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A PLAIN AND EASY INTRODUCTION TO THE KNOWLEDGE AND PRACTICE OF GARDENING, WITH HINTS ON FISH-PONDS, BY CHARLES MARSHALL, VICAR OF BRIXWORTH, NORTHAMPTONSHIRE.

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 handy Works.

BACON'S ESSAYS.

THE FOURTH EDITION, CONSIDERABLY ENLARGED AND IMPROVED.

PRINTED FOR F. C. AND J. RIVINGTON; W. J. AND J. RICHARDSON; J. WALKER; H. D. SYMONDS; LONGMAN, HURST, REES AND ORME; J. HATCHARD; AND J. MAWMAN; BY BYE AND LAW, ST. JOHN'S SQUARE, CLERKENWELL.

1805.
PREFACE.

This work having come to a fourth edition in a few years, evinces its favourable reception by the public; and though the author trusts it will continue to recommend itself to those who are acquainted with it, he thinks it is but doing himself justice, and may promote the sale of the book, by republishing the following sanctions as they occurred.

"The directions of this Manual appear to us to be distinctly and usefully given, and little as we are used to the practical part of the science, we have read the work with pleasure."—Gentleman's Magazine, June, 1797.

"This work is calculated for Gentlemen Gardeners, and we altogether recommend it as convenient in size, and very judiciously arranged."—British Critic, October, 1797.

"This work is no compilation. The respectable author has given to the public, the result of his experience, delivered with that plainness and perspicuity, which cannot fail of rendering his work highly useful to every reader who shall consult it either for pleasure or instruction."—Monthly Review, November, 1797.

"A very extensive and useful performance, in which much information will be found, and the young Gardener will derive both pleasure and amusement from this compendious and cheap manual."—European Magazine, June, 1798.

"Mr. Marshall's observations on the modes of cultivating different articles, deserve the attention of the inexperienced Gardener."—Critical Review, July, 1798.

"This is one of the most complete works on the subject we remember to have seen; and is a work both from its nature and execution, which every country gentleman ought to have in his possession."—Analytical Review, October, 1798.
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The Alphabetical Lists in Section 19, contain a great number of plants, and those trees, shrubs, and flowers, which are not referred to in the Index, must be looked for here; where is mentioned their stature, time of flowering, colour, nature, and propagation; all which arrangements form a plan entirely new. Those who are led by the Index to any of the articles of observation in Sect. 19, should also turn to the preceding List for the same article, in order to complete their information.
SECTION I.

THE PRAISE OF GARDENING.

IT is of importance to the welfare of any art, that those whose taste inclines towards it, should have a good opinion of its utility, and competent notions of its principles. It is therefore the design of the present section, to shew the degree of estimation that the art of Gardening is worthy of; and it is the object of the next, to assist in the acquiring that knowledge of Nature, upon which the art so much depends.

Not to enlarge upon the profits of gardening, its employments are certainly conducive to health of body, and peace of mind; and great indeed are the charms and recreations of a garden well stocked, and well managed by the hand, or under the direction of the owner himself: It at all times serves him as a source of rational amusement, and honest satisfaction.

The praise of gardening, it is presumed, can hardly be too highly extolled; and, as this has been so well done by the best of men, and most respectable of writers, it may better answer the present purpose to produce their sentiments, than to attempt new ones.

What we admire, we praise; and when we praise, Advance it into notice, that its worth Acknowledged, others may admire it too.

Cowper.
The great Lord Bacon's opinion of gardening, given in the motto of the title page, is certainly—both just and honourable. The agreeableCowley speaks of his darling nature as enjoyed in a garden, thus:

When God did man to his own likeness make,
As much as clay, tho' of the purest kind;
(By the great potter's art refin'd)
Could the divine impression take,
He thought it fit to place him, where
A kind of heaven too did appear,
As far as earth could such a likeness bear;
That man no happiness might want,
Which earth to her first master could afford;
He did a garden for him plant,
By the quick hand of his omnipotent word;
As the chief help and joy of human life,
He gave him the first gift,—even before a wife.

And well he knew, what place would best agree,
With innocence and with felicity.
And we elsewhere still seek for them in vain,
If any part of either yet remain,
If any part of either we expect
This may our judgment in the search direct;
God the first garden made, and the first city,—Cain.

When Epicurus to the world had taught
That pleasure was the chiefest good,
(And was perhaps 'th'right, if rightly understood)
His life he to his doctrine brought,
And in a garden's shade, that sovereign pleasure sought.

Whoever a true epicure would be,
May there find cheap and virtuous luxury.

Nor does this happy place only dispense
Such various pleasures to the sense,
Here health itself does live,
That salt of life, which does to all a relish give,
Its standing pleasure, and intrinsic worth,
The body's virtue, and the soul's good fortune, health.

Methinks I see great Dioclesian walk
In the Salonian garden's noble shade,
Which by his own imperial hands was made:
I see him smile, methinks, as he does talk
With the ambassador, who came in vain
'T'entice him to a throne again:
If I, my friends, said he, should to you show
All the delights which in these gardens grow,
'Tis likelier much that you should with me stay,
Than 'tis that you should carry me away:
And trust me not, my friends, if every day
I walk not here with more delight
Than ever after the most happy flight,
In triumph to the capitol I rod,
To thank the Gods, and to be thought myself a God.

Mr. Cowley's passion for retirement was indeed very strong; but might he not well say, "Is there not a cause?" He had been conversant in high and public life, and was very glad to leave

Those dangerous posts, where customs ill agree
With virtuous rules, or found philosophy.

As one reason for his going out from Sodom (as he speaks) to his little Zoar, he asks,

Who that has reason and his smell,
Would not among roses and jasmin dwell,
Rather than all his spirits choke
With exhalations of dirt and smoak;
And all th' uncleannesse which does drown
In pestilential clouds a populous town.

Another poet (Clericus) retiring from town to a cottage and a garden, says,
I first betook myself to trace the laws
Of nature, upwards to its fruitful cause
And, digging mines of true philosophy,
The mystic stone I found, whose energy
Apply'd, transmutes some matter, some sublimes,
Drawing within my circle golden times.

Often amused with feats of gardening,
Delightful exercise, I work and sing!
And moving cheerful feel not half my toil,
Like swains that whistle, while they plough the soil.
Should any disbelieve, I here invite
Such infidels to come, and trust their sight.

—Uncorrupt and happy days were those
When Roman Consuls exercised their hoes;
Whose leisure hours in country cares were spent,
And whose diversions all were innocent.
Oft their own labours furnish'd out their feast,
And thus their fruits and ballads relish'd best.

Art of Gardening.

* * * * * *

Mr. Evelyn, who had so great knowledge and experience in the way of gardening, speaks its praise in these words: Though the gardener's life be a laborious one, yet is it full of tranquillity and satisfaction. A condition furnished with the most innocent, laudable and purest of earthly felicities; and such as does certainly make the nearest approaches to that blessed state, where only they enjoy all things without pains.

* * * * * *

Mr. Addison says, I look upon the pleasure which we take in a garden, as one of the most innocent delights of human life. A garden was the habitation of our first parents before the fall. It is naturally apt to fill the mind with calmness and tranquillity, and to lay all
all its turbulent passions at rest. It gives a great insight into the contrivance and wisdom of providence; and suggests innumerable subjects for meditation.

Mr. Hervey, in his Meditations, on return from a walk, having entered the flower garden, and called it a beautiful spot, says, "Here nature always pleasing, every where lovely, appears with peculiar attractions. Yonder she seems dressed in her dehaville; grand, but irregular. Here she calls in her hand-maid art; and shews in all the delicate ornaments, that the nicest cultivation can convey. Those are her common apartments where she lodges her ordinary guests: This is her cabinet of curiosities, where she entertaineth her intimate acquaintance. My eye shall often expatiate over those scenes of universal fertility: My feet shall sometimes brush through the thicket, or traverse the lawn, or stroll along the forest glade; but to this delightful retreat shall be my chief resort.—Thither will I make excursions, but here will I dwell."

On the Kitchen Garden Mr. H. observes, "Here those celebrated qualities are eminently united,—the utmost simplicity with the greatest neatness: none of the productions affect finery. If it be pleasing to behold their orderly situations, and their modest beauties; how delightful to consider the advantages they yield! What a fund of choice accommodations here! What a source of wholesome dainties, and all for the enjoyment of man! Not one species of all this is a cumberer of the ground. Not a single plant but is good for food, or some way salutary. And with so beneficent an economy are the several periods of their ministration settled, that no portion of the year is left destitute of such nourishing esculents as are best suited to the temperature of the air, and the state of our bodies.—Oh! why should the possessor of so valuable a spot envy the condition of kings? Since he may daily
daily walk midst rows of peaceable and obsequious subjects; every one of which tenders him some agreeable present, and pays him a willing tribute. Such as is most excellently adapted, both to supply his wants, and regale his taste; to furnish him at once with both plenty and pleasure."

From the amiable Cowper something on this subject may be added. See the garden, in his Poem, entitled the Task.

O friendly to the best pursuits of man,  
Friendly to thought, to virtue and to peace,  
Domestic life in rural leisure pass'd.

Scenes formed for contemplation, and to nurse  
The growing seeds of wisdom; that suggest,  
By every pleasing image they present,  
Reflections such as meliorate the heart,  
Compose the passions, and exalt the mind.

Oh! blest seclusion from a jarring world,  
Which he, thus occupied, enjoys! Retreat  
Cannot indeed to guilty man restore  
Lost innocence, or cancel follies past,  
But it has peace, and much secures the mind  
From all assaults of evil, proving still  
A faithful barrier, not o'erleap'd with ease,  
By vicious custom raging uncontroll'd  
Abroad, and desolating public life.

The morning finds the self-sequester'd man,  
Fresh for his task, intend what talk he may.  
—if the garden with its many cares,  
All well repaid, demand him, he attends  
The welcome call.  
Had I the choice of sublunary good,  
What could I wish, that I possess not here?

Sir William Temple commended the employment and care of a garden as his settled choice, saying,—
For my own part, as the country life, and this part of
it more particularly, were the inclination of my youth itself, so they are the pleasures of my age.

*Le Pluche* justly afferts,—Of all the employments in life, none is more simple, natural, and entertaining, than the cultivation of plants.

*Virgil* of old, describes the happiness of a cultivator of the ground in gardening and planting, as equalling all the opulence of kings, in the ease, content, and freedom of his mind. This is one of the most assured truths; and happy are they who are free from the entanglements of artificial life, and not over-burthened with honour and greatness.

*Gardening* leads to *planting* and *farming*, of which, collectively, Mr. *Cowley* prettily speaks.—It is one of the best natured delights of all others, for a man to look about him, and see nothing but the effects and improvements of his own art and diligence; to be always gathering of some fruits of it, and at the same time to behold others ripening, and others budding; to see all his fields and gardens covered with the beautiful creatures of his own industry; and to see, like *God*, that all his works are *good*.

Of a *country life* in general, Mr. *C.* says, "We are here among the vast and noble scenes of nature; where we walk in the light and open ways of the divine bounty, and where our senses are feasted with the clear and genuine taste of their objects."
SECTION II.

CONCERNING VEGETATION.

As a good garden affords much pleasure and profit, it deserves every attention; and certainly the cultivation of it cannot be too rationally pursued. It is therefore that a sketch of the Nature of Vegetation is here attempted; for the use of those who are unacquainted with the subject to assist them in the pursuit of gardening with understanding.

Let the elements be first considered.

Earth, as an element, considered in itself, appears not to serve to the support of man or beast. Though from it all things spring as from a common womb, yet independent of the other elements, or extraneous matter, it neither produces, nor affords, any thing like food. Assisted however by these, there is a combination of powers, the effects of which are equally beneficial and wonderful.

It has been pretty much an opinion, that the earth acts only as a receptacle for nutriment; and as a resting place, or means of supporting plants coetically; to imbibe rain, dews, air, &c. needing continually to be replenished by manures, or from the atmosphere. Indeed, it is not to be conceived, how the earth, considered as a solid, should pass through the capillary parts of plants. Experiments have proved, that the earth is very little, if at all exhausted, by the growth of plants, and consequently affords a presumption that plants are not fed by it.

There
There has been much controversy about the food of plants. A respectable writer says, The saline, unctuous, and subtle slime, which the water separates from the coarse earth, and keeps in a dissolved state, is the principal nutriment of plants. And indeed, this is the opinion of others, who have treated the subject, and is justified by enquiries into the nature of the sap of plants, by decomposition:

Those who contend for an inherent power in earth to nourish plants, lay a stress upon the circumstance, that various earths have various qualities, suited to different parts. But to this it may be said, that the earth being more or less binding, or composed of differently constructed particles, occasions the parting with the food committed to it, the more or less freely, or altered according to its various modes of percolation, or straining.

