too moist, and guard your orchards from winds, by planting two rowes of forrest-trees at least round without the wall, the breadth of a large walk, or rather fifty feet therefrom, with thickets of the same on the west, north and east, but especially on the west (yet mind regularity). Also observe my methode of planting and pruning, and ordering their bulks of six and eight foot diameter. But when the trees grow old, and their feeding roots farr abroad, you cannot reach to feed them with manures in this narrow compass; therefore enlarge it, or other-ways confine them a little sooner, and hinder their too farr gauding, by digging a circle round the tree, perhaps eight foot diameter, and cut all the roots clean off there that hath not run out, applying fresh and sweet mould, so shall they emit fibres or feeding roots in thicket, which may be supplied with

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refreshments once in two or three years, as shall be required. And this cutting the roots will cause trees that are apt to spend more in wood than fruit, alter therefrom, and the ends of the roots cut off, and their butt-ends raised up a little, will serve as stocks to graff upon.

When you would enrich your worne out plantations, if the ground be poor and dry, add well rotted manure prepared and mixt with soil: the water that soaks from a dung-hill is excellent, for it will follow the roots, and enrich the trees. If the ground be cold and moist, add pidgeon's manure, or ashes and soot, which is also excellent, if it be rank with unskilful manuring, or by noysome weeds that grow about such roots (where the owner is a sluggard), and hatches or nestles, moles, mice, toads, &c.

If you observe the premises, you may prevent their diseases, such as ill-thriving, &c. but if you have, or do neglect, and the diseases are be come, as if cankers or galls be entered, cut them clean out, covering the wound with a plaister of cow's manure and clay compounded. If the bark be pilled by hares, conies, or mice, apply a plaister of the same; (but better prevent the last three, by swaddling the trees with straw or hay-ropes, unloosed in summer,

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and renewed every winter, if your fence cannot guard them). Ill-taken-off branches, and branches broken or rotten, must be cut off clean and smooth. If any trees be bark-bound, which is the misery of many, and especially forrest-trees, slit them in the spring through the bark on both sides, with a sharp knife, from the head to the root, and delve about them; otherways raise and plant them ebber, if too deep, which is the common cause of this disease, together with bad inclosures.

If jaundice affects them, cut off the diseased wood; if moss, scrape or singe it off; but it's in vain to attempt the cure, until you first remove the cause, which you will find to proceed from some malignity at the roots, whether the disease be bark-binding, cankers, &c.

And this most commonly happens by ill-planting, and not inclosing, as amongst clay, water, impenetrable gravel, &c. Water must be drained, it is an intolerable evil: cold clayes, or stiff and hard soil must be trenched and mixed with manures and soils often stirred and fallowed, as above is directed. And if you would have trees to prosper, observe their nature, and wherein they most delight, and so apply and keep them accordingly.

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As for destroying of vermin, there are traps for moles of several forms: besides, you may watch and delve them up with the spade. And for mice, you may have traps from Holland, or for want thereof, pots may be sunk in the earth (where they haunt) till their mouths be level with the surface, half full of water, covered with a little chaff, wherein they drown themselves; and so do toads, asps, &c. Cast away the earth where the ants lodge, supplying its place with stiff clay: place cow-hoofs for the woodlice and ear-wigs to lodge in all night, and so scald them early morning. Pour scalding water in the nests of wasps, and hang glasses of ail mingled with honey, where you would not have them frequent.

Dash water on the trees for caterpillars, by the stroups which we get from Holland. Gather snails and wormes; shoot crows, pyes, jayes, and spread nets before your wall-fruit for preservation.

See Part III. how to gather and preserve fruit, and how to make cyder, &c.

CHAPTER VI

OF FRUITS, HEARBS, AND ROOTS FOR THE KITCHEN
ALL fruits whereof I spoke in the last chapter, are

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for the kitchen or table, but they grow on trees or shrubs; yet there are some which fall in here, the tenderest whereof are,

Melons, and are not worth the while; for you must raise them on the early hot-bed.

Strawberries are a very fine and delicate fruit, and are easily increased, but best by the small plants taken from their mother plants at the strings in August, by which means they will be sufficiently rooted, so as not to be spued out of the ground by the frosts in winter. Manure, delve, mix and prepare a light and warme soil; prune their roots and tops, and plant them in streight lines, five rowes in a bed of four feet broad, and suffer them never to over-run, but keep each stock by themselves, still taking off all their strings (except at some time you permit a few for increase). Weed and haw among them; and in September cut them within two inches of the ground, and lay cow-manure over the bed, if in a sandy soil, reserving their tops free, covered with a sprinkling of sand: this will much improve them, so as they will not need renewing for six or seven years.

Artichocks are a fine and lasting fruit, and are increased by off-sets chiefly planted in the spring,

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in a fat and well cultured soil, light and warme, enriched with sheeps manure ; plant in straight lines, about three foot distance, having prun'd their root, and cut their tops within half a foot ; water (if needful) with qualified water, and still cut away their under and hanging leaves, and haw the weeds as they begin to peep. When their fruit is spent, cut them within half a foot of the ground, and delve and cover the plot over with manure and leitter, keeping their tops free : in Aprile delve down the same, and extirpate them of suckers, slipping them off carefully, leaving two or three at most to each stock for bearing, and they will flourish nine or ten years.

Great beans must be planted early in the spring, as soon as the great frosts are over, in a deep rich ground, at two foot intervall, and half a foot in their rowes ; these for seed when full ripe, cut and bind in little sheaves, and lay on trees to dry.

Kidnes in Aprile in a light and warme soil ; support them with sticks.

Peas that you would have early, sow in the full moon of November, if in a warme place ; but do not trust too much unto them. Sow in February, and hence monthly till June, in an open, light, warme,

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dry soil, that you may have them till the frosts surprize them ; and if they lie on the bair ground, they will sooner ripen by reflection. But if you would have them fruitful, set sticks amongst them while young for their tenderals to climb on, and keep them alwayes clean of weeds. When ripe, you may easily win some for seed ; but sow not every year on the same plot ; to change the ground improves them. I prefer setting them by lines, five rowes in the bed ; make the holes nimble by the lines, with a dibble an inch and a half deep, and two inches distance from another, or on the same hand fallowing, and put one in each hole : then give the bed a smooth with the rake-head, which fills the holes, and covers the peas : one pound makes more service thus than three otherwayes ; it's soon performed, and they spring orderly.

Of sallads and pot-herbes : the choisest sallad is asparagus ; sow its seeds in March in good ground, and transplant that time tewelv moneths into an exceeding rich and well mixed soil of rotted manure and light earth ; taking care that this manure be six or eight inches below the roots of the asparagus. You may stretch lines along and cross the beds, and mark with the edge of the rule ; then gather

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little huts of earth at the crossings, whereon you must spread the roots of your asparagus, two on a hut; but do not top their roots. You may perceive their poynts are like the runners of liquorish; then cover the sets with the rotted manure and earth, two inches over, which has been lying a year in compost. They cannot abide wet grounds, and weeds will quyt destroy them. At the approach of winter cut their stalks, and cover their beds with leitter and manure from the stables. The winter rains will wash in its substance to their roots. At spring ere they peep, remove it, and loosen the earth amongst them with a fork, and cover them near half an inch with the mould raked and leveled, but do not tread on them. Follow this direction yearly, and in four or five years it will be excellent for cutting. Cut the biggest and tenderest, a little within the ground; but hurt not those ready to peep. The seed is ripe when red.

You may have early asparagus, if you plant some strong roots on your early hot-bed, which about a moneth hence will spring, and then dy.