Water appears to have much to do in the subsistence of plants, for they consume a great deal; and either die, or are at a stand, when they are deprived of it, or at least of humidity from the air. It is proved, that seeds and plants, and in short all substances, consist chiefly of water, being reducible to liquids in a great degree.

Water (with respect to vegetation) has been defined to be, a mixed fluid, in which are all sorts of particles proper for the composition of plants. Rooted trees have been set in water at the spring, (as a rose) and put forth leaves fair, though pale; and it is well known, that many slips and branches of plants will strike root in water readily: and gathered flowers not only keep fresh in it, but increase in size, and buds also open. Hyacinths are very commonly blown in water in warm rooms for an early blow. All seeds will germinate, and some grow in it.
The natural state of water uninfluenced by heat is ice, and when very cold, it is too dense a fluid to pass through some of the capillary vessels of plants; yet a small degree of heat rarifies it; and as its globules are capable of being infinitely divided by a proportionate heat; it is thus, rendered fit to pass through the finest canals. It mixes with the nutritive properties that are lodged in the earth, and is (at least) the vehicle of the food of plants. In this respect alone, it is most valuable. Without it, nothing could be elaborated in nature, no fermentation be wrought, and animals and plants would die of thirst!

Air is found in a considerable degree in water, in plants, and in fruits. It may be almost demonstrated (says one) that the vegetable nourishment is principally in the air: The tree Sedum suspended, lives and grows for years by air and its moisture.

How necessary this element of air is to man, the commonest observation evinces. Deprived of air, life is quickly lost, and in a depraved state of it, runs fast to sickness and death. Thus plants are found to flourish in a free and open air, and grow pale and languid in the contrary. But air is not only necessary for the leaves of plants to breathe in, but their roots require it: Plants will not do well if the soil is too much bound for the air to penetrate freely about them.

The sickness of housed plants has been said to be owing greatly to want of motion. But the want of fresh air, is undoubtedly the chief cause; for pure air is fraught with animating principles, and by its attenuating and elastic properties, separates the gross juices, keeps the sap in motion, and the plants in health.

Air conveys to the organs of smelling, all those grateful scents, which plants, flowers and fruits produce, and we are greatly regaled, and refreshed by them.
If it be asked, what air is, and of what it consists? It may be answered, Particles of wet and dry bodies volatilized, and rendered elastic by fire. The air or atmosphere that surrounds our earth, contains a mixture of all the active volatile parts of the whole habitable world; that is, of all vegetables, minerals and animals. Whatever perspires, corrupts or exhales, impregnates the air; which, being acted upon by the solar fire, produces within itself, all sorts of chemical operations, dispenses again those salts and spirits in new generations, which it had received from putrefactions.

Fire, as it operates from the prime body of it the sun, gives life and energy to all, completing the processes of nature. There is no existing without it. Its total absence would presently bring all animation to the coldness of death!

The sun by its warmth (conveyed by the air) sets forward that fermentation in the earth, and gives that spirit to plants, which effects growth, and conceals their juices to make them fruitful.

It is by the rarefaction of the air and juices contained in the roots, and all the parts of a plant, that motion and expansion are given to it; and by its ascending force, pushes into buds, leaves, flowers and fruits; fencing off superfluous and excrementitious moisture into the atmosphere, thus giving us the scents peculiar to each. That the sun does this, is evident from what is experienced in artificial warmth, hurrying on the growth of plants, which is ever proportionate to the heat applied, provided there is a proper supply of moisture.

Without the vivifying sun, the other elements would be inactive matter, and "no longer would the fig-tree blossom, nor fruit be in the vine: The labour of the olive would fail, and the fields yield no meat." The operative power of the sun reaches the deepest recesses, to beds...
of metals, and to "the place of sapphires; and there is nothing hid from the heat thereof."

What blessings does this bounteous planet pour
On the glad heart of man, when rolling round
His azure road, he scatters as he flies,
To warm his raptur'd bosom, light and joy!

Newcomb.

The sun is the fountain of light. This glorious object of creation, as a luminary, gives cheerfulness both in nature and appearance to all things: If light is not so necessary to our existence as heat, life would yet be miserable without it.

As to vegetation, we may observe, without light plants get always sickly, and would not exist long if deprived of it. Light, philosophically considered, is half their nourishment. All plants turn to the light as to a powerful attraction, or, as it conscious how necessary it is to their existence. Light at the same time that it heats, doth wonderfully rarify and raise the sap. It is the same with Ether, and it so mixes with other bodies, as to enter into their composition, and encrease their weight. The aromatic flavour of vegetables seems to depend upon the sun's light as much as colours do.

The physical properties of that ethereal substance, which is so subtle and pervading as light, we may well believe to be various and wonderful, though inconceivable.

Behold the light emitted from the sun,
What more familiar, and what more unknown?
While by its spreading radiance it reveals
All nature's face, it still itself conceals.
How swift th' effulgent emanations fly
Thro' the blue gulph of interposing sky!
Millions of miles, so rapid is their race
To cheer the earth, they in few moments pass.

Amazing
SECT. II.  VEGETATION.  

Amazing progress! at its utmost stretch,
What human mind can this swift motion reach?

Blackmore.

How impressively are we taught to value the blessing of light, by a view of day-break in a fine summer's morn!

The hour of morn returns,
Unbars the gates of light, and opens wide
A prospect to the eye, which now unfolds
Ten thousand beauteous scenes which lay conceal'd
Before in darkness: now the radiant heavens
Glitter with azure pav'd, with roses strew'd,
With lively verdure each green plain array'd,
Each flower puts on a glow of richest hue;
The wide creation now is seen adorned
In all her rich attire and beauties bloom,
View'd by each wand'ring eye with raptur'd joy!
All the rich pomp which theatres display
Their shining ornaments, the lustres hung
In the proud courts and palaces of kings,
Lose their diminished light, and die away,
Whene'er the sun unfolds his radiant beams!

Newcomb.

From this view of the elements it appears, that their offices are mutual, and that there is a harmony of them, necessary to the welfare of plants, in a view to which art may sometimes assist nature. It is for this end that what is said of them here is advanced, that the young gardener may convert to use his entertainment.

* * * * * *

Having seen a little into the nature of the elements, principally as they relate to the existence of plants, let us proceed to consider the plants themselves. Their structure has been examined by the greatest geniuses, and though able, (perhaps) to determine little of Nature's
Nature's laws, yet has the pleasure and satisfaction they have reaped repaid them their trouble. Though after all our researches, we are finally led to this conclusion, that God's works, like his ways, are "past finding out;" yet if there is any satisfaction in knowledge, or any consolation in piety, these gratifications are to be sought in, and will be reaped from attentive and modest enquiries into Nature. "The works of the Lord are great, fought out of all them that have pleasure therein."

Nature is nothing but the art of God; a bright display of that wisdom, which demands an eternal tribute of wonder and worship.

The notions which arise from Nature's light
As well adorn the mind as guide her right,
Enlarge her compass, and improve her sight.
These ne'er the breast with vain ambition fire,
But banish pride, and modest thoughts inspire.
By her informed we blest religion learn,
Its glorious object by her aid discern.
The rolling worlds around us we survey,
Th' alternate sov'reigns of the night and day;
View the wide earth adorn'd with hills and woods,
Rich in her herds, and fertile in her floods.
Walk through the deep apartments of the main,
Ascend the air to visit clouds and rain:
And while we ravish'd gaze in Nature's face,
Remark her order, and her motions trace.
The long coherent chain of things we find
Leads to a cause supreme, a wise creating mind.

Blackmore.

* * * * * *

Seeds of plants stand first to be considered, and they are truly wonderful. What large plants from seeds no bigger than a grain of sand? What a stately oak from a little acorn?
The seeds of fern, which by prolific heat,
Cheer'd and unfolded, form a plant so great;
Are less a thousand times than what the eye
Can unassisted by the tube descry.

Blackmore.

Seeds contain in embryo (or miniature) the plant they are to produce, in all its parts, which they have preserved from age to age, seeds producing plants, and plants seeds, &c.

They are covered with coats that are finely and closely wrought, the better to keep the moisture of the earth from coming in too suddenly upon the lobes, or the little plant, which might occasion their rotting, and we find that almost every sort of seed, by means of these coverings, must remain different lengths of time in the earth, before they begin to germinate. Some will not spring in the natural ground till the second year after they are buried, while others will begin to shoot in three days after sowing. This is owing to their requiring different degrees of moisture, heat and air, to make them germinate; i.e. bring them into a state of fermentation.

The substance of seeds appears to be spent first in feeding the radicle, and then in the nourishment of the two first, or seed leaves, which are commonly of a different size, shape and substance from the proper leaves of the plant: From between these comes a shoot bearing the true leaves. The lobes (or substance) of seed, consist of a farinaceous nutriment, adapted to the infant state of the plant, when softened and dissolved by the moisture of the earth, which extends and unfolds the young plant (or plumule) in the same manner, as the nourishing juice in the eggs of animals hatches their embryo. The seed leaves therefore contain a sugary juice, which is evident from insects so greedily biting them, and their pleasant taste in ballads, as those of turnips, cabbages, &c. They

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are thick and succulent, calculated to imbibe air and moisture from the atmosphere, for the support of the tender plant, that might otherwise suffer by drought: for it must proceed in growth, or it would quickly die. When the radicle has struck downwards, the office of the seed is evidently to nourish these leaves, as is seen by the seed coming above the ground with them, exhausted of its substance—a mere shell sticking to the top of the leaves.

But some plants have no seed leaves properly so called, as corn; which has therefore been deemed by some, not strictly a seed, but a bud, or bulb.

It has been doubted whether all plants have seed, because some sorts have not been observed to produce it. To conclude that they have, is however more agreeable to the uniformity of the divine procedure, and altogether to reason.

Seed may be conceived so small as not to be discerned with the help of convex glasses, as we know there are many not discernible without them; and with this minuteness, it may be extremely fugacious by its flight adhesion to the plant.

The truth is, God originally ordained that plants should proceed from seed, and they do, (Gen. i. 2.) It was long said, that fern bare no seed; but this is a demonstrable mistake. That Mushrooms produce seed, we need not doubt. Many of the mosses are so small in the state of plants, that the microscope only can discover their flowers, and even in some, the plants themselves are but barely thus discernible. A great variety of seeds are wafted about continually in the air, and produce their kind, whenever they light upon a proper matrix. Whatever has been objected there appears good ground for believing, that there is no natural production, either in the vegetable or animal kingdom, but what comes from the seed, or egg of some parent.
As to certain plants appearing where none were before, we know that some seeds will keep many years, when deep buried, and being afterwards brought to the surface, have vegetated, as the wild mustard, &c. Besides the wind carrying some sorts of seeds to a considerable distance, birds also drop a great many, so that plantations of oaks, &c. have sprung up by means of crows carrying the acorns, and dropping them in cracked ground.

Plants follow seed, and we find them proceeding in a steady unceasing progression towards maturity, to their defined end, i.e. production of the like, from which they sprung (seed) to preserve the species. And the economy of nature is so regular, that a certain portion of time is invariably kept (allowing for accidental circumstances) for this business. So certainly does Nature pursue her end in all respects, that the identical species is always preserved, as to the distinguishing properties of each, though the soils in which seeds are sown are so various. Altogether under the same circumstances are produced the sweet smelling flower, the nourishing corn, and the poisonous plant, though differing much in strength, in figure, and other particulars.

The juices in the vessels of plants undergo (according to their conformation) different fermentations, and thus become altered; in which chemistry of nature, its powers and results are wonderfully exact.

Peculiar pores peculiar juice receive.
To this deny, to that admittance give.
Hence various trees their various fruits produce,
Some for delightful taste, and some for use,
Hence sprouting plants enrich the plain and wood,
For physic some, and some design’d for food.
Hence fragrant flow’rs with different colours dy’d,
On smiling meads unfold their gaudy pride.

Blackmore.
The roots of plants are to keep them fixed in the earth and to draw food from it; which they do (chiefly at least) by their ends which have been therefore called mouths: In general they affect an horizontal growth, for the benefit of the sun and air, and never descend above a certain depth from the surface.

By means of the root, nourishment proceeds through the pipes and capillary conduits of plants, continually from the earth, and by the action of the sun and air, circulates, rarifies, and distributes itself. This juicy food, swells the little bags, or cells (of which the substance of plants is composed) and following the different modifications thereof, filtrates athwart the parts. For example. That which is most pure and fine, serves to nourish the flowers and fruits; that which is not supplies the branches, and leaves, and roots; the most gros and earthy serves for the bark; and the most oily is for gum and rosin. Just the same as we find it in animals, where the food they receive into the stomach passes afterwards into the blood, circulates into the vessels, and pursuing its different degrees of attenuation, serves to nourish the different parts of the body.

The stems or trunks of plants are for the support of the head, and to convey juices from the roots upwards for the leaves, branches, &c. and are composed (as the roots) of bladders, and various conduits for air, sap, &c. perpendicular, spiral, and horizontal from the pith to the bark. These vessels may be somewhat seen with the naked eye, as in slices of the young shoots of nut, apple tree, and vine, but very evidently by a microscope. It is observable, that some plants which are weak and pipy have knots at proper distances to strengthen them, and others have claspers to hold them up; while others are robust enough in stem to brave the fury of a tempest.

The leaves of plants are very variously, but beautifully constructed in their form and substance; and if we consider them as attracting nourishment from
from the root and the atmosphere, and as perspiring and respiring, they are more than commonly thought essential to vegetation; and so we find that if the stems, or branches of a plant, are considerably deprived of them, it becomes stunted and diseased, and if any fruit appear, it proceeds slowly in growth, and is ill flavoured. The quantity of nutriment which a plant derives from the earth, is in proportion to the number and size of its leaves; thus that they may uninterruptedly perform their offices, they are distributed in a very distinct and separate mode.

The under and upper part of leaves are different, and have separate offices; the under is rough and porous, as if adapted to imbibe the rising moisture of night dews; and the upper, or closer, to exclude the groffer parts of the atmosphere, and to imbibe some finer food, as to "draw the live ether". Thus leaves will not endure to be reversed, as is seen by the certain and quick return to their right position, when forced from it, and till this is effected, they perform not the proper functions of nature.

That the glossy surface of leaves have an intimate connection with the light is evident, as they rise and fall (in a degree, some plants more and others less) as the sun moves. If they are turned from the light they twist themselves towards it, as if they had enjoyment, and were conscious of the benefit.—The curious will meet with gratification relative to this subject, by consulting Hill's Tract On the Sleep of Plants; or his gardening for October:—a large folio.

One of the offices of leaves, seems to be, to sublitize, and give more spirit to the abundance of nourishing sap, and to convey it to the little buds at their foot stalk, to whose welfare they are essential.

If the texture of the leaves be scrutinized, they are found curiously ramified; the ribs and fibres of each seeming much like a spreading plant. The ramifications hold a close communication with each other;
so that the principal rib sends out lateral ones less strong, and they again an infinite number of fine ones in all directions; and these are vessels of two kinds, viz. for sap and air. As leaves throw off a great deal of excrementitious, so do they imbibe a great deal of nutritious moisture, as is evident from the general refreshments received from dews. Yet we are not to conclude, that the other parts of plants do not the same in a less degree; and the rough bark of the trees, and the outer vessels, are well calculated to detain moisture, to convey to other parts.

The branches of plants come next to be considered. How beautifully do they spread, and how uniformly do they proceed, keeping up precisely the same mode of growth, one from another throughout the whole; till the head of the plant, or tree, attains its customary size, and own peculiar form; which if it has grown with native liberty, proves always of an agreeable symmetry.

The texture of branches consists of the same kind of vessels as the stem, or trunk; but here it may be observed, that there is yet a specific difference in the vessels of the various parts, as is concluded from their affording juices of a different flavour and effluvia in the bark, wood, leaves, flowers and seeds; so that from the same plant are extracted medical properties of very contrary nature.

Buds are like seeds, as they contain the future growth of branches and fruit in miniature, so that for instance, in the buds of a currant-tree may be discovered (by a microscope) even before winter, the woody branch, and the bunches of fruit. The future fruit also has been viewed in the bud of a vine. In the short buds of pears, which appear at Midsummer, an indifferent microscope will shew the blossoms designed for the April following. The buds of a Mezerion being examined at Midsummer, had the blossoms discovered
covered in them, though the time of their blow is not till February.

Thus it appears, that the leaves, blossoms, fruit, and branches, on all trees, are formed the year before; and so their fruitfulness in the year they bear, is no otherwise the consequence of that season, than that nature has gone without any destructive check in her progress, and particularly at the time of flowering, when many blossoms are destroyed by inclement weather, and by wet only as much as any thing.

* * * * *

The flowers of plants have not yet been particularly noticed, but of them something must, and much might, be said.

Go, mark the matchless workings of the power
That flaws within the seed the future flower;
Bids these in elegance of form excel,
In colour these, and those delight the smell;
Sends nature forth, the daughter of the skies,
To dance on earth, and charm all human eyes.

Cowper.

Flowers have a general structure in substance, similar to the other parts of plants, as to vessels for sap, air, &c. only are so much the more exquisitely formed, as the leaves are of so delicate a texture. They are formed in the bud while in the pith, and so consequently are the fruit and seed.

The flowers of many proceed from a bud, or knot, the leaves or parts of which do first cover the flower contained therein, whilst it is yet unable to bear the inconveniences of the weather, and defend it from the same; and after the flower is blown, they keep up its leaves, that they may not hang confusedly together, but regularly represent their beauties to the eyes of the beholders: This is exemplified in the carnation. Those flowers that have a cup to sustain their leaves,
are weak in their texture, and so need this support; but those that are strong have it not, as lilies, tulips, &c. Those that have no cup are, however, covered in the bud by some sheath, to preserve them, while young, and yet too tender to be exposed.

The leaves of flowers protect and conceal the seed of those that bear it, where nature secretly works to the great end of propagation. The seed is the natural offspring of the flower, and when this is once well formed, the several parts of the flower dwindle and disappear. So that while we are admiring the colour, shape, and perfume of these delightful companions of our walks, they are kindly engaged to provide the means of perpetuating pleasure to us.

The care which the Author of nature has taken to preserve the seed of plants, by the flower leaves which contain the embryo, as in a matrix, is admirable! The flowers themselves come not forth till the season suits their particular temperament; many are hid till then under the coverture of the earth, and those that dare to continue above ground all the year, have yet their gems carefully locked up, and thus their succession and their fruits are secured to us.

The flowers of plants have a remarkable property, when they begin to unfold, and the seed is yet young and tender; they observe the course of the weather, day and night, opening and shutting their flowers accordingly. There is also a property of some flower plants, twining round solid bodies, or fixing themselves to them by claspsers, laying fast hold of what may be in their way. Flowers have many admirable properties and parts, that might be considered distinctly, if it were designed to speak of them botanically.

From flowers (of which every month in the year has its beauties) we eventually gratify the palate, by a valuable nectar, and from many we immediately reap agreeable odours; but it is for their colour to de-
light the eye, that we chiefly cultivate them; and in this respect we may exclaim with the poet,

Who can paint like nature? Can imagination boast
Amidst its gay creation, hues like her's?
Or can it mix them with that matchless skill,
And lose them in each other, as appears
In every bud that blows?—

**Thomson.**

But not only the colours delight the eye, the forms of flowers are objects of admiration. The leaves of the plants (not to mention the shades of their green and variegations of other colours) are of various symmetry, some plain, others indented, some hard, some soft, smooth, hairy, &c. Flowers are composed, some of only one, others of several and numerous leaves. Here it appears like a large vessel gracefully opening. There it forms some grotesque figure, in imitation of a muzzle, head piece, or cowl. Here it is a butterfly, a star, a crown, a radiant sun. Some are scattered on the plant without any art; others compose nosegays, globes, tufts of feathers, garlands, pyramids, &c.—The seeds of plants too are as variously formed as their leaves and flowers.

The following description of Flora's festival and the month of May, may very well finish the notice here taken of flowers.

The good Posthumius chose the first of May,
To Flora sacred, and observed the day
With holy rural rites, that won by prayer
She might diffuse her blessing o'er the year;
His homely neighbourhood in green privet dres'd,
With strict devotion keep the cheerful feast,
And crowned with chaplets, to fair Flora bring
The first and freakest beauties of the spring.
Gardens are now with choice perfumes supplied,
By these and thousand nameless sweets beside:

*Tis
'Tis the gay month of all the youthful year,
When nature smiles serene, and calm the air;
In the tall grafts the soft Favonius plays,
And nightingales repeat their tuneful lays;
The flocks too frolicking o'er the flowery vale,
With eager joy the cheerful season hail.

RAPIN.

In considering the works of nature, it is hardly possible but to feel both concern and indignation at the folly of Atheism, and the absurdity of the Atomic philosophy. Both have been well exposed by many writers, and completely so by Sir Richard Blackmore, in his Poem on the Creation; from which though some extracts have been already made, let the following be added,

———How dark is human reason found,
How vain the man with wit and learning crown'd;
How feeble all his strength when he essays
To trace dark nature, and detect her ways,
Unless he calls its Author to his aid
Who ev'ry secret spring of motion laid:
Who over all his wondrous works presides,
And to their useful ends their causes guides?
These paths, in vain are by inquirers trod,
There's no philosophy without a God.
Th' eternal mind's existence we sustain,
By proofs so full, by evidence so plain,
That none of all the sciences have shewn
Such demonstration of the truths they own.

Good heaven! that men who vaunt discerning sight,
And arrogant from wisdom's distant height,
Look down on vulgar mortals who revere
A cause supreme, should their proud building rear,
Without one prop the pond'rous pile to bear!

Ye friends of Epicurus look around,
All nature view with marks of prudence crown'd:

Mind
Mind the wise ends which proper means promote, 
See how the different parts for different use are wrought; 
Contemplate all this conduct and design, 
Then own, and praise, the ARTIFICE DIVINE?

For several of the foregoing observations, and some of the passages on vegetation, Mr. M. thinks it proper to acknowledge, that he is indebted to the excellent Mr. Derham, and others.

SECTION III.

OF THE FORMATION OF A GARDEN.

The garden here meant, is one where vegetables, fruits and flowers are cultivated under the same inclosure. Considering the profit and pleasure to be reaped from a good garden, it is certainly an object of great consequence to the comfort of human life. It will not, therefore, be prudent in any one who has a garden to form, to be niggardly in allotting ground for it, or sparing in expense and trouble to prepare and lay it out in the best manner.

The agreeable work of making a new garden can happen to few; and when it does, soil, situation, and space, all favourable, are happy circumstances not always at command: It often indeed happens, however, that pieces of ground are taken into use as additions, and some judgment should be exercised in the choice, that the business may be well done.
To help towards resolving on the quantity of ground it may be prudent to cultivate as a garden, a general idea may be given in observing, that an acre with wall-trees, hot beds, pots, &c. will furnish employment for a man, who at some busy times will need assistance. The size of the garden should, however, be proportioned to the house, as to the number of inhabitants it does, or may contain. This is naturally dictated; but yet, it is better to have too much ground allotted than too little, and there is nothing monstrous in a large garden annexed to a small house.

Some families use few, others many vegetables, and it makes a great difference whether the owner is curious to have a long season of the same production, or is content to have a supply only at the more common times. But to give some rule for the quantity of ground to be laid out, a family of four persons (exclusive of servants) may have a rood of good working open ground, and so in proportion.

But if possible, let the garden be rather extensive according to the family; for then, a useful sprinkling of fruit trees can be planted in it, which may be expected to do well, under the common culture of the ground about them; a good portion of it also may be allotted for that agreeable fruit the strawberry in all its varieties; and the very disagreeable circumstance of being at any time short of vegetables, will be avoided. It should be considered also, that artichokes, asparagus, and a long succession of peas and beans, require a good deal of ground. Hot-beds will also take up much room, if any thing considerable be done in the way of raising cucumbers, melons, flowers, &c.

The situation of a garden should be dry, but rather low than high, and as sheltered as can be from the North and East winds. These points of the compass should be guarded against by high and good fences; by a wall of at least ten feet high; lower walls do not answer so well for fruit-trees, though one of eight may do.
do. A garden should be so situated, to be as much warmer as possible, than the general temper of the air is without, or ought to be made warmer by the ring, and subdivision fences: This advantage is essential to the expectation we have from a garden locally considered.