Purslain may be sowed on the early hot-bed; it cannot endure deep interring; sow it on a fine mould like dust, and only clap it a little with the shovell;

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thence on the cold bed, but in fat and fine soil, through the summer in drills, for convenience of weeding and cutting; and if you please, transplant it when two inches long. Reserve the early sown for seed, till their pods grow blackish, then pull and hang them to dry, and rub out.

As you sow purslain, so lettuce by seeds only, at the same seasons; but the winter or corn-sallad in August. They love a fat soil something moist, that for winter, more dry. Suffer these for seed to run up, and only cleanse off the under and withered leaves. It's ripe when it begins to fly with the wind; pull it, and lay it on a clothe to perfect, then rub out on a dry day.

Sow cresses at the same season, and plant.

Tarragon by off-sets in the spring.

The small cherault (chervil) by seeds, as cresses, as also

Burnet; but it continues many years, still yielding seed.

Sampier growes at the sea-side in Gallaway, but not so well in our gardens.

Succory and endive must be sown by seeds in June and July and offsets at both springs; when they have five leaves, transplant them into a rich

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bordure, watering them well until they root; so soon as they turn bushy or thick of leaves in the middle, tye them up regularly with matt-strings in dry weather, watering them well; and in three weeks they will be fit for use, by showing you their white leaves in the middle, twisting out below the tyings. Lift them up, taking off the green leaves and inner white leaves, they make a fine sallad. They continue many years.

Sorrall by off-sets, some also by seed, in the beginning of Aprile, in a good fat soil, a little shade, six or seven rows in a bed, weeded all summer, and cut near the ground in September. In two or three years replant it in another place, for it soon impairs the ground of the place appropriate for it.

Spinage by seed only in February and March, but that sown in the beginning of August is the most profitable; cut it in the beginning of October, and it will spring a fresh, and be ready for spring-stoves; then reserve some uncut for seed: it prospers well in a very fat earth, not too dry.

And so do beets, which are also propagated the same way; only those sown at spring are most serviceable.

Sow beet-card in the fattest land, and when some-

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thing strong you may transplant: they seed the next, not that year wherein you sow them.

Order burrage as spinage; it's also an annual: so bugloss; but it continues many years.

Marigold may be ordered as burrage, and white arage (orach) as spinage.

Parsley by seeds in February and March; they bring forth their seeds next year, whereby they must be yearly renewed.

Sellery in a light fat soil, eight rows in a bed, as parsley; it continues long, yielding seed yearly after the first; and so doth smallage and alexander: they may be blanched as succery and endive. Sellery sown in March, you may transplante at mid-summer in a very fat fine earth, half foot deep furrowes, three foot between the rows, and four inches in the rows; and as it growes up, gather the earth at its sides from the intervals, leaving the top free; and still as it growes, earth it up in dry weather, so shall it be blanched for a winter sallad.

Garleeks and shallot by off-sets in March, in a light and fat soil, eight rows in a bed: I use neither cutting nor twisting their stalks; but when their fibres begin to rot in the latter end of August, take them up, and spread to dry a little, and house them in a

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dry room with board-floor for use, and replant in
September.

Leeks by seed in April, in a fat soil, though something stiff; in June you may thin them by transplantation; prune their roots and tops, set them at three inches distance, and continue to crop them till October. The French seed is best, ours not worth the while.

Onyons by seeds in March, in a rich, warme light mould, well mixt with rotted compost and sifted pigeons' manure; give them a thin coat or covering of earth; sow also in the beginning of July for shibols; it's not worth the pains to win their seed.

Plant off-sets of sives in spring, nine rowes in a bed, in a rich low ground.

Cole-flower is a fine cole; sow it on the early hot-bed, (for it's hard to get winter plants through to purpose); sow thin and ebb, and carefully preserve them from colds when young. If you water, imbibe pigeonsmanure, but touch not the leaves therewith. When their leaves are three inches broad, transplant them into a very fat and well mixt soil, at two foot distance; prune their roots and tops, and if any worm knots, cut them away; and in setting keep their hearts immediately above ground. All along

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keep them clean of weeds, under-hanging and withered leaves, let them not suffer drought while young and keep snails from them. If the ground and seed be good, you may expect good heads, which if you spend not altogether before frost (which spoils them), take them up in a dry day, and ty them in pairs to hang in a dry room for use. The best seed comes from Candia.

There be many cabbages; sow the savoy, and such tender sorts, as cole-flowers, albeit not so tender; sow the great, white and red, in the full moon in July; plant them furth in October at three foot distance, in well-manured ground. Set some also in March: but then the gard'ner finds multiplicity of business; therefore it's his wisdom to put as much work by hand as can suffer it, at least to have all his grounds fallowed before winter. You may hang up your cabbages in November, as cole-flowers; but plant some of the best and hardest for seed, up to the neck. When they shoot, support with stakes and ropes; when full, cut and lay on a clothe to perfect: but choicethe upright stem in the heart and its branches, rejecting the lower branches.

Catch snails and worms that gnaw the young sprouting plants, and set nets for birds at the same

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time. The reason why old cole is full of green worms, is dry poor ground never weeded; or otherwayes unqualified manures, and unseasonably applied. If they will, trench, mix, &c. as in Chap. II. that their ground may be clean and sweet, they shall ripen accordingly.

Common colworts are usually sowed at spring, planted in summer, and eaten through winter, and at spring, when other green herbes are scarce; you may also sow and set them with cabbages, and reap their seeds accordingly.

Of sweet herbes: as,

Clary; raise it by seeds and off-sets in Aprile, at which time, you may slip and set tansie, sage, cost, mint, balme, winter-savory, thyme, penniroyall, wild marjoram, maudlin, fennel, &c. Prune their fibres, and plant in a garden soil, eight rows in the bed: they all continue long, but cutting their tops in growing time, makes them more durable; and cut them all within a handful of the ground in August, that they may recover against winter. You may likewayes sow the seed of fennel, thyme, winter as well as summer-savory, dill, sweet basil, &c. in Aprile, in a warme well cultured soil, ordering them as above; the three last are annualls. If

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you would have sweet marjoram early, raise it on the hot-bed: the sweet basil requires the same. Sow it also the latter end of Aprile in a warme fat soil, eight rowes in a bed: you may sow it in July, and transplant when two inches high in a warme bordure at a south wall; its seed, with that of basill comes from the hotter countries. Sow rosmary seed in Aprile or at the same time take its slips or cuttings, and twist them a little at the ends, and dibble in good soil, on a south-wall bordure; but cut not their tops: they easily root, being watered in drought with soap-water. You may ply it to the wall as shrubs.

I am now come to roots. They require a light earth, deep trenched, fat sand mixt with sheeps' manure: it's convenient that it be manured a year before, because new manure makes them forke.

Plant liquorish off-sets and runners in February in this soil, well stirred and mixt; after which do not tread save in the furrows, six rowes in the bed, and cover all the intervals with leitter topt with sand, but let the plants be free; for this is to keep out drought the first summer; keep them alwayes clean of weeds, and cut their stalks near winter. Let it stand three summers in the ground, and in

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November take it up thus ; begin at one side of the plot, and make a trench the whole depth of their roots, taking it out carefully (not breaking it) at the face of the same, casting the earth still behind as you proceed ; then cut off the plants, to divide carefully, and lay them amongst moist sand in a cellar till setting time. And because it stands three seasons, you may have three several plantations ; so shall you have it to take up yearly, if you plant it accordingly.

Scorzonerà by seed and by off-sets, that is, by parting the tops of the root ; sow in the spring, or when its seed ripens, promiscuously in the beds : it continues many years in the ground, and grows still the greater, and is in season at all times for eating, tho' it runs yearly to seed.

Order carvy as scorzonera : its roots are eaten as parsneeps.