As to trees planted without the wall, to break the wind, it is not to be expected to reap much good this way, except from something more than a single row; i.e. a plantation. Yet the fall of the leaves by the autumnal winds is troublesome, and a high wall is therefore adviseable. Spruce firs have been used in close fborn hedges; which as evergreens, are proper enough to plant for a screen in a single row, though not very near to the wall; but the best evergreens for this purpose are the evergreen oak, and the cork tree. The witch elm, planted close, grows quick, and has a pretty summer appearance behind a wall; but is of little use then, as a screen, except to the West; where still, it may shade too much (if planted near) as it mounts high: In a dry hungry foil, the beech also is very proper; and both bear cutting. The great maple, commonly called the sycamore, is handsome, of quick growth, and being fit to stand the rudest blasts, will protect a garden well in a very exposed situation; the wind to be chiefly guarded against as to strength, in most places, being the westerly.

The form of a garden, may be a square, but an oblong is to be preferred; and the area rather a level; or if there be any slope, it should be southward, a point either to the East, or West not much signifying, but not to the North, if it can be avoided, because crops come in late, and plants do not stand the winter so well in such a situation. A garden with a northern aspect, has, however, its advantages, being cooler for some summer productions, as strawberries, spring sown cauliflowers, &c. and therefore to have a little ground under
under cultivation so situated, is desirable; especially for late succession crops.

The soil that suits general cultivation best, is a loam; rather the red than the black; but there are good soils of various colours, and this must be as it happens: The worst soil is a cold heavy clay, and the next a light land; a moderate clay, however, is better than a very light soil, though not so pleasant to work. If the soil is not good; i.e. too poor, too strong, or too light, it is to be carefully improved without delay. Let it first, at least, be thoroughly broke, and cleaned of all rubbish, to a regular level depth at bottom as well as top, so as to give full eighteen inches of working mould, if the good soil will admit of it; none that is bad should be thrown up for use, but rather moved away. This rule of bottom levelling is particularly necessary when there is clay below, as it will secretly hold up wet, which should not stand in any part of the garden. When a piece of ground is cleared of roots, weeds, stones, &c. it would be of advantage, to have the whole thrown into two feet wide trenches, and lay thus as long as conveniently may be. The ground cannot be too well prepared; for when this business is not performed to the bottom at first, it is often neglected, and is not conveniently done afterwards; and so it happens, that barely a spade's depth (or less) is too often thought sufficient to go on with. There is this great advantage of a deep staple, that in the cultivation of it, the bottom may be brought to the top every other year, by double trenching, and being thus renewed, less dung will do, and sweeter vegetables be grown: Tap-rooted things as carrots and parsnips require a good depth of soil.

The aspect of the wall designed for the best fruits, may be full South, or rather inclining to the East, by which it will catch the sun's rays at its rise, the cold night dews be earlier and more gently diffipated, and the scorching rays of the afternoon summer's sun are sooner
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sooners off. By thus having the walls of a garden not directly to the four points, the North wall is greatly advantaged, by having more sun.

The border next this wall should be of very good earth, about two feet deep, rising a little towards the wall. A free moderate loam, or some fresh maiden soil, not too light, is necessary; and if it is not naturally there, let no trouble be spared to procure it, if it can be had, so as to make all the borders promising good; and in order to this, if manure is necessary, let it rather be that of rotted vegetables, or turf with a small quantity of wood ashes, or a less of foot, or salt; for the roots of fruit-trees should not meet with much dung, at least of horses; that of cows is the best, or that of sheep or hogs, will do, well-rotted, and well mixed, &c. being worked in the borders, as long as possible before the trees are to be planted. Let the holes be some time opened beforehand, that they may be improved by exposure to the atmosphere. Thus due care will be taken, and all things ready to go about the work of planting properly.

The borders for peaches, &c. cannot be too wide, for in a few years the roots will spread a considerable way; and that they may do it without impediment of rubbish in the walks, and without meeting with a bad soil, is of the greatest consequence to the future health and fruitfulness of the trees.

If a garden is large and square, a second South wall, running down the middle of it would be very useful; and so, if large and long, a cross wall or two might be adopted, as giving opportunity for the cultivation of more trained fruit trees; and if there is any idea of forcing fruits, these intersecting walls, ranging East and West, are proper for it (as situated within the ring fence) furnished with flues, &c.

The best fruit border being prepared for peaches, nectarines and apricots, or vines and figs, the trees should take their residence there (if the leaf is falling) about
the latter end of October, or as soon after as can be. If the middle of December be past, February is then the time, though some gardeners plant all winter, if the weather is open enough at the time to work the ground. March may do, or even [upon a pinch] the beginning of April.

Wall-trees should not be older than two years from grafting, or budding. Much disappointment has been the consequence of planting old trained trees, through their being accustomed (perhaps) to a contrary soil, or by damage done the roots in taking the trees up; and thus, instead of saving time, it has frequently been lost, being obliged, (after years) to be replaced with young ones. But if trained trees are to be made use of, let them be planted as early, and with as full roots as possible, and in a right good soil. Except in fine situations, as to sun, shelter, and climate, never plant early and late peaches, as the first may be cut off, and the latter not ripen: October peaches are generally poor fruit much North of London.

The distance to plant, should be about eight or nine inches from the wall, and let apricots, peaches, and nectarines be twenty feet asunder, more or less, according to the height of the wall; though for the small early sorts fifteen or sixteen feet will do. As the larger apricots, however, grow freely, and do not well endure the knife, they ought to have twenty-five feet allowed them: This is for a wall of nine or ten feet high; if higher, the distance may be less, and if lower, the contrary. This room may seem (to some) too great; but when trees are planted in too confined a space, after a few years it is troublesome to keep them pruned within bounds; and the cutting they must have, makes them run to wood, and thus to become less fruitful. Fig-trees require as much room as the apricot, or rather more, as they grow freely, and are to extend without shortening. Though other trees are best planted in October, the Fig should not be till March.
The intermediate spaces between peaches, nectarines, and apricots, may have a vine, a dwarf-cherry, or currant, or gooseberry tree, of the early sorts, as the smooth green and small red, to come in early; and improved in the beauty, size, and flavour of their fruit, by the advantage of situation. But wherever grapes can be expected to ripen, there let a young plant, or cutting, be set, though the space be confined; for the vine (freely as it shoots) bears the knife well to keep it within bounds. If the wall be high, the cherry, or plum, may be half-standard, which being after a while kept above, will be more out of the way of the principal trees: though dwarfs may be drained so as not to interfere. Some have planted half-standard of the same kind of fruit as the dwarfs: but which ever way is used, let the intermediate trees be pruned away below in good time, in order to accommodate the principals freely as they mount and extend. The better way however is, when the wall is tolerably covered, to extirpate the intermediate trees, as (when large) they impoverish the border, and too much rob the principals of nutriment: If taken up well, in season, and pruned properly, they may be planted elsewhere. Something merely ornamental may occupy the vacancies also, as some double blossomed fruit tree, passion tree, roses, &c. or in a fine situation, a pomegranate; any of which may be removed when their room is wanted. See section viii. On planting.

Plums, cherries, and pears, may occupy the other walls, the two former at about fifteen, or it may be twenty feet asunder. Cherries, except the Morella, will not do well in a full north aspect; but any sort of plum (rather a late one) and summer pears, and also nut trees will, if you choose to train them. There should always be some currants and gooseberries in an E. and N. situation, at the distance of eight feet, where they will be easily matted, (when ripe) to come in late, as October, November, or perhaps December. Pear trees...
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sect. iii.

of free growth are hardly to be kept within tolerable compass on low walls; but if attempted, should have at least thirty feet allowed them. The best sorts of winter-pear trees deserve a southerly wall to ripen them well, and improve them in size and flavour: The gable end of a house is well adapted for a pear tree, as it affords room which they require. Apples may do on a wall, (and if any on a good wall, let it be the golden pippin) yet the practice is seldom adopted: The same may be laid of mulberries, though they come to bearing much sooner against a wall; but they need not have a South aspect, indeed it has been asserted, that they do the best in a North one. For furnishing walls, choose trees of moderate wood, rather than strong, young, well rooted, clean, and healthy.

When the planting of a garden is finished, it will be a good way to have a plan of it taken, with the names of every peculiar tree marked thereon, in their place, to be assured of the sorts when they come to bear. Some have the names of the trees painted on boards, and placed behind them, to which if added the time of ripening (fixed late enough) it would tend to prevent a premature plucking by visitors, &c.

Here it may be observed, that if any evergreen hedges are desired, in or about the garden, yew, box, alaternus, celastrus, phillyrea, and pyracantha, may be kept low, and clipped in form, if so desired: In addition to which, if a few roses were intermixed, it would have a pretty effect. A deciduous hedge for subdivision, or screen, &c. may be made of elms or limes, setting the larger plants at five feet asunder, and a smaller one between. Or an ordinary fence, or subdivision, may be quickly formed of elder cuttings, stuck in at two feet asunder, which may be kept cut within bounds.

The walls come next under consideration, and they are to be begun from the left wall; the border of which being regularly levelled and settled, the walk is to be governed by it. A wide border next the South (as was said)
laid) is best for the trees, and moreover for the many
uses that may be made of it for the smaller early, or late
tender, esculents, and a few early cauliflowers. For the
fake of a pleafant sheltered walk, to have the South
border narrow may be desirable; but on no account let
it be within six feet. Take care that this walk is not
junck too much, and that it have a bottom of good
earth, as deep as where the trees are planted. Let the
body of gravel be thin, and then the roots of the trees
will be admitted to run properly under the walk, and
find wholesome nourishment; where if they were stop-
ped by rubbish, they would be apt to canker, and irre-
coverably difeafe the tree.

The number and breadth of the walks must in a
measure be determined by the quantity of allotted
ground: exceeding in thefe particulars where there is
room. But better be few and wide walks, than many
and contracted. If the garden is small, one good walk
all round is sufficient; and if long and narrow, the
cross walks should not be many; six, or eight feet walks,
are not too wide for a moderate sized garden.

If the ground be laid out in Autumn, leave the walks
alone till Spring, when the earth will be settled.
Gravel laid towards Winter would be disturbed by the
froft, and the necessary work about the quarters and
borders. But whenever made, the garden ought to be
first brought to an exact level, or flope; then the walks
should be flumpt, keeping the tops of the flumps very
level (as guides) to the true pitch of the quarters by a
light line, made of good hemp, that will bear pulling
tight. Proceed to take the earth out of the alleys
about eight inches deep, which may be thrown towards
the middle of the quarters, to give them a small con-
 vexity, which makes them look well.

Rake the bottom of the walk level, and lay the
gravel to within two inches of the top of the flumps.
The gravel will settle a little; but the walks should
always be about three or four inches at their edge,
below the quarters, or these will have a flat, and so a mean appearance.

If Edgings are to be made, in order to separate between the earth and gravel, especially if of stone, or wood, or box, they should be done first, and they will be a good rule to lay the walks by.

If plenty of Gravel, lay it moderately fine: if scarce, some small stones, or rubbish of any kind, may be laid in first, and rammed down level with a broad rammer; but do not spare for a little expense, if gravel can be had, as a thick coat of fine gravel, will bear relaying, or turning over, to refresh it occasionally in the spring. As the gravel is laid, let the operator neatly rake the larger parts down to the bottom leaving a fine surface, in a small degree convex, i. e. just barely sufficient to throw off wet: walks that lie high in the middle, are unpleasant to both eye and feet, and cannot be so well rolled, and kept in order.

When deep walks of gravel are designed, for the sake of the mould dug out of the alleys, it should be borne, and laid thin, if any trees are designed to be planted near the edge; for if the roots of trees have not a good soil to strike into, when they reach the walks, they will not (as has been observed) prosper. In laying gravel very thick, it is a good way to do it at two courses; the first of which may be rough as it comes from the pit, yet still raking the larger parts down, and then ramming or treading it; and the last course should be of all-screened materials.

It is best to lay a few yards of gravel only at a time, before ramming or treading; after which it may be necessary to go over it with a fine iron rake, tooth and back; and then a whole walk being finished, it should be repeatedly pressed with a moderately heavy roller; and again soon after the next rain that falls: so will the walks become nicely level and firm, in which their excellence consists.
Grass Walks may do where gravel is scarce; but the latter is so clearly preferable, that except for a little variety in large gardens where there are many walks, they will hardly be made choice of. They are troublesome to keep in order, and if much used are apt to get bare, and out of level, especially when narrow; they are also frequently damp to the feet.

Camomile, has been used also to form green or carpet walks, planting it in sets about nine or ten inches asunder; which naturally spreading, the runners are fixed by walking on them, or rolling.

Sand may be adopted for walks, and there is a binding sort of it, that does very well; but lay not any of it too thick, as it is the less firm for it. Drift sand is a good substitute for gravel.

Coal Ashes strewed thinly in the alleys are better than nothing, as they at least serve to keep the feet dry and clean. If the garden be a strong foil, these ashes (when worn down) may be thrown out of the walks, with a little of the earth, and will prove a good manure for the quarters.

Sea Shels make very good walks.

All trees designed to be planted, are to be thought of before winter. Those of the wall have been spoken of; and as to standards they must have a fair depth of good foil (not very dungy) to grow in, for it should be remembered, that tree roots in a garden are prevented from running over the surface, as they do in an undisturbed orchard. It is necessary that some caution should be used not to dig the ground too near, and too deep about garden trees; left loosening the roots, they should not be able to stand the wind; and because the nearer the surface any root grows, the more and choicer fruit, the tree bears.

But the fewer standard trees in a garden the better, as they take up much room, and by their shade prevent the proper growth of vegetables that are any thing near them: so that if a garden is small, there should be
be no trees except those of the wall. The case is different where there is ample room; and the blossoms of fruit trees (apples particularly) are so delightful, that if they produced nothing for the palate, there would be a sufficient inducement to plant them for ornament; but let them be dwarf standards, in preference to espaliers.

_Dwarf-standards_ occasion less trouble to keep them in order than espaliers, and are (generally) more productive; for _Espalier_ trees are seldom managed well, and thus appear unsightly; at best they are stiff and formal, and obstruct the sight in viewing the quarters of a garden, which (if in order,) are worthy of coming under the eye: the violence done to nature, to keep espaliers in form, is commonly paid by pains and disappointment. A writer of repute observes, _apples on French_ paradise stocks, planted at eight or nine feet distance, pruned and kept in an easy manner, make a fine appearance, and produce better fruit, and in greater quantities, than when they are in espaliers: _Dutch_ paradise stocks however last longer, and are altogether superior. For managing _Dwarf trees_, see _Pruning._

If _Espaliers_ are planted, let them be only fruit of the belt sorts, and in _spacious_ gardens, where they may have a good length and height allowed them to grow freely; and let it be resolved to do the business _well_. If they may have nothing better than poles or stakes to be trained to, let them at least be straight, and of some equality in size, as to height and thickness, smooth, and not too clumsy for the purpose; fix them well in the ground, upright, and about nine inches asunder; at first only four feet from the ground, and raised as the trees advance in height. _Apples on paradise stocks_ best suit for espaliers in small gardens, and _pears on quince stocks_, as they maintain a small size; but they are apt to decay by the cutting they must have, and so do not prove enduring _trees_.

_Espalier_
Espalier trees should rather be trained to sawed materials properly framed together, smoothed and painted. But for a year or two, they may be fastened to light flakes, when they will have formed a head, to begin to train them for bearing in the neat manner proposed; i.e. to slips of deal joined to light oak posts as trellises. Whether the slips be placed perpendicularly, or longitudinally, seem indifferent. If the longitudinal mode of training be the best approved, strong iron wire may be recommended to run through the posts, instead of slips of wood, as it shades less and is stronger and neater. If upright slips are used, they should be slender, and from six to eight inches distance, according to the greater or less freedom of the natural growth of the tree. The height may be also according to the nature of the tree, from five to six feet; and it will not answer to have them lower. Only a moderate length of trellis (on each hand) need be fixed at first, and so additions made as the tree extends.

The posts may be about four feet asunder, the first on each hand being two feet, or a yard, from the stem of the tree.

Apples should be allowed twenty-four feet and pears thirty; except those grafted on paradise or quince stocks, for which little more than half this distance may do. Cherries and Plums should have about eighteen or twenty feet allowed them. Quinces, medlars, mulberries, and filberts may also be espaliered. The trees should be planted about a yard from the edge; but farther off were better, if the walks lie deep of gravel or poor materials.

The Breda, and Brussel apricots, have succeeded in espaliers, as also in dwarf and full standards; but the general climate of the place must be mild, and the situation they are planted in must be very sunny and well sheltered: The fruit from standard apricots is very fine, and abundant; but they come not to bearing under several (sometimes ten or twelve) years; for

Currants,
Currants, gooseberries and raspberries, do well espaliered, as to a production of early and fine fruit.

Trees of a more humble nature, and shrubs, next occupy attention in furnishing a garden. Currants and gooseberries (as bushes) should be planted three feet from the edge, and full six feet asunder. Some of these very useful shrubs should grow in every aspect of the garden, in order to have a succession of their fruits, as long as may be. Those who choose to plant whole quarters of currants and gooseberries, ought to do it at six feet asunder in the rows, and the rows eight feet from one another.

Raspberries may be set in plantations, in rows five feet asunder allowing three feet between the plants. Though these shrubs are best by themselves, yet here and there by the walks a detached bunch may be kept, or here and there one against a warm wall. Between rows of raspberries planted at the above distance, coleworts, early cabbages, cauliflower, and lettuces may be set, or spinach sowed in drills, the raspberries having had their pruning and dressing early in Autumn, for the purpose. Every year a little short manure, dug in close about the roots, (and deeper as the plantation gets older) will insure fine fruit. Raspberries are not very nice as to foil and situation; but the twice bearing sort should have a dry soil and warm birth to forward the crops, that the last may be in time: See that the plants to be set have good brushy roots, and two or three eyes to each root near the stems, for the next year's bearing. The smooth wooded, or cane raps, is to be preferred for a principal crop.

Strawberries may be planted at the edges of borders and quarters, either in single or double rows, (rather the latter) for the convenience of gathering, and for ornament; but the common and belt way is, in four feet beds, with eighteen inch or two feet alleys, on which beds may be five rows of the wood and Alpine, four of the scarlet and pine-apple, three of the Carolina,
rolina, and two of the Chili; setting the plants at the same distance in the rows, as the rows are from one another in what is called the quincunx order. In a good, cool, loamy soil, which suits them best, a little more distance may be allowed the four first sorts; and in quite a dry light soil, somewhat less, that they may shade one another the better from drought.

The best situation for strawberries is an open and sunny one, as thus they bear more, and finer flavoured fruit. Some of the scarlets should be planted under warm walls to come early. The woods bear shade as natural to them, and the alpines do tolerably well in it: As lengthening the season of fruit is a desirable circumstance; for these three sorts (at least) the situation should be various.

The most proper time for planting the strawberry is the first moist weather in September, (or even earlier) that they may be established in the ground before winter, and they will bear the better the first year: Frost is apt to throw up late planted ones, and injures, if not destroys them. Those planted in spring often suffer from drought, and bear very little the first year, except the alpines: Choose forward runners for planting, and let them be from beds in full bearing, i.e. of two or three years old; for plants from old beds are not so fruitful: Take care also they come from beds producing fruit good in its kind, and true as to sort: Much depends on this, see Nursery. Press the mould to the roots, give them a watering, and again once or twice, if the weather proves dry. Some gardeners let them run over the beds, which in a dry light soil, may be proper; but in this case, a greater distance should be allowed them at planting.

If the alpine sort be planted on a warm border, eighteen inches asunder, and suffered to spread, the first runners will fruit the same year, and sometimes this prolific strawberry bears till November.
Fresh plantations of strawberries should be made every fourth year, though in a good soil, and with good management they will continue longer; so that where they are suffered to run, the plants being frequently renewed, and old ones removed, beds have borne tolerably for ten years. Some gardeners insist that this spreading mode is the best way of cultivating the strawberry. In a dry season, such full covered beds have the advantage; but in a wet one, the fruit is apt to rot, though still in such a season, it is cleaner than from plants growing in an open way; but this carries the appearance of, (and rather argues) neglected culture. See the sections, nursery, pruning, and fruits. The method of keeping them in detached plants produces the largest and best ripened fruit, and on the whole is preferable; for which practice there cannot be a stronger argument, than that those follow it, who cultivate the strawberry for sale. See section 17.

The watering of strawberries should not be neglected, doing it almost daily, when in flower and are setting their fruit, if the weather proves dry, particularly to those under a warm wall; but this is not to be continued when the fruit is nearly ripe, which would spoil the flavour, and dispose them to decay. 

Flowering shrubs may be dispersed about, and herbaceous perennial flowers; but plant them not too near the edge, left they hang over the walks: The bulbous sorts may however be within six inches.

Asparagus and artichokes should be thought of, but they take up much room, and in small gardens may therefore be left out. It will be of little use to have less than fifty or sixty feet of asparagus beds, as there would be so few heads to cut at a time; and artichokes must be planted wide, or they will not grow large and fleshy, in which their merit consists.

Let not pot herbs be forgot, but provide a general herbary in that part of the garden which is most contiguous to the kitchen.

Having
Having spoken of stationary things, the **routine** of the **seasons** must dictate the rest; and the inclinations of the palate will refresh the memory to take care of providing the **most necessary and agreeable** **efculents** for dressing, and raw **salads**.

**Perennial flowers** have been mentioned; but let fancy **direct** as many **annuals**, and **biennials** to be cultivated, as room can conveniently be found for, that the **garden** may be, **as much as possible**, ornamented.

In furnishing a garden with **shrubs** and **flowers**, **respect** should be had to their **usual height**, their **bulk**, **colour and season**; (see **section 19**) that the mixture may be properly varied, **harmonious** to the eye, and come in regular succession. The **latter** end of the year is seldom provided for so well as it might be; **late** flowers should be set in warm situations, as their **proper place**. In the most dreary months, by judicious planting, **evergreens** in their neat and cheerful **“winter liveries”**, may be viewed from our windows, and serve instead of flowers.

Those who garden upon a **large scale**, should take care to have every thing proper and convenient **liberally** provided. Let there be a well situated place for **hot-beds**, with some building as a **tool house**, and (if dry) for keeping **bulbs, seeds**, and **herbs**. Those also who garden even upon a **small scale** will do well to have **every needful implement**: It is the way to save time and labour, and have work done **well**.

If **water** can be introduced, and kept **clean** with verdant banks around it, it would be found **very useful** where a garden is **large**: but let it be near the center as **possible**, as the **most convenient situation**: It should be fed from a **spring**, and (if it could) be made to drip in the reservoir, because its trickling **noise** is agreeable in a garden to most ears.

**Mixed Gardening**, as comprehending the **useful** with the **sweet**—the **profitable** with the **pleasant**, **has** been the **subject hitherto**; but if the **flower garden** and the **kitchen**
kitchen garden are to be distinct things; the case is altered; not so much indeed, but that still the kitchen garden should be adorned with a sprinkling of the more ordinary decorations, to skirt the quarters, chiefly those of the most powerful sweet scents, as roses, sweet-briars, and honey-suckle, wall-flowers, stocks, pinks, minionet, &c. in order to counteract the coarser effluvia of vegetables, or of dead leaves, which, however, should not be suffered to annoy.

The flower garden (properly so called) should be rather small than large; and if a separate portion of ground be appropriated for this, only the choicest gifts of Flora should be introduced, and no trouble spared to cultivate them in the best manner. The beds of this garden should be narrow, and consequently the walks numerous; and not more than one half, or two thirds the width of the beds, except one principal walk all round, which may be a little wider. The gravel (or whatever the walks are made of) should lie about four inches below the edge. The beds for tulips, hyacinths, anemonies, ranunculuses, &c. may be three and a half, or four feet wide, and those for single flowers the same, or only two and a half feet wide in the borders; which was the most usual breadth in the old flower gardens. Let the beds lie rather rounded in the middle, but the walks flat.

Figured parterres have got out of fashion, as a taste for open and extensive gardening has prevailed; but when the beds are not too fanciful, but regular in their shapes, and chiefly at right angles, (after the Chinese manner) an assemblage of all sorts of flowers, in a fancy spot of about sixty feet square, is a delightful home source of pleasure, worthy of pursuit. There should be neat edgings of box to these beds, or rather of neat inch boards, painted lead colour, to keep up the mould. Be sure to keep the box from the very first (as soon as rooted) and always after, as low as possible: Clip it twice a year, April and July.
An orchard may be spoken of here; i.e. a spot to plant standard fruit trees in, which are forbidden a place in the garden; but it must not be a small spot. The front row, should be half standards, or before these may be a row of dwarfs; observing to plant the most towering sorts (in kind) of the full standards behind. The ground should be dug thoroughly as low as the proper soil is, and if not naturally good, let it be improved by dung duly rotted, and worked well in a full spade deep. In a strong soil, lime should make a part of the manure. If the ground be naturally uneven, it will not be proper to level it, as this would rob the higher parts, and needlessly enrich the lower. A strong cool soil does best for an orchard, but it must not be wet. If it holds up water, it should be well drained by deep covered trenches.