Skirrets by seeds but chiefly by off-sets, not many in a bundle, in March eight rows in a bed : when their stalks begin to wither, fall a spending them ; and as you break off their roots for use, lay their tops or sets in ground covered a little till the spring for planting. (I cautioned you before to change the crops) ; these you spend not ere the frosts come,

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house hard among very dry sand, that you may have them when you will, rather than be barred from them by frosts. These roots which come from the tops or sets are always so sticky, there is no eating them ; they love a moist rich soil.

Parsneeps by seed only, sow in March, promiscuously over the bed, but thin ; spend and house them with skirrets ; and cut quite off their tops, lest they grow amongst the sand. Reserve some of the best untaken up for seed, which will ripe the next season ; choice the middle stem seed.

Beet-rave may be ordered in all cases, as parsneeps, save that you may begin sooner to eat them, viz., as soon as they are bigg enough, tho' they last aslong, besides these you pickle. If in summer they offer to run to stem and seed, cut down their stems to the ground, which will make their roots swell ; they delight in a rich clay.

Carrots as beet-rave.

Turneeps by seed in Aprile, May, June and July, (the first proves not best) promiscuously over the bed, very thin, and scarcely any covering of earth : the earliest prove not best. When they rise, thin them ; late turneeps may be housed as parsneeps, and seeds reapt accordingly.

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Horse radish by off-sets, and lasts long too.

The garden raddish by seed only ; for early ones you may raise them in the hot-bed cases, hence you may have every twenty days, with other sallading through summer, because it quickly shoots for seed. Sow black radish in August and September for winter ; these seed next season.

Potatoes being cut in as many pieces as you please provided there be an eye at each piece, must be planted in March, five rows in a bed ; plant not deep, neither in wet or stiff ground ; spend them with parsneps, and in housing spread them only through a broad floor.

See Part I. Chap. IV. for the orderly planting of kitchen-herbs.

Weeding (I think) may be accompted the most material part of gard'nery. The learned Evelyn takes notice of it ; his directions are, " Weed and haw betimes ; continue weeding before they run to seed, which is of extraordinary importance both for saving of charge, improvement of fruit, and the neat maintaining of the gardens ; wherefore," says he, " keep your weeds down, that they grow not to seed, and begin your work of hawing as soon as they begin almost to peep ; by this means you will dis-

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patch more in a few houres than afterwards in a whole day ; whereas, if you neglect it till they are ready to seed, you do but stir and repair the earth for a more numerous crop, and your ground shall never be cleared.”

And this agrees with what I have written myself, viz. to destroy weeds while young ; for when they have growen strong, and got deep rooting, they'll not only take the nourishment from the good plant, but there will be such difficulty in grubbing them out, that the good seed or plant is in danger of being destroyed ; but if you suffer them to bear and sow their seeds, then (besides that they exhaust much more of the substance of the ground) you shall find the work intolerable, for they'll poyson the whole ground, insomuch that one year's seeds will cost many years' weeding ; and therefore prevent these things by keeping down the weeds ; so shall your work become easie, and the gardens handsome.

In beds where hawes cannot go, you must weed with your hands on both sides, sitting in a furrow on a straw cushion ; pull up the roots cleanly, taking the help of the weeding-iron where needful ; but make use of the haw in all the intervals, drill-beds, nurseries, furrowes, tables or pathes, whereby one

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will cleanse more than some six by weeding with
their hands; and if dry weather, they'll wither while
they ly cut, otherwayes rake them in heaps, and
spread again when rotted, or carry them to some
open trench or pit; and still be visiting your planta-
tions, that as soon as you perceive a weed peep, you
may chalk it.

CHAPTER VII

OF SOME PHYSICK-HERBES, SHRUBS, AND FLOWERS
ALL the herbes in the last chapter are physical;
therefore having spoken to them already, I have the
less to do here; however, there are some, as

Garden-rue; I use to environesage-beds with rue,
the soil not moist, mixt with ashes, not cinders;
you may box bordures with it, as well as lavender
or hysop; which last is also increased by seed; and
so is golden-rod, fever-few, verven, celandin: they
last many years, and so doth

Wormwoods, comfry, Solomon's-seal, catmint,
callamint, elacampan, masterwort, wall-pelli-
tory, garden-gemander, beatony, camomile, swal-
lowwort, suthernwood, lovag, dwarf-elder, harts-
tongue, maiden-hair, asrum, dropwort, birthwort,
horhund, spignell, agrimony, briony, bears-breach,

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sea-holly, madder, rhuebarb, dog-mercury, all which are easily increased by off-sets in the spring, and require to be cut a little above ground at the beginning of autumnne.

Angelica, spurg, scurvy-grass, &c. are annuals, but yield seed the second year from sowing: you may sow when ripe, or in the spring; but, if you prevent their seeding by cutting, they will last longer.

Blessed-thistle, thorn-able, tobacco, stinking-arag, oak of Jerusalem, &c. yielding seed, and dying the first year; therefore sow yearly in Aprile. The Virginia tobacco requires the hot-bed, the rest a good fat light soil, as doth angelica. You must not burie stinking-arag deep, sow it as purslain.

There be many more, besides multitudes in the fields, woods, glens, meadowes, &c. of good use, many whereof you may bring into the garden, as I have done. But I forbear as I have given sufficient directions for the kitchen-garden. I do not approve of planting the clod with these brought out of the fields, for it rots and turns sour, and so kills the plant, albeit you may keep the clod about it till you come home, but then part it off carefully; prune their fibres a little, make the holes with the trowall, and plant in a co-natural earth to that of their

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wonted abode, well stirred and aired, which is an excellent mean to make all plants prosper, and therefore dilligently to be observed.

Of shrubs that lose their leaves in winter, the choicest whereof are,

Roses of many sorts; they are increased by suckers and layers. The musk may be budded on the eglantin, and set at a wall. The double-yellow bears fairest flowers; you may bud the single-yellow on a Frankfort, and re-bud the double-yellow thereon (I have often done it immediately on the single), planted as a standard, shaded in summer, and kept clean of suckers and superfluous buds; and any that blow not freely, may be slit at the five divisions of the hose.

Prune your roses after the flower is past, viz. before the full moon in October; cut behind a leaf-bud, and cleanse them of dead wood; and if you desire fair flowers, suffer but one stem on a root, and keep it low, and every fifth year cut them down to the ground, renewing their earth with old cow-manure.

Jasmines, honisuckles, pipe-trees, &c. are propagated by suckers, layers, and cuttings.

Mezerion by seed, as hawthorn; they ly as long.

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Of shrubs that are ever-green, there is box, savine, arbor-vitæ, tamarisk, privete, &c., by suckers, layers, and cuttings, in Aprile: a shade, and moist fat soil are necessary for them, till rooted.

The cherrie-bay is an excellent green, and not very apt to blast, there is also laurustinus, philyrea, alaternus (I love not pyracantha), juniper; (I care not for ever-green oak and cypress). They are all raised by seeds, and must be couched in sand before winter, and sown in Aprile to rise that season, except the juniper, which lyes till the next: transplant them the second year after they rise in Aprile; remove by a trowal, with earth at their roots, topping such roots as appear, without the clod, and lessen the head by thinning it. See what I have spoken about holly, for the same rules may be observed for these to be spread on walls; but save the tops of standards: they all do well by suckers and layers also, except cypress and juniper. Be careful to defend your seedling greens, while young, from spring blastings; yet do not choak them for want of good air.

The pine, cypress, and ever-green oak (the last in especial), will scarce endure a removal from the seminary; therefore sow them in drills, two foot

interval one way, and half a foot the other; and the next year after they rise, make a spade-bit trench between the rows, and work it cautiously, till you discover the running down root at one side, which you must top, with the pruning knife, and level in the earth as it was. Cut off some side boughes, and thin the head; let them remain two years, then remove and plant them, as is instructed.

Greens that are best worthy our esteem, are Scots-fir for standards, holly for hedges, the cherrie-bay for north aspect walls, or barren creeping ivy, which will neither blast nor seek supporting.

There is strawberrie tree, and tree-nightshade, which are tender. But

Indian and Spanish-jasmines, mirtles, oleanders, and orange-trees are yet tenderer; wherefore, I am not very curious of them; yet there are severals in this countrey who have them, and are at great pains in governing them, by setting them in cases, with small stones, at the bottome filled with earth, as those mentioned for fine plants in Chap. II. Housing them in winter, between the latter end of September and beginning of May, giving them fresh earth as they retire, and expose them, *i.e.* take out the upper exhausted earth, stirring that below with

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a fork (not wounding the roots) and put in its place some rich and well consum'd soil, watering on all occasions with water wherein neat's-manure is steeped, not touching the leaves or stem therewith, whereof be sparing while they remain in the house, except after long frosts, in whose extremity is used a little charcoal, free of smoak, sunk a little in the floor; and in warme dayes, free of frosts and fogs, acquaint them with the air, but shut them close up at night again; and, when you may venture, expose them to the free air; yet even then set them a week in the shade, having first brushed them from dust, &c. For my part, I had rather be in the woods, parks, orchards, kitchen-garden, or fields, measuring, planting, and improving the ground to the best advantage. However, I will here take a little turne among the flowers.

Of fibrous rooted flowers,

July-flowers are the best, and are increased by off-sets, layers, slips and seeds. A light loamy earth well mixt with rotted soil of cows and sheep a year before-hand is most proper for them.

Albeit I have raised many double, by seed of my own reaping, yet the surest way to preserve the best, is by laying, because seedlings are apt to dy after

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they have borne a flower. Plant out your layers at spring, and give these in pots fresh earth, as the orange-tree, and yearly cleanse the old roots of withered, dead, and rotten leaves, and leave not above three or four spindles for flower (if choice) and nip off superfluous buds, lest they blow and bear themselves to death; and if any burst, slit them as I directed with the double-yellow rose. At mid-summer, shade from afternoon's sun a little; these that blow support them against winds; set hoops among them for catching earwigs, their enemies; water well in drought, sparing their leaves; preserve the choicest from too much rains, by laying the pots on their sides; strick off the snow when it lyes too weightie on them; these you incline not to bear seed, cut their stalks as soon as past the flower.

Raise stock-gelly-flowers by seeds or cuttings; the seed of the single will produce double, but the more flowers and leaves the mother hath, the more double shall the product be: sow and plant them with carnations or July-flowers; they affect the same soil with them.

Prim-roses, cowslips, and bears-ears, by off-sets in spring, or when the flower is past, viz. in July; they affect a good natural earth, well mixt with

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rotten neat's-manure: the finer sorts love a little shade in summer. If in pots or cases, you may transport them to such at pleasure.

Great varieties may be raised from seeds sown in pots, the soil as aforesaid, mixt with willow earth in October; take heed of deep interring bears-ears, sow them as purslain; set the pots and cases with them at the south side of a wall till Aprile, at which time they spring, and must be now retired a little as is said; transplant in July to flower next spring, and neglect not to earth up such as are apt to work out of ground, namely bears-ears.

There are many others, as,

Noble liverwort, spring gentianella, virgines-bowrs, etc. and are increased by off-sets in the spring, or by seeds at the same time; as also columbins, holihoeks, cransbill, champions and Constantinople flowers, catch flies, pinks and sweet-williams, throat-worts and bell-flowers, &c. or daisies, violets, spider-worts, double marsh mary-gold, may be raised by off-sets, any time when springing.

Of bulbous and tuberous roots, there are,

Tulipas of great varieties; increase them by off-sets when their stalks wither, which is generally about June, July, or August; this is also the season

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for other bulbous and tuberous roots; keep them in a cool, but dry place, till September or October, and then plant them in a light sandy earth, with fat soil, two or three inches below the bulb, so that the fibres of the bulbs may reach it: remove every three years, and oftener if they affect not the soil: they may be raised from seed, but it's tedious.

Anemonies, the very same as tulips, except that they require a rich earth mixt with rotten manure, so that it be not rank.

Apply this also to ranunculuses of the finest sorts.

Cyclamin roots may be carefully parted in July, and set in the soil fit for tulips.

Crocuses and colchicums as tulips; but they require a mixt, rich, light soil: and so with

Irish bulboses, which love a dry, rich bed; and so with narcissuses, ornithogalums, jacenths, hesons, aconites, hellibors, &c.

Likewayes Irish-tuberosus, crown-imperial, and lilies of several sorts, peonies, cynosorches, &c.

Indian-tuberose is tender. See Esq. Evelyn's kalendar.

There are many annuals may be sown in pots, and plunged in hot-beds, and some under glass covers; especially these sown in autumn, as,

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Amaranthus, marvel of Peru, flos Africanus, convolvulus, &c. In Aprile you may sow them on the cold bed, if good, fat, warme earth, together with double mary-gold, cyanus, nigella, delphinium, antirrhinum, double garden and corne-poppies, fox-gloves, flos solis, flos-adonis, &c.

But if you would be further satisfied in the varieties of flowers, consult the learned and most ingenious Mr James Sutherland's Catalogue, phisic gard'ner at Edinburgh.

I spoke before of preserving plants by housing. There are some that cannot endure the house, which must be set at the south-wall, the pots sunk two inches below the surface, covered with glass, first clothing them with sweet and dry moss: or in prepared boxed beds, with folding glass-frames to lift up and down at pleasure; because in all seasonable warme blinks of the sun and showres, they may be discovered of all that covers them; thus treat choice ranunculus, anemonies, amaranthus, &c. Neglect not to repair their earth, as in the orange tree.

Plants standing dry in winter, earthed up, or the earth made firme about them, are good means of preservation. Neglect not to cleanse all your

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plants of under and withered leaves, superfluous
off-sets, &c.

I hope the reader will excuse me for this brevity,
seeing each chapter herein would merit a book;
neither will leisure permit me at present to enlarge.



AN APPENDIX
SHEWING
HOW TO USE THE FRUITS OF
THE GARDEN

HOW TO USE THE FRUITS OF THE GARDEN

THIS necessarily depends upon the fifth and sixth chapters of Part II. of fruits and herbes eatable.

Gather aples and pears when full ripe, especially those for keeping, or for cyder, in a dry day, clear, but not frostie, in large baskets, lin'd with straw-mats, upon threefooted or standing ladders; at least lay straw under, if you shake them, and suffer not too many at once therein.

Gather apricocks, peaches, plumes, cherries, with your hands into clean baskets, when full ripe, whether for eating green, preserving in sugar, &c. drying, or for wines; as also currans, barberries, rasberries, goosberries. The cucumbers for pickling must be small, *i.e.* ere their seeds grow firme; and goosberries for baking, boyling, and sauces.

Pull artichocks ere they grow too hard; let these for pickling be the tenderest. Let the purslain for pickling be hard and old, lay it a day or two in the sun to mortifie; that which you eat green must be tender. Eat beans and peas green, but do not slice down the beans, nor break the peas' stalks, else those left thereon cannot fill. You may cut off the beans with a knife; and for the peas, hold with the one hand, and pull with the other.

Gather asparagus when tender, *i.e.* about three,

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four, or five inches high. Lettice when young; but it's best cabbaged. Succory, endive, sellery, blanched. Cresses, parsly, chervil, burnet, when young and tender. Sorrall, spinage, beets, before they shoot for seed; and so are arage, marygold, bugloss, burrage, shallot, and onions when their stalks wither, tho' shibols are eaten green. Leeks any time before they shoot to seed. Coleflowers when firme and white, ere they spoil; and so cabbage when hard. Sweet herbes any time, either green or dried; but gather them in their prime, when they are in flower, for drying.