A piece of ground designed for an orchard, would be greatly improved by first cultivating it as a kitchen garden for a year or two, manuring well at the time: Or, give it a good tillage; let it have a winter’s frost, by deep trenching into high ridges, turned over in spring, and summer fellowed. The trees being planted, at proper distances, the ground may be kept under some sort of crop, for several years to come, with some annual dressing. In a large orchard, the plough may be used for corn, potatoes, carrots, &c. If the soil is poor, frequent opportunity should be taken to give it a little manure, that there may be proper food prepared for the roots, as they extend. No doubt many orchards would bear much better, if the whole ground (as the roots extend far) were before winter dug or ploughed over every second, or third year, and dressed, by digging in some rotten dung, or sprinkling over the whole (when rough dug) foot and pigeon’s dung, or that of any other poultry; this will wash in by rains.
rains and snows, and do much good. Or if an orchard
were ploughed, or rough dug, every year, immediately
after the fall of the leaf without manuring, it would be
very beneficial; for it is not advisable to give trees
much dung.

The thinning of the branches of orchard trees, by
an occasional use of the saw, bill, chizzel, or knife,
should not be neglected, that the air may have free
course, and the sun access among the branches: This
is more especially necessary in thick planted orchards,
and the benefit of proper pruning is very great, though
it is much neglected. See Pruning of Standards, Section
XII.

To succeed well, apples and pears should be planted
from thirty to forty feet asunder, and cherries and plums
from twenty to thirty, according to the richness of the
land. The walnut should be rather planted singly; but
if in a number together, ought to be forty feet asunder
for fruit, and thirty for timber. See Nursery. These
distances appear great, but it is necessary, as after a few
years clover planting would be found evident. See
planting and pruning, Sect. 9, 12.

If the intermediate ground is not cultivated, as before
recommended, some sort of fruit (as cherry, plum, or
codling) or young forest trees may be planted, to be re-
moved in time; or currants, gooseberries, &c. it may
be kept also in grass, the trees thorned, and small cattle
turned in; which grass, as it comes early, will be found
particularly useful to those who have much stock. On
this subject, however, it may not be amiss to give the
instructions of one of our best gardeners.

It is an error (says he) to let turf cover the surface
of the ground in an orchard. The trees should be at
such distances, that a plough may go between them,
and in that case the trees thrive every way better;
the breaking of the ground serves as manure without
its rankness, and the sun and air have free passage,
which is very essential to the good taste and well ripen-
ing of the fruit. Where the plough cannot be used, dig the ground a full spade deep, picking out the roots of weeds.

The best manure for an orchard, is a mixture of two parts dung and one part coal-wood. Let this be blended carefully, and spread all over the ground, between the trees, not piled up in heaps just about their stems, according to the old practice.

The cultivation of the ground about the trees in an orchard, is more neglected than any other part of the gardener's business, yet there is not any thing more necessary. Hill...

SECTION IV.

OF THE CULTIVATION OF A GARDEN.

The cultivation of a garden includes the doing all those things that are necessary, in order to a reasonable and prolific production of the various vegetables, fruits and flowers, we are disposed to propagate.

The soil must be first attended to, always to keep the fruit borders in heart, and the quarters in a proper state for use, when called upon to receive either seeds or plants. Ground should never lie long without stirrings; for the soil of a garden, should be in a free, sweet, and rich state, by proper digging, &c. or no great things can be done, as to forward, handsome, or well flavoured productions. It should be free, that the
the roots of plants may not be impeded in the quest of food; sweet, that the food may be wholesome; and rich, that there may be no defect of nutriment.

Trenching the vacant ground in a garden, does good to all foils in the autumn and winter seasons, and that in proportion to its strength being indispensibly necessary for clays to separate and ameliorate the parts: The light foils may do by being only rough dug, which is a method that stronger foils will be also benefited by. The soil would be still farther improved, by re-trenching, or rough-digging, once or twice more in the winter, if the opportunity offers, particularly if strong or stubborn. Let the ridges lie E. and W. except the ground be a slope, when they may be in the direction that does.

When manure is applied, the ground is not to be glutted with dung; for a little at a time, well-rooted, is sufficient, so that it comes often enough, as opportunity, and the nature of the cropping may dictate. It is indeed a sort of rule with gardeners, that ground should be dunged every second year; but circumstances may make more or less of it necessary, and rules should never be indiscriminately applied. If dung is pretty well reduced (as it were to earth) much less will do, and let it not be buried too deep; but if it is otherwise, lay it low, to be dug upwards another time, when it is more consumed.

It is an excellent way of manuring, especially where the superficial soil is much exhausted, to spread over rotten dung, late in autumn, in the winter, or early in spring, and so let it remain, till the ground is wanted, before it is dug in; which should however be slightly dug before the manure is put on, or forked in a little afterwards. This method is particularly to be recommended where crops of onions, leeks, and such superficial rooting plants are to be.

Dung used in great quantities, and lying in lumps, breeds worms, grubs, and insects, and makes plants grow
grow too rampant and rank flavoured. _Carrots_ it cankers, and it disagrees with many things; it is apt also to make the ground parch, and burn the crops flown upon it in a hot summer. On these accounts some persons have been induced to dress their gardens only with rich fresh earth; which, if they do not over-crop, will do very well, being accompanied with good tillage; which alone is of much use and is essential to due cultivation. _Vegetables_ are always sweeter, the less dung is used, and little need be used, when the natural foil is good and deep; for the earth may be so dug, that what is at the top one year may be at the bottom the next: which is a _manoeuvre_ evidently advantageous, as a good part of the fireness of the top soil washes downwards: The method just recommended, of letting dung lie on the surface for a time, is good also, as it abates the rankness of it.

If the ground is in proper heart, every spot may be contrived to be constantly and successfully cropped. The common gardeners about London, and other great towns, who give high rents for their land, contrive (manuring well) a succession of crops, one under another very dexterously; and this sort of conduct should be imitated by private persons. Thus a little spot, in skilful and industrious hands, shall be much more productive than a much greater under contrary management: But when hard worked, the soil will not do without a good deal of dung.

A caution must be observed, for if plants grow crowding thick, it defeats the end in view; and fruit borders must not be much cropped, furnishing them chiefly with small plants, of short duration, and superficial growth, left the roots of the trees be too much robbed and shaded.

Have an eye on vacant ground, either for immediate use, or to prepare it for future.

In the occupation of ground, the change of crops will be proper, as each sort of plant draws a somewhat different
different nourishment: so that after a full crop of one thing, one of another kind may often be immediately sown; but it should be contrived that a wide crop may follow a close one, and contrariwise.

_Close crops_, as onions, leeks, carrots, &c. are conveniently and neatly cultivated in beds of from four to five feet widths, with alleys of a foot to eighteen inches between them.

The _seasons_ proper for furnishing the ground with every particular vegetable, should be well attended to, that each may be obtained as early as its nature will permit; and of the _seeds_ and _plants_ we use, care must be taken to procure the best of the kind, left after all the trouble of cultivation, disappointment as to quality should ensue.

The _quantity_ sown and planted _is_ (in a degree) to be determined by the portion of ground that can be spared; but it should be always a _rule_, to sow and plant more than probably enough, as more may happen to be wanted than expected, and a cross season or other accident, may occasion a failure. As exact rules cannot be laid down, the exercise of a little judgment will be necessary, in order to proportion crops aright; for to have too much of one thing, and too little of another, is disagreeable, and discreditable. Respect should be paid to the natural duration of crops, some going off soon, and others being lasting, and that too according to the season they are propagated in. See, _Of propagation_, in the next section.

_Seeds_ and _plants_ should be adapted as much as possible to the soil and situation which best suits them; for in the same garden some difference will be found, not only as to sun and shelter, but the earth; as some will be richer, some poorer, some deeper, some shallower, and some (perhaps) heavier, some lighter, in due attention to which, advantage is to be reaped.

_Let the ground really on all occasions be well dug._
Weeding in time is a material thing in culture, and stirring the ground about plants, as also earthing up, where necessary, must be attended to; and in some cases pressing the mould to the stems of vegetables will be proper, for their better support. Earthing up well before winter frost sets in, preserves plants, forwards, and improves them. Weeds exhaust the strength of the ground, and if they are suffered to feed and grow themselves, may be truly called, "garden fins." The hand and hoe are the instruments for the purpose; and where the trouble is not too much, the former will generally be the best, when it is not thought necessary to stir the ground; which indeed may be done afterwards, when all is clean, to better purpose. Digging, where the spade can go, between the rows of plants is a good method of destroying weeds, and as it cuts off the straggling fibres of growing roots, they strike afresh, in numerous new shoots, to the great benefit of the plants. Deep hoeing gives a degree of fertility to the earth. Breaking the surface will keep the soil in health; for when it lies in a hard or bound state, enriching showers run off, and the salubrious air cannot enter.

The thinning of seedling crops should be done in time, before the young plants have drawn one another up too much. All plants grow stronger, and ripen their juices better, when the air circulates freely round them, and the sun is not prevented from an immediate influence; an attention to which should be paid from the first appearance of plants breaking ground. In thinning close crops, as onions, carrots, turnips, &c. be sure that they are not left too near, for instead of reaping a greater produce, there would assuredly be a loss. When they stand too close, they will make tall and large tops, but are prevented swelling in their roots: better to err on the wide side, for though there are fewer plants they will be finer.
In the prickling and planting out of crops, be sure to do it as early as may be; let every thing be regular, (not sparing to use the line) allowing always room enough for this work; and being thus treated, vegetables will come forwarder, larger, and of a superior flavour. These advantages are seen in all things, but in lettuces particularly, which often have not half the room allowed them they should. Over cropping robs the ground of strength to no purpose, except increasing the dunghill; it makes it also inconvenient to weed, rake and clean up, which in a private garden (at least) it is proper frequently to do.

Dibble planting, as being easy and expeditious, is the common way of setting out plants by; but (except indeed quite small ones) they are best put in by a small spade or trowel. In the former method, the roots are frequently doubled and disforted, so as to receive (at least) a great check, if not to occasion a failure, when so put out towards winter; but in the latter way the roots lie free and easy, and presently establish themselves in health and strength. There is more in this than gardeners in general allow of. Ground designed to be planted, is best dug a day or two before wanted.

Watering is a thing of some importance in cultivation, though not so much as many make it. It is a moot point, whether more harm than good is not on the whole, done by it, when it is thought generally necessary in a dry season. In a large garden, it is an Herculean labour to water every thing, and so the temptation generally prevails either wholly to neglect it, or to do it irregularly or defectively. To water nothing is too much on the dry side: but there is such a thing as watering too much, which spoils the flavour, and makes esculents less wholesome.

But watering will assuredly benefit some things; as (sparingly) new planted trees, flowers and vegetables. Watering is of use to settle the earth about the roots of plants newly set, for it is by a close union, (as it were)
were) of the earth with them, that they prosper. The watering of new planted things may be to be repeated, but it should not be done very often, as it is then apt to sicken, and rot the young roots. As soon as they are believed to have got hold of the ground, desist from watering. When any plant is towards flowering then moisture is more necessary.

Shading of new planted things, particularly flowers, is of much benefit, and that in proportion as the season is sunny. So that the imitating a cloud by a shade, is evidently proper, and frequently necessary to the life of the plant, as neglecting this business has frequently proved: as a little water in a cloudy time does plants much good, so when shaded.

Strawberries and Cauliflowers are generally watered in a dry season; that is, the strawberries, when in bloom, in order to set the fruit, and the cauliflowers, when they shew fruit, in order to swell the head: In a light soil this ought particularly to be done. In very dry weather, asparagus seedlings, early turnips, carrots, radishes, and small-ballads will need watering. Slips, cuttings, and layers of any kind will need water. Pots of flowers must have it frequently.

When watering is undertook, let it be a complete business; i.e. to the bottom and extent of the roots, as much as may be. The wetting only the surface of the ground is of little use, and of some certain harm, as it binds and cracks the earth, and so excludes the benefit of showers, dews, air and sun, from entering the soil, and benefitting the roots as they otherwise would do. Wetting the surface of the ground, (however) in a summer’s evening, as it makes a cool atmosphere, a dew is formed, which pervades the leaves, and helps to fill their exhausted vessels.