Liquorish is no dish but drink, see Part II. Chap. VI. where you will also find the season of scorzonera, beetrave, carrot, turnep, skirret, parsneep, potatoes, &c.

Besides what is said above of planting and sowing at spring, summer, and harvest; (for some have a longer continuance) as also of raising some earlyer than naturally, by means of hot-beds, and what I might say of retarding others by transplantations, &c., there be wayes of preserving them out of the garden.

Aples and pears may be carryed into the conservatory or store-house, in large baskets between two

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men, which must be a close, but cleanly and wholesome room, floored, lynced, and siled with boards, and shelves, of the same all round; let them sweat a little on the floor, with clean oat-straw under them; then dry and lay them aple-thick on the shelves, opening the north windows, in fair, clear windy dayes, especially at first, that the air may dry up the superfluous moisture; turne them sometimes, and in frosts cover them with mats, and shut closs the house; some of the choicest you may wrap in dry papers singly, and often visit, that you may remove any that begin to rot, for they quickly infect the rest.

The way of preserving cherries, plums, &c. in wine, cyder, hony, or sugar is easie; as also of drying them in the oven.

And you may pickle barberries in vinegar and salt well dried, and sugar; to each pound and half of fruit, a pound of salt cold, and one quarter of a pound of sugar, beaten to powder; put them by layings in a well glazed earthen-pot, and when they have stood a whole week well-stopt, pour in a mutchken of vinegar to each pound of fruit: if you find the sawces too sharp, put as much sugar as salt.

Range cucumbers the same way, and strew salt

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and vinegar till they be all covered, and you may add a little dill and sweet-bay leaves for odour, and cover them close forty days unbroken; then pare when you serve them up.

For artichocks, dissolve two large handfuls of great salt (that is, dried on the fire in a pan) in one mutchken of vinegar, and three of fair water; mix them while the salt is yet hot, but put not the liquor on the fire; boyl the artichocks till the leaves come off easily, and while the cleansed stools are yet warme, you may have three nut-megs, three drops of cloves, one dram and half of mace, a quarter of an ounce of white pepper, half an ounce of cinnamon beaten to fine powder, and strew upon them; then pack them in the pot, with five or six spoonfuls of the liquor on each stratum; when all are potted, poure on the rest of the pickle, and stop close.

To pickle them green, put to every pound of cleansed stools an ounce of salt dried, and a quarter of an ounce of spices last nam'd, mixt in a mortar; and having dawbed the stools full of holes, throw the powder thereon when the pot is full; melt as much butter as covers them over two inches, and when cold, cover close with leather.

To pickle beet-raves, boyl and put them in glazed

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pots, with whole pepper and as much vinegar as
covers them all over, stopping them close.

Asparagus may be parboyled and pickled as arti-
chocks, and so may green peas with cods.

Purslain as cucumbers; and so may taragon, sam-
peir, broom-buds, &c.

Lettice, endive, sellery, &c. by blanching and
ranging among sand in cellars. Cabbage by hanging.
Roots by housing, sanding, &c. as is shewed in
Chap. VI. Sweet herbes as well as physical, by
hanging to dry in some open room, not in the sun,
as some advise.

Put marygold-flowers in paper-bags near the
chimney, till they pass hazard of mouldiness; do
just so with true saffron: but because few know how
to order it, observe to part its off-sets, and plant
with other bulbs at half a foot distance in the beds
or bordures in July; it flowers in September; then
be careful to go through in the mornings, and gather
the saffron, viz. the thrums that are in the middle
of the flowers: it bears not well till the third, fourth
and fifth year, then you must remove it. But to the
matter in hand.

As for the use of these fruits, the physicians know
their medicinalls, the cook their ordering in the

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kitchen, and the gard'ner how to propagate and improvethem. For description, and medicinal uses, see our countreyman Doctor Morison's herbal; and for mechanical uses, Evelyn's works.

To have dishes and drinks of them, observe what followes.

Of dishes, as of aples, you may have baked without any ingredients save sugar, roasted alone, also boyled, or fried by shavers, with a little fresh butter, stew'd betwixt two plates: having cleaved and taken out their cors, add a little sweet butter and sugar.

Of pears, you may have them roasted and boyled as aples; also stoved, being cut in fower, and put dry in a stoup or oven of white iron, and so set in the pot among water to boyl; you may have both aples and pears green with cheise.

Cherries are excellent when baked, and so goosberries; apricocks, peaches, plumes, cherries, currans, goosberries, rasberries, are all excellent dishes, green or conserved. Strawberries with red wine or sweet cream.

Cucumbers pickled for sallad to roasted mutton; or, if ripe, slice and lay them an hour in salt, and so powr off their water. Artichocks are either pickled or fresh, boyled and eaten with sweet beaten butter.

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Beans and peas boyled with savory and thym-fagot, served up with sweet butter beat amongst them, and set on a coal or chaffing.

Boylasparagus in fair water, and serve it up with a little sweet butter, beat, *i.e.* tumbled in the sawsepan above the coal. The young shoots of colworts will serve the same way.

Purslain may be eaten green with sugar, and vinegar or oyl, stew'd with meat, besides pickled.

Lettice, green as purslain; and so cresses, chervil, burnet, burrage-flowers, and wood-sorrall.

Spinage is an excellent stove, being boyled with lamb or veall, with a little sorrall therein, as also chopped dishes thereof with butter.

The same way use beets; also make green broth of them with leeks, fagot of thyme, and parsley. In some stoves and broths you may put arage, marygold leaves, violet leaves, strawberrie leaves, bugloss, burrage and endive. In pottage put juice of sorrall, fagot of thime, and parsley; and in most of broths.

In the sawce or gravy of rost-mutton and capon, and in all stewed dishes, bruise shallot, or rub the dishes therewith.

You may stove leeks with a cock. Onions may

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be baked with a little butter if you want meat; also make use of them with roast-meat, especially geese, and to most fresh fishes in which parsley and thyme-fagot is mainly used.

Boyl coleflowers in water mixt with a little milk; then powr it off, and mix in the stew-pan with sweet butter seasoned with salt, and so serve them up about boyled mutton.

Boyl cabbage with beef, reserving the top of the pot to powr (when dished up) about the beef.

Boyl scorzonera, peale off its brown rind, wherein consists its bitterness; slice and fry it with butter.

When skirrets are boyl'd and pealed, roll them in flowre, and fry them with butter.

Boyl and peel parsneeps, chop and bruise them well, powre on butter, and set them on a coal, and, if you please, strew a little cinnamon upon them.

Carrots are so used, or only dished by shavers.

Beetraves are good when boyl'd, pealed, shaved, and when cold served up with vinegar and sugar, besides those pickled.

Beetraves, parsneeps, carrots, are very good served up whole, or sliced about meat, also turneeps, with fat broth poured thereon.

HOW TO USE THE FRUITS OF THE GARDEN

Potatoes as parsneeps; or, for want of butter, take sweet milk.

Of drinks, as of aples to make cyder; I cannot name our cyder-aples, for I use to mix all the ripe at once in the orchard, that are of a fine juice, and easie to separate from the flesh, and pears that have plenty of juice, and hard flesh, though harsh.

In France they extol the rennet cyder, in England the Hereford-redstrake (which in France they set at nought); they speak of genetmoil and musts, some pipens and parmains; and for perry, the Bromsbury and ruddy horse-pear, all which and many more Hugh Wood gard'ner at Hamiltone has to sel. But now the different soils beget alterations in fruits, besides the climate; yet both defects may be a little helped, the first by using all dilligence to prepare the ground thoroughly, as is directed in Chap. II. Fallowing is a most commendable essay. The second by graffing and regrafting early. Good fences and shelter round the ground are very conducive.

To make this excellent wine, provide trough and beaters, press and harbag, lagallon, and tapering-fat, barrels and hogsheads (for even by the common screw press I have made a hogshead of cyder in a day). Be sure your vessels be sweet, else you spoil

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all: white-wine, sack-cask, or such as kept cyder before. I have heard of cyder-casks three inches thick in the staves, which I believe is of great advantage in preserving the liquor; but if any be tainted, put a little unslaked lyme-stone, and a little water in the barrel, and stop it close; when it has stood a little while and jumbled, pour out and wash clean; that will cure.

The fruit being gathered ripe, as before, let them ly ten or twelve dayes, if summer-fruit; and near the double of that time, if winter-sorts; but late ripe fruit that get frosts is not good cyder: mix not with unripe ones, neither suffer leaves nor stalks among them. When they are small beat, put them in the harbag within the press-fat, and so screw them hard again and again; then emptie it thereof and put in more, and do so as before: empty the receiver into the tapering-fat, and then cover it close with a canvass till the morrow at that time, before you tun it, that the gross lee may fall to the bottom; then draw it off at a tap three inches from the bottom, leaving the dreg behind (the which may go among the pressings for water-cyder). The clearer you tun it into the barrels, the less it ferments, and that's the best cyder; for often cyder

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spends its strength to free it self of the grosser parts; therefore, while your cyder ferments, leave the vent-pin loose, but keep close the bung for preserving the prodigall waste of its spirit; and as soon as the working begins to allay, drive the vent-pin dead to; and this will be perhaps in a fortnight, if it begins to work immediately; sometimes not till the spring. But keep fast the pin till it begins to work; and that you mind to bottle of it, do it as soon as fully clear and fine, which is ordinarily at spring. Put a plumb great of fine white loaf-sugar in each bottle; and above all, make your corks fast and close, then set your bottles in the cellar amongst sand.

To make the water-cyder, put a third as much water upon the new-pressed marce, to stand covered in tubs four or five dayes; then press them, and boyl the liquor, scumming it till the scum cease to rise fast; then take it off (for too much boyling wasteth its spirits) and put it in tubs or coolers, and when cold tun it up. When done working (which will not be so violent as best cyder), make the pin fast, and in a short time it's for drinking. A little ginger, cloves, juniper-berries, or such may be boyled in it, if they please your taste.

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The making of perry differs not from that of cyder.

To make cherrie-wine, to every pound of ripe fruit stampt, put a chopin of spring-water, and a quarter of a pound of fine white sugar: boyl the water and sugar, scum it, and put in the juice of your cherries; let it boyl up again, take it off the fire, run it through a hair-sive, and when 'tis thoroughly cold, put in a stone-pot, and after six or seven dayes, draw it into bottles, putting a bit of loaf-sugar in each; in a quarter of a year you may falla-drinking: it will keep a year. If you would have it stronger, then use no more water than sugar.

After the same manner you may make wine of rasps, currans, goosberries. Or,

Take currans very ripe, bruise and strain them, and to every pint of the juice put a pound and a quarter of sugar into a stone or earthen-pot, scum it often, and at a week's end draw it off, and take out the settlings, and put in the liquor again; do this till it be fine, then bottle it; and at a week's end, if it be not fine in the bottles, shift it into other bottles.

Gather your goosberries ere they be too ripe, and for every three pound of stampt fruit, use a

HOW TO USE THE FRUITS OF THE GARDEN

chopin of water, and a pound of sugar; steep them twenty four houres, then strain them; put the liquor into a vessel close stopt a fortnight or three weeks; then draw it off if you find it fine, other-ways suffer it longer; and if not yet fine, rak it.

It's usuall to make it thus unboyled, because it contracts a brown colour in boyling.

To every pint of rasps add a pound of sugar; let them stand two dayes in an earthen-pot, often stirring and bruising them: then put them in a woolen bag to hang up twenty four houres or more, till the liquor drop out into a stone-pot; suffer it there till fermented and scum'd, and at a week's end (or sooner if fine) bottle it, and at another week's end shift it into fresh bottles, that you may leave the settlings behind; thus shift them so long as you see any settlement, which you may put in a bottle by itself.

Of some sorts of plumes, as damasons, &c. may be made wine.

That called cherrie-brandie, is a bottle half full of geens, filled up with brandie, sometimes jumbled a little, and in a moneth's time is fit for drinking: or if you put the like quantity of goosberries instead of cherries, that will make the brandie very delicious.

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The cherries best for wine, are blackheart, and morella. I think the red geen most excellent.

Of goosberries the great crystal, and of currans the great Dutch-red, also the red rasp are the best.

To have ail of liquorish, slice it very small, and powr water on it when at boyl; then cover it close till next day; powr off this wort, and more hot water on to stand so long as to search it thoroughly; add your worts together, and boyl them with a little dry worm-wood, or *Carduus benedictus*: but the greatest difficulty is to barme it when cold, as wort of malt: yet the stronger you make it, the easier it will take. Or if you have the conveniency of settlings of good wort of malt to boyl with it, that will facilitate the work.

To have good metheglin, take one part of clarified hony, and eight parts of pure water, and boyl well together in a copper vessel till the consumption of one half; but while it boyls, take off the scum, and when done boyling, and it begins to cool, tun it up, and it will work of it self; as soon as done working, stop it very close. Some advise to bury it under ground three moneths, and that to make it lose both smell and taste of hony and wax, and taste

HOW TO USE THE FRUITS OF THE GARDEN.
very like wine. I use to add dry rosmary and sweet marjoram in boyling: some barme it as ail, which I have practised effectually.

To know what fruits and herbes to make choise of for our plantations :

The French fruit succeeds not well with us ; in England are good aples ; but Holland excels for stone-fruit, especially peaches and cherries, and Scotland for pears.

The best aple for the table, is the golden pepin ; we have also rennets, russets, &c. very good. And for the kitchen the codling, Lidingtown and Rubies, with hundreds for both.

But the best pears for the table are English bergamot, swan-egg, red-pear, achans, &c. The wardens are good keepers and kitchen-fruit, and multitudes more.

Of cherries, the Kentish and morella, &c.

Of plumes, primordials, mussel, imperial, &c.

The common and orange apricocks, the Newington and nutmeg peaches. (Peaches bear better with us than apricocks).

The Portugall quince, and thin-shell'd walnut.

Of goosberries, great white, great red, and great yellow.

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Of currans, the great red-Dutch, the white-Dutch, the great black.

Of rasps, both white and red.

The great red strawberrie, and the Virginian, which is more early.

Of artichocks, the great green and the red.

Great white beans, and white-kidnees; of peas, barnees, hotspures, hasties, and the sickle-peas, &c.

If you can get *Hordium nudum*, i.e. naked barley, and sow as I directed with peas, it yields an incredible increase.

The Dutch asparagus and cabbage lettice. The sorrall that usually shoots, not for stoves, &c. The white beet, and smooth spinage. Curled parsley and cresses, shallot and roccumbol, French leeks, and Straws-burgh onions.

Candy coleflower, and our own great *Scots* white cabbage.

Crisp tansie, and curled spearmint, sweet fennel, and common rosmary, sweet marjoram, and red sage.

The black scorzorena and orange carrot: the small round smooth turnep; smooth Dutch parsnep, and small radish, clear as chrystall.

THE CONCLUSION

PROPOSING SCOTLAND'S IMPROVEMENT

THERE is no way under the sun so probable for improving our land as inclosing and planting the same. Therefore I wish it were effectually put in practice.