Watering the roots of wall-trees, (if dry weather) when the fruit is setting, is by some thought necessary. The best way to do this effectually, is to make a few holes at some distance from the tree with a smooth D & sharp
sharp pointed stake, the better to let the water down; but this may wound the roots, and should only be practiced in a light soil, and very dry season. To young trees only it can however be of use, for the roots of old ones run far and wide; and it is the small fibres of these distant roots, on which the tree chiefly depends for food. Vines should have no water till they are off blossom, (July) and the fruit as big as large pins heads; and then if the season be very hot and dry, watering the roots twice a week will help the fruit to swell.

An engine to water the leaves of vines, and all other wall trees in a summer evening, refreshes them much, and helps to rid the trees and wall of insects and filth. Late in the summer, when the nights begin to get cold, it is time to leave off all watering, except things in pots, and frames, which should have it then only in the morning. As watering is apt to make ground hide-bound and unsightly, let the surface be occasionally stirred and raked, which will make future waterings enter the ground the better; when the ground is hard on the top, the water runs away from its proper place, and half the labour is lost. Many things are impatient of being kept wet about the shanks, and therefore watering should be generally at a little distance.

The quality of water used for refreshing plants is a material thing, and it is very various in its nature, according to the peculiar earths and mineral substances, that it passes through. Rain water is by far the best, as appears by the verdure and vivacity it gives: It is nourishing, as being full of vegetable food.

River water is next in fitness, and pond water follows. Well water is of least account, though local circumstances occasion its use the most. So that in forming a judgment concerning watering, it is not simply to be considered, whether plants should be watered; but whether with well water, and that too from a pump. Pump water, if used directly (to say nothing of its hardnes) is so cold in summer, that the roots feel
feel an extreme sensation; for as they are then warm, through a lively fermentation in the earth, great cold so contracts their vessels, that they perform their proper offices with difficulty, and become diseased.

Hard water is softened by throwing in a little dung, lime, marle, or earth, and rather that of a loamy nature, or clay, which will greatly fit it for use. Some persons keep chalk in wells, cisterns, &c. to soften the water; and others have kept hard water on bruised oyster-shells a few days in a tub, with a view to watering flowers, &c. others have put a bag of barley in it, finding the water that has been used in malting, is rendered very soft, though ever so hard when put on the grain. Fresh bran softens water much, stirring it up now and then for a day or two. At any rate, however, let hard water stand exposed to the sun and air, as long as may be; a few hours will improve it, but a few days will better qualify it for vegetation.

Water is sometimes enriched with dungs and salts. Some experiments of putting a small quantity of nitre into water to keep flowers flourishing in phials, and rooted plants in pots, appear to prove beneficial. That coarser way of impregnating water with dungs may be useful to pots of plants that are too full of roots, or to any thing growing in a poor soil; but the water should not be made too rank, or suffered to touch the leaves; it should stand also in the sun two or three days, and be stirred up now and then. Sheep's-dung for the purpose, is to be preferred, though others may do. Let the rule be, to impregnate the water about an equivalent of an ounce of sea-salt to a gallon: A stronger mixture might do mischief; yet a rich one poured plentifully on old asparagus beds in autumn and spring would do much good.

The management of a garden, as somewhat distinct from the cultivation of it, is an object of consequence; i.e. to keep it in such order, that it may not fail in those general impressions of pleasure it is capable of
of affording, when things are shewn in their best manner. A garden may be cultivated so as to be profitable; and yet not conducted so as to be agreeable to walk in, which in a private garden is a circumstance surely to be lamented: The proper appearance of a well managed one is expressed by the word neat: Let all be done that can be in order to it.

To be neat, weeding must be industriously followed up, and all litter that is made in working, quickly carried off. The ground also should be frequently stirred and raked between crops, and about the borders, to give all a fresh appearance. There is a pleasantness to the eye in new broken earth: and when there are no flowers left in the borders, this gives an air of culture, and is always agreeable: The observation is particularly meant to apply in autumn, that the garden may not become dreary too soon, and so bring on winter before its time. An Asparagus fork is expeditious and useful in this case; but it must be slightly used, lest it disturb the roots of plants too much. Vegetables should not be suffered to rock themselves by wind, so as to form holes round their stems, but be well earthed up (49) or otherwise supported.

Trees and shrubs should be constantly freed from suckers and dangling shoots, and wall trees ought to be regularly kept in order agreeable to directions in the section, On pruning.

Let gravel walks be kept free from weeds and moss, often swept, and well-rolled after rain. If there is quantity of gravel enough in the walks to relay, or turn them up every spring, or once in two years, it will thoroughly clean them, and make them appear lively. Moss may be either scraped off with a trowel, or some such instrument, or rubbed off by repeated strokes of a broom not quite new.

Grass plats and walks should have their edges occasionally cut, and be mowed, as often as there is the least hold for the scythe, for they lose much of their beauty,
beauty, when the grass gets long; leaves should not be suffered to remain on them as it stains the grass; and worm casts should be cleared away.

Edgings of all sorts should be kept in good order, as having a singular neat effect in the appearance of a garden. The dead edgings will sometimes, and the live edgings often want putting to rights; either cutting, clipping, or making up complete. Where there are no edgings, or but weak ones, let the earth bordering on the walks be kept firm, and now and then worked up by a line in moist weather, beating it smooth with the spade.

Some fruits may need support, by tying their weak branches when they get heavy, to stakes, &c. Rows of raspberries and beans are kept neatly up in their lines, by putting in here and there a stake, and using packthread lengthwise; and thus will they bear better, and be more conveniently gathered. Strawberries of fine heavy sorts, will be preserved from getting dirty and rotten, by tying their stems to little sticks; by this practice the fruit also gets better ripened, and of a finer flavour. Some persons lay tiles, or moss round the plants, when the fruit is half grown; but this is not (generally) so well, only it has the advantage in keeping the ground cooler in a hot season. The first and finest scarlets best deserve this trouble.

Flowers should be frequently seen to, to tie up, and trim off dead and dangling parts. Some of them cannot do without support, and many sorts are made more secure and beautiful by proper ties. If this business is neglected, a heavy rain or strong wind may come, and lay all prostrate, especially about the equinoctial seasons; but weakness or their own weight, will often bring flowers down.

The sticks used for flowers, should be of smooth wood, as hazel or sallow, or of neat painted slats of deal, with or without an ornamental head; white is the best colour, on account of its contrast with the leaves.
New bafs wetted, fine soft packthread, or green yarn are proper for the ties, which should be twisted first round the stick, and then round the flower: let the ends of the string be cut off close. The sticks should have smooth and sharps points, otherwise they may damage the roots, and will not hold so fast in the ground; thrust them in as far from the stem as conveniently may be, and let attention be paid to bulbous roots not to go so near as to wound them. Do not think of forcing all the branches of a large bushy head to a single stick; but let two or more be used, as may appear necessary, observing that there is something of an equality of size in the sticks used to the same flower.

Some persons are very incurious about their flower sticks, which may rather be called stakes, even when applied to the smaller sort of plants. Sticks may also be too weak for large ones, and a due proportion is therefore necessary to propriety and neatness.

Decaying flowers should be timely trimmed or removed, and perennials should be regularly freed from the parts running to seed, (except so much as may be wanted) as the production of seeds weakens the root much; sometimes even causing death, and thus many curious perennials have been lost, especially the first year of planting them. To preserve any particular fort therefore, let the stems be cut down as soon as the flowers appear to be going off, or to secure the root in strength, let them not flower at all the first year.

Vegetables decaying are offensive, and those prematurely spindling, and superfluous ones, sprouts, &c. running for seed, should not be suffered to continue in the ground (as they often are) to exhaust its strength, and look unsightly.

The management of a garden (summarily speaking) consists in attention and application; the first should be of that wary and provident kind, as not only to do well in the present, but for the future; and the latter should be of so diligent nature as (willingly) "Never
to defer that till to-morrow which may be done to day;” —Procrafilation is of serious consequence in gardening; and neglect of times and seasons is fruitful of disappointment and complaint. It will often happen, indeed, that a gardener cannot do what he would; but if he does not do what he can, he will be most justly blamed, and perhaps censured by none more than himself.

SECTION V.

OF PROPAGATION.

PLANTS are propagated by seeds, suckers, slips, offsets, divisions, cuttings, layers, and grafts.

By seed is the most general method of propagation, and plants raised any other way are seldom so fine. Those plants from seed which have never been removed, are commonly handsomer, and come forwarder, than those that have been transplanted, provided they were sown in a proper soil and situation.

As upon seed being right in kind and good in nature, depends the success, care should be taken to procure the best, and no temptation suffered to prevail for the use of an inferior kind, or of one only suspected of being so, if it can be helped; for to cultivate a soil, and use a wrong or defective seed knowingly, is folly indeed! Large seeds may have the doubtful picked out.

The largest seed of the kind, plump and sound, is to be chosen, being well ripened and kept from injuries.
OF PROPAGATION.  SECT. V.

of weather and insects: for, as the largest animals produce the most profitable flock, so it is in vegetables; which directs the gardener always to have feed only from the forwardest and handsomest uninjured plants. As in animals the young may be stunted by bad management, and defective food, so in vegetables, the feed being good will not be alone sufficient, if the soil and culture be not right.

Commonly speaking new feed is to be preferred to old, as growing the more luxuriantly, and coming up the sooner and quicker. This circumstance induces some private persons to save their own feed that they may not be deceived in buying old for new feed; a trick of trade, it is to be hoped, not practised by every seedsman: Yet a little mixture of old feed is sometimes proper, because the new is perhaps cut off, and the old saved, by being a day or two later in coming up.

If old feed is knowingly sown, some allowance in point of time must be made. Peas and beans of two years old, are by some preferred to new, as not running so much to straw. See cucumbers and melons, section 14.

As to the age of seeds, at which they may be sown and germinate, it is uncertain, and depends very much how they are preserved. Seeds kept from the air and moisture by being buried deep in the ground will continue a great many years without corruption. Peas and beans will germinate very well at seven years of age; but the seeds of lettuces and kidney beans, and some others, are not to be depended upon after a year or two; and though generally speaking the smaller seeds are of the least duration, yet their maintenance of vegetative power depends much upon the texture of the feed, with respect to its coat, and the oil it contains, &c.

The saving feed by private gardeners, is hardly to be recommended. Things running to feed give a garden a rude appearance, often occupying ground that is wanted, and might be used to better purpose; and the case often is,
is, that seeding plants (in private gardens) are neglected in some measure, or destroyed by birds, and come to little at last. Perhaps they are not sowed from proper plants. It is a particular business to raise seeds for sale, and (generally) they are best had from those whose province it is to deal in them: besides, consider farther,

Against our own seed, there is this to be observed, that it is a received maxim to procure seeds of esculents from a different soil and situation, or at least to change them, as being apt to alter or degenerate, if repeatedly sown in the same place. It is proper, however, for private persons to save seed sometimes, in order to secure that of any particular sort, that it is judged may not be got so true and good. Yet here perhaps the busy bee or wind may interfere, and disappoint expectation; for if there is any thing of the like kind in a neighbouring garden, these instruments may carry the Farina of that to our charge, and contaminate it, so as to produce a spurious offspring, which is very frequently experienced in the cabbage tribe. Now this cannot in a great degree happen with those who raise seed in extensive pieces of ground occupied with the same sort of vegetable.

Seed of vegetables should be sowed from fine forward plants, secured from rocking about, when they get tall; guard them against birds, gather them regularly as they ripen, left they shed and are lost, and keep them dry. Flowers, it may be proper to save the seed of, and it is little trouble. The sorts may thus be better depended on, and the small quantity wanted of each kind makes it hardly worth while to buy, if we can raise them ourselves, or get them of a friend; no single flowers should be suffered to grow in a garden where there are double ones to bear seed, as larkspurs; and holyhocks, for the Farina of the singles transported by bee or wind will spoil the seed of the doubles. Such single flowers should be taken up as soon as ever discovered to be so. It should be a rule for flower seeds
in general to be fresh from year to year; though if kept dry, and from much air, many forts will grow that are older: curious flower seeds are kept well in vials: others may be in small drawers, and some hung up, or kept on shelves in their pods.

Seeds may be forwarded for sowing by various ways of procuring a germination before they are put into the ground. In summer it has not been unusual to steep both broad and kidney beans in soft water, or milk and water, about twenty-four hours, to forward their growth, and to ascertain their vitality. If the ground is very dry when these seeds are committed to it, either steeped, or not, it is a good way to make drills or trenches to plant them in, watering them well first, and then pressing the seed in a little. Any sort of the broad beans, or even peas, may be forwarded, when ground is not for the present ready, by laying them in damp mould, in a garden pot, or otherwise, a layer of earth, and a layer of seeds, &c. and they may be put into drills or trenches (with care) when the radicle has got some length, the mould being light, and the work finished by a gentle watering.