F I N I S

THE
GARD'NERS KALENDAR

SHEWING THE MOST SEASONABLE TIMES
FOR PERFORMING HIS

HORTULAN AFFAIRS

MONTHLY THROUGHOUT THE YEAR :

AND

A CATALOGUE OF SUCH DISHES AND
DRINKS AS A COMPLEAT GARDEN
CAN AFFORD IN THEIR SEASONS

BY JOHN REID, GARD'NER

Reader,

As in this little kalendar thou wilt find when ; so in my book (intituled The Scots Gard'ner) thou wilt find how, to perform the particulars. The gard'ners year is a circle as their labour, never at an end. Nevertheless their terme is.

NOVEMBER

Contrive or forcast where, and what you are to sow and plant. Trench and fallow all your vacant grounds. Prepare and mix soils and composts thoroughly; miss not high-way earth, cleanings of streets; make compositions of manures, soils, and lyme.

Lay bair roots of trees that need, and manure such as require it. Plant all fruit-trees, forrest-trees, and shrubs that lose the leaf, also prunesuch. Plant cabbage, sow hasties for early peas in warme grounds, but trust not to them.

Gather the seeds of holly, yew, ash, &c., ordering them as in Chap. III. Furnish your nurseries with stocks.

Shelter tender evergreen seedlings. House your cabbage, carrots, turneps: and at any time ere hard frosts house your skirrets, potatoes, parsneeps, &c. Cover asparagus, artichocks, as in the last moneth. Sow bairs-ears, plant tulips, &c. Shut the conservatory. Preserve your choisest flowers. Sweep and cleanse the walks of leaves, &c. Stop your bees close so that you leave breathing vents.

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Garden Dishes and Drinks in season, are cabbage, coleflower, onions, leeks, shallot, &c. Blanched sellery, succory, pickled asparagus, purslain, &c. French parsneeps, skirrets, potatoes, carrots, turneeps, beet-rave, scorzonera, parsley and fennell roots, aples, pears, &c.

Cyder, perry, wine of cherries, rasps, currans, goosberries, liquorish, hony, &c.

DECEMBER

Trench and prepare grounds. Gather together composts; plant trees in nurseries, and sow their seeds that endure it.

Gather firseed, holly berries, &c. Take up liquorish. Continue your care in preserving choice carnations, anemonies, and ranunculuses from rains and frosts. And keep the green-house close against the piercing colds. Turne and refresh your fruit in a clear serene day. Sharpen and mend tools. Gather oziars and hassell rods and make baskets in stormy weather. Cover your water pipes with leitter lest the frosts do crak them; feed weak bees.

Garden Dishes and Drinks in Season

Colworts, leeks, &c., housed cabbage, onions,

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shallot. Several dryed sweet herbes. Housed pars-
neeps, turneeps, skirrets, carrots, potatoes, beet-
rave, scorzonera; parsley and fennel roots. Pickled
cucumbers, barberries, artichocks, asparagus, pur-
slain, &c.

Housed aples, pears. Conserved cherries, plumes,
peaches, apricocks, &c.

Wine of aples, pears, cherries, liquorish, honey, &c.

JANUARY

Prepare the grounds, soils and manures. Fell
trees for mechanical uses. Prune firrs, plant haw-
thorn hedges, and all trees and shrubs that lose the
leaf if open weather. Also prune the more hardie
and old-planted. Manure the roots of trees that
need. Drain excessive moisture; gather graffs ere
they sprout, and near the end graff. Begin with the
stone fruits. Gather holly berries, firr husks, &c.
Secure choice plants as yet from cold and wet, and
earth up such as the frosts uncovered.

Feed weak bees, also you may remove them.

Garden Dishes and Drinks in Season

Colworts, leeks, &c. Dry sweet herbes, housed
cabbage, onions, shallot, parsneeps, skirrets, pota-

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toes, carrots, turneps, beet-rave, scorzonera, parsley and fennel roots in broth.

Pickled artichocks, beet-raves, &c. Housed aples, pears, and other conserved fruits.

Cyder and other wines as before.

FEBRUARY

Plant any trees or shrubs that lose the leaf, also lay such for increase; see *June*. Likewayes sow all your seeds, kyes, kirnells, nuts, stones; also the seeds of several greens, as holly, yew, philyrea, laurells, &c. Prune firrs, &c.

Continue to destroy vermine.

Graffing is now in season, see the last moneth.

Prune all trees and shrubs except tender greens. Nail and dress them at the wall. Cover the roots of trees layed bair the fore-end of winter, if any be. Plant hawthorn hedges, willows, &c.

Plant liquorish, potatoes, peas, beans, cabbage, sow parsley, beets, spinage, marygold, and other hardie pot-herbes.

Let carnations and such sheltered flowers get air in mild weather. But keep close the green-house.

Now you may remove bees and feed weak stocks.

THE GARD'NERS KALENDAR

Garden Dishes, &c.

Cole, leiks, sweet herbes, onions, shallot, housed cabbage, skirrets, turneeps, parsneeps, potatoes, beet-rave, scorzonera, carrots, besides parsley and fennel roots.

Pickled beet-rave, artichock, cucumber; housed aples, pears, and other conserved fruits with cyder and other wines and drinks, as above.

MARCH

Re-delve, mix, and rake your ground for immediate use. Delve about the roots of all your trees. Yet plant trees and rather greens. Also prune such except resinous. Propagate by laying, circum-position, and especially by cuttings. Sow the seeds of most trees and hardie greens. Cover those trees whose roots lay bair and delve down the manures that lay about your young trees all winter, covering on leitter again topt with earth to prevent drought in summer: this is a material observation and more especially for such as are late planted. Slit the bark of ill-thriving trees. Fell such as grow croked in the nurserie. Graffing is yet in season (but too late for stone fruit), cut off the heads of them inoculated.

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Set peas, beans, cabbage, asparagus, liquorish. Sow parsley, beets, endive, succory, bugloss, burrage, sellery, fennell, marigold. Plant shallot, garlics, potatoes, skirrets. Sow onions, lettuce, cresses, parsneep, beet-rave, radish, &c. And on the hot-bed coleflower, and if you please, cucumber, &c.

Slip and set physick herbes, July-flowers, and other fibrous-rooted flowers. Be careful of the tender plants; the piercing colds are now on foot. Turne your fruit in the room but open not yet the windows.

Catch moles, mice, snails, worms, destroy frogs' spawn, &c.

Half open passages for bees, they begin to flit; keep them close night and morning: yet you may remove them.

Garden Dishes, &c.

Both green and housed herbes and roots: also pickled, housed, and conserved fruits, with their wines as in the former months.

A P R I L E

Plant holly hedges and hawthorn too, if not too foreward. Ply and sheer hedges. Nail and prune

THE GARD'NERS KALENDAR
wall-trees, &c. Sow and plant firrs, and other greens. Slip and set sage, rosemary, thym, rue, savory, and all fibrous rooted herbes and flowers. Uncover and dress strawberries. Plant artichocks, slip them and delve their plottes. Set cabbages, beans, peas, kidnees. Sow asparagus, parsley, beets, and beet-card. Set garleeks, shallot, potatoes, skirrets, sorral. Sow onions, leeks, lettuce, cresses, radish, orach, scorzonera, carvy, fennel, &c. And on the hot-bed, cucumbers, coleflowers, purslain, sweet marjorum, basill, summer savory, tobacco, &c.

Set strawberries, violets, July-flowers, &c. Also sow the seeds of July-flowers, &c. Sow all your annuall flowers and rare plants, some requiring the hot-bed. Lay, beat, and roll gravel and grass. Fall to your mowing and weeding.

Destroy moles, mice, worms, and snails.

Open the doors off your bee-hives, now they hatch.

Garden Dishes, &c.