The smaller seeds, as carrots, &c. may be prepared for sowing, by simply mixing them in a little moist sand, or fine earth, taking care that they do not lie longer than the usual time of their beginning to sprout: but this practice need only be adopted for seeds that are long in coming up, and then there is some advantage in having them to sow in a state ready to strike immediately, on fresh dug earth.

The season for committing seeds to the ground, should be as early as the nature of the plant to be cultivated will bear; for the forward productions which come without forcing, are the best as to size, flavour, and fruitfulness, if they meet with no material check from weather. It is the proper ambition of gardeners also, to have some of the first of each kind of vegetables and fruits, and thus to vie with others.
Let this direction for early sowing be understood, not only of spring, but autumn crops; that the plants designed for winter use, or to stand for spring, may be strong, and well established in the ground: Though for those designed for spring, it is advisable to have two or three different sowings; for lettuces (as an instance) that are forward, may sometimes fail when backward plants shall do well.

To be sure of a crop, and in some things a succession of crops, various sowings should be made through the year, at all times that are not too unnatural as to season; for it is an object in gardening, not only to have early and late productions, but never to be without what may be produced. Every sowing that is made (the early ones in particular) should be noticed in time, whether it is likely to succeed, that the work may be repeated. But a little caution is necessary, that this business be not ever done; for though there may seem to be a sufficient distance of time in sowing for succession crops; yet they tread sometimes upon the heels of one another so fast as to occasion a disagreeable superfluity: This is often the case in peas and beans, in the height of summer, and especially if a hot season: this caution is the more necessary, where there is no ground to spare, or but few hands to cultivate it. Labour with discretion.

Sowings should be generally performed on fresh dug or stirred ground. The digging should therefore be done as near the time designed to sow as can be. There is a nutritious moisture in fresh turned up soil, that softens the seed to swell and germinate quickly, and nourishes it with proper aliment to proceed in its growth with vigour, but which is evaporated soon after from the surface. If the ground, indeed, turns up raw, or wet (as early in the spring it is apt to do) a little time must be allowed it to dry, and so also if rain falls first. In this case, seed should be sown as soon as ever the ground may be trampled on not to hang to the
the feet, for when the foil is too wet, it binds and does harm, especially heavy ground; thus in this work, and every other in the way of gardening, there is a nicety of time to be observed, by those who would do their business well. It is to be observed, however, that sowing in drills or on beds that are not to be trampled, the moisture of the ground is rather an advantage, provided, in the last case, that the ground will admit a rake, and the soil is not too wet to drop somewhat loosely about the seeds.

The proper depth at which seed should be sown, is to be carefully observed: if too deep, they will either rot, or not vegetate, or thrive well; and if too shallow, they are liable to be injuriously affected by frost, wind, drought, or birds; but of the two, rather too shallow, than too deep, is best, and this we are taught by nature whose sowings are mostly superficial.

The smaller the seed, the finer should the soil be, and the less also the covering; so that, while some, (as the seed of celery is to be but barely covered, others as peas and beans) may have a depth of two, three, or four inches. But some regard is to be had to the season and soil;—in a warm season, and light soil, sow deeper, and the contrary shallower.

The quantity of seed sown, is a thing to be attended to with some exactness. Small seeds go a great way, and require a careful hand to distribute them; for though sowing a little too much be a trifle as to the value of seeds, yet to have them come up crowding thick is an evil. To sow evenly as to quantity, is an object of practice worthy of care, as it secures a better crop, and more easily managed in the thinning. If the seed is suspected, sow thicker; poor land will require more seed than rich.

It is not generally advisable to sow several sorts of seed on the same spot, as some persons are accustomed to do. The gardeners about London follow the practice; as profit is their great object, and not neatness or propriety.
priety. On the same piece, they sow radishes, lettuces, and carrots; the radishes are drawn young for the table, the lettuces to plant out, and a sufficient crop of carrots is left, for carrots should not be very near to grow big: this is as reasonable a combination as any that is made; but still, if not short of ground, each kind separate will be found best. In defence of this mode of culture, it is said, if one crop fails, the others may do, and there is no loss of ground or time; and if all succeed they do very well. Radishes and spinach are commonly sown together by the common gardeners, and many manoeuvres of inter-cropping are made by them, as sowing, or planting, between rows of vegetables that are wide asunder, or presently to come off, or in the alleys of things cultivated on beds. But this crowding mode of gardening will not be imitated by private families, except there is a want of room to bring in a proper succession of crops. Some little things of this sort, however, may well be done; as, a piece of ground new planted with horse-radish may be top-cropped with radishes or spinach, &c. A thin crop of onions upon new asparagus beds, may also take place, drawing them while young from about the plants.

The proper covering for seeds at broad cast being determined on, as to depth, let the ground lay the rougher, the deeper the seed is to be buried; and if it is to be scarcely covered, rake the ground first very level and fine. All seeds come up best when moderately pressed with the earth; for if they lie too lightly in contact with it, cold and drought more easily affect them, and when once seeds begin to germinate, they are impatient of both. To trample seeds in is on the whole better than any other pressure. According to the depth it is intended to cover seeds, the feet should be set wider or nearer, i. e. the closer for the less covering. Begin to trample on the outside, walking regularly, lightly, and steadily round the piece, till the middle be arrived at in the finish. This done, lay all immediately
immediately and neatly level with a wide rake, drawing off stones, &c. but do it lightly, to avoid driving in the teeth of the rake, which would remove the seed, and make it come up irregularly.

*Patches*, or small pieces, are sometimes sown without trampling, particularly of *flowers*, by drawing some of the mould on one side, and then sowing and covering the proper depth with what earth was drawn off, adding a little more, if necessary. In this case, if the soil is not heavy and wet, press the surface with the rake head, spade, or otherwise. Seeds sown in *drills*, or *rows*, are seldom pressed, but they should be, especially if the soil be light; and even beans set by a *dibble*, are best to have the earth pressed about them with it, or afterwards with the rake head, and they will support themselves more erectly, for the least wind rocks them about when in loose holes, and hurts the crop: In a light soil, the best way is to lay them in a trench, and trample firmly in.

Directions for *thinning* seedling crops, and prickling them out in time, were given in the last section. Let this business be done properly, and prick out now, that there may be some to spare; perhaps a neighbour may be obliged thereby, and at any rate it is best to have plenty left accidents happen.

Propagation by * suckers* is a mode of culture rather peculiar to *trees* and *shrubs*. The things to be observed in this business are, to take them up with some care from the mother plant, so as not to injure its root, nor the sucker’s own root, by pulling it up without properly loosening it first. The earth should be moved aside by a trowel, and then the sucker cut off by a *knife*, and not with a *spade*, as is common. Of those hardy things that there is plenty of, this rough way does not signify much, as to the sucker, but it may injure the root too much that it comes from. Wherever a root appears barked, the part below should be cut off. If it is desired to succeed well, in propagating by
by suckers, consider that all young roots are tender, let them be trimmed to form, and planted immediately, or at least let them be covered with earth or laid by the heels, as it is called. Suckers with poor roots, must have their heads reduced the more.

Propagation by *flips* is of two sorts, either from the root, or stem; and several sorts of flowers and herbs are increased this way. When from the roots (if the whole is not taken up) move the earth carefully aside, and flip off by a pressure of the thumb and finger, and be cautious of hurting the fibres of the flips, planting with fine and good mould about them. Take off flips from the stem carefully by a push of the thumb, and not too many from the same plant, as it is apt to injure the place by tearing off some of the wood. *Slips* from the stem are to be considered as *cuttings*, and treated accordingly. They take more certainly, and make better roots than cuttings.

*Offset* is a term sometimes applied to *flips* from fibrous roots; but more properly so from bulbous roots, which put forth many offsets. These are flipped away at the time they are taken up for removal or replanting, and commonly take two or three years before they bear flowers: dispose of them therefore in a nursery, where they may remain undisturbed while they come to a flowering state; keep them however clean from weeds, and stir the ground a little.

*Division* of the roots is a way of propagating many sorts of plants. To this end (of course) they must be taken up, and then either carefully pulled, or cut asunder with a sharp instrument; as the case may require. It is not safe, however, to divide such roots into very small pieces, (especially if cut), as then they are apt to die; but leave them of a size sufficient, not barely to secure life, but to form immediately a handsome head. The general season for thus *splitting* fibrous rooted plants, is October, but it may be done early in the spring, as February.
Cuttings of a variety of woody plants will grow, and many trees and shrubs are propagated this way; but their sap must be of a watery nature, as those plants that are gummy will not strike, (or rarely) though ever so much care is bestowed, or time allowed them. The texture of the wood of cuttings must be somewhat soft, as head wooded ones will not grow. Cuttings should be rather short than long, and kept steady in the ground. If they are planted where there is any likelihood of their being disturbed, they may be tied to a stick, well fastened in the earth.

The season for setting slips and cuttings is for some things summer, as wall-flowers and myrtles; and for most, from October to March, but (in general) the sooner the better. It has however been said, that spring is the best time for all, and that the sap should be in motion first. This is at least true of some things, as cuttings of the vitex, or chestle tree, (though hardy) are found to do best in spring; and all cuttings from plants of a delicate nature do so.

Cuttings should be of well ripened wood, and have the earth pressed to them, the whole length that they are in the ground; i.e. from four to six inches. Cut them with a sharp knife slopewise, and plant in a good foil, and in a situation where they only have the morning sun; and keep them cool (not wet) by occasional watering in dry weather.

Laying of branches is a mode of propagation, that may be adopted for almost all forest trees, and several sorts of fruit trees and shrubs; i.e. all that will grow from cuttings, and many that will not. Layers are less rampant, and more fruitful than suckers; and "those who are curious, and find a seminal variety of any tree, or shrub, that is remarkably different from the original, the only way to have it preserved genuine is to convert it into a stock, (by cutting down) and raising plants by layers." They are made of the lower branches of the plant, and must be young and pliable, to
to bend down without breaking, to the depth of four, five or six inches in the ground, (as the soil is light or heavy) at which they must be held securely by good pegs; and if they cannot be brought down sufficiently deep, some earth may be raised up to them.

Let the ground about layers be kept cool by occasional waterings, and laying some moss, turf, litter, or rather small pebbles about them, which will not harbour insects. The part out of ground may be supported ereasily by a tie to a stick. It is a good way to slit (with a sharp knife) the part at the peg, as in carnation layers, a little more than an inch; and some prick a few holes about the part (at a joint) with a blunt awl, to help the layer to strike root. For the harder woods, some gardeners make several slits, or chips, in the part layered in the earth, and bind the layer rather tight, just above it, with pliant wire; and soft wooded layers are sometimes twisted to crack the bark, in order to help the part to strike quickly. Generally layers should be shortened to six or eight inches above the ground; or do it to two eyes, be it more or less above ground.

Where there are no branches low enough to be brought into the ground, (and it is not thought good to head down for the production of low shoots, or suckers) plants may be layered by fixing a broken pot, or a box, with a slit in the side, to the height necessary to lay in a branch. A branch also, if long enough, may be thrust through the hole of a garden pot upwards, then filled with earth, and supported by some contrivance, and shaded by some means, and in both cases water frequently. Take care not to injure the buds in drawing through the hole of the pot. By this contrivance rooted plants being procured in pots, may be turned out with the earth about their roots undisturbed. A branch of a vine thus layered in November, may be next year cut off, when the fruit is ripe, brought in the pot to table, and afterwards planted out.
OF PROPAGATION.  

SECTION VI.

OF A NURSERY.

There are so many respectable nursery-men ready to supply our wants, that the necessity of a nursery is in a great measure done away; it affords, however, employment, amusement, and an opportunity for exercising ingenuity, and that particularly in the way of graffing.

By means of a nursery, trees are ready upon the spot, to be transplanted without damage to the roots from being long out of the ground, and the climate and soil being the same in which they are raised and are to grow,
grow, and to fruit, there is a sort of certainty of success, that could not otherwise be had. There is also a great advantage in raising trees, in a very material point, in an assurance of having fruit that we know we like, by getting grafts, or buds, from trees of which we have tasted and admired the fruit.

In a nursery, _stocks_ may be raised for fruit trees, _shrubs_ propagated by _suckers, slips_ and _cuttings_, and _flowers_ of the biennial and perennial sorts may be sown, bulbous offsets planted, and thus a _stock_ may be readily provided for furnishing any part of the pleasure ground. For all, or some of these objects, a spot might be allotted, if it were only the cool corner of a large garden, having a good soil.

Supposing