Onions, leeks, colworts, beets, parsley, and other herbes : spinage, sorral, scorzonera ; green asparagus, lettuce, and other sallads. Pickled artichocks, beet-rave, barberries, cucumbers.

Housed aples and pears, conserved cherries,

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plumes, peaches, apricocks, goosberries, currans.
Also wines of aples, pears, cherries, liquorish,
hony, &c.

MAY

Pull up suckers and haw about the trees. Rub off unnecessary buds. Sheer or clip hedges. Prune tender greens (not the resinous), bring furth the housed ones refreshing and trimming them. Plant all sorts of medicinal herbes. Sow all sweet ones which are tender.

Gather snails, worms, and catch moles.

Sow lettuce, cresses, purslain, turneep, radish, peas, &c. Continue weeding and watering.

Near the end watch the bees ready to swarm.

Garden Dishes and Drinks in Season

Coleworts and other herbes, (being eaten with contentement are better than a fatted ox without it), sage (with butter), leeks, parsley, thyme, marjorum, sorrall, spinage, &c. Scorzonera, asparagus, lettuce, purslain, and other sallades and pot-herbes.

Pickled artichocks, barberries, beet-rave, cucumbers, housed aples and pears for many uses. Early cherries, strawberries, near the end.

Cyder, metheglin, liquorish ail, &c.

JUNE

Cleanse about the roots of trees, suckers, and weeds; water their covered bulks, especially the new planted.

Fell the long small ill-train'd forrest-trees in the nurserie, within half a foot of the ground. Unbind graffs. Prune all wall and standard trees. Towards the end you may inoculate and also increase by circumposition.

Gather elm seed and sow immediately. Transplant coleflowers, coleworts, beets, leeks, purslain, &c., in moist weather; at least water first the ground if dry.

Sow peas, radish, turnep, lettice, chervil, cresses, &c.

Destroy snails, worms, &c.

Begin to lay carnations or July-flowers; shade, support and prune such as will blow. Water the pots and thirsty-plants. Weeding and mowing is in season, and so is distillation.

Bees now swarm, look diligently to them.

Garden Dishes and Drinks in Season

Cole, beets, parsley, sorrall and other pot-herbes. Purslain, lettice, and other sallads. Radish, scor-

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zonera, asparagus, green peas and artichocks. Green
gooseberries. Ripe cherries, raspberries, currans, straw-
berries.

Housed apples and pears.

Cyder, metheglin, &c.

JULY

Fallow ground as soon as the crop comes off. Prune and purge all standard trees. Ply, nail, prune, and dress your wall-trees. Pull up suckers and weeds. Haw and water where needful. Inoculate fruit-trees, shrubs, rare greens, and flower-trees; increase the same by laying. Clip your hedges after rain. Suffer such herbes and flowers to run to seed as you would save, cutting the rest a handful from the ground.

Sow turnep, radish, lettuce, onion, cole-flower, cabbage, and coleworts in the full moon. Near the end sow beets, spinage, &c. You may plant strawberries, violets, camomile. Lay July-flowers. Plant their seedlings. Slip and set hyppaticas, bears-ears, couslips, helibors, &c. Take up bulbous and tuberous ones that are dry in their stalks (if you mind to change their places) and keep till September, but some should be set immediately.

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Supply voids with potted annualls. Lay grass and gravell. Make cherrie and rasberrie wine, &c.

Prevent the bees' later swarms. Kill drons, wasps, &c.

Garden Dishes and Drinks in Season

Beets and many pot-herbes and sweet herbes.

Beet-card, purslain, lettice, endive, &c.

Cabbage, cole-flower, scorzonera, beet-rave, carrot, radish, turneep, peas, beans, and kidnees, artichocks, strawberries, rasps, currans, goosberries, cherries, plumes, summer pears and aples.

Cyder, metheglin, and other wines.

AUGUST

Fallow bordures, beds, nurseries, and the bulks of trees. Yet inoculate. Ply and purge trees. Pull up suckers and weeds. Clip hedges. Gather the stones of black cherrie and morella. Gather mezerion berries. Gather the seeds of most herbes and flowers. Cut your physick herbes. In the beginning sow cabbage (tho' I confess it's too late. See last moneth). Beets and beet-card, spinage, black-radish, chervil, lettice, corn-sallade, endive, scorzonera, carvy, marygold, angelica, scurvy-grass, &c. Take up ripe onions, garleeks, and

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shallot. Unbind buds inoculated. Cut and string
strawberries. Lay July-flowers. Sow columbines,
holyhoks, larks-heels, candy tufts, poppies, and such
as can endure winter.

Take up your bulbs and plant as in the last. Sift
the ground for tulips and gladiolus. Plunge in
potted annuals in vacants. Keep down weeds by
hawing. Lay grass, beat, roll, and mow well.
Make goosberrie and curran wine.

Towards the end take bees, take the lightest first;
those that are near heaths may differ a little.
Destroy wasps, straiten the passage by putting on
the hecks to secure from robbers.

Garden Dishes and Drinks in Season

Many pot-herbes and sallades, cabbage, cole-
flower, beet-card, turneep, radish, carrot, beet-rave,
scorzoner, peas, beans, and kidnees, artichocks,
cucumbers, aples, pears, plumes, apricocks, geens,
goosberries, currans, rasps, strawberries, &c.

Cyder, metheglin, cherrie wine, curran wine,
goosberrie wine, raspberrie wine, &c.

SEPTEMBER

Fallow, trench, and level ground. Prepare pits
and bordures for trees. Gather plane seed, also

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almond, peach, and white plum stones. Gather ripe fruits. Plant furth cabbage. Remove bulbs and plant them. Refresh, trame, and house your tender greens. Refresh and trim pots and cases with July-flowers and other fine flowers and plants; carrying them to pits, shelter and covert, giving them air.

Towards the end gather saffron.

Make cyder, perry, and other wines.

Straiten the entrance to bee-hives, destroy wasps, &c.

Also you may now remove bees.

Garden Dishes and Drinks in Season

Varieties of pot-herbes and sallades, cabbage, cole-flower, peas, beans, and kidnees, artichocks, beet-card, beet-rave, scorzonera, carrots, turneeps, radish, cucumbers, aples, pears, apricocks, peaches, nectarines, quince, grapes, barberries, filbeards.

Cyder, liquorish ail, metheglin, and wine of cherries, rasps, goosberries, currans, &c.

OCTOBER

Gather winter fruits. Trench and fallow grounds (mixing with proper soil) to ly over the winter. Prepare manures, mixing and laying in heaps bot-tom'd and covered with earth. Plant hawthorn

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hedges, and all trees that lose their leaves. Also lay their branches. Prune roses. Gather seeds of hassell, hawthorn, plan, ash, beach, oak, aple, pear, &c. Cut strawberries, artichocks, asparagus, covering their beds with manure and ashes. Earth up winter sallades, herbes and flowers, a little. Plant cabbage, tulips, anemonies and other bulbs. Sow the seed of bairs-ears, cowslips, tulips, &c. Beat and roll gravel and grass. Finish your last weeding and mowing. Lay bair leopered tree roots and remove what harms them; also delve and manure such as require it. Drain excessive moisture wherever it be. Pickle and conserve fruits. Make perry and cyder.

You may now safely remove bees.

Garden Dishes and Drinks in Season

Coleworts, leeks, cabbage, coleflowers, onions, shallot, beans. Blanched endive and sellery. Pickled asparagus, purslain, &c.

Scorzoneria, beet-rave, carrots, turneeps, pars-neeps, potatoes, skirrets, artichocks, cucumbers, aples, pears, plumes, almond, &c.

Cyder, perry, and wine of cherries, currans, goos-berries, rasberries, ail of liquorish, metheglin, &c.

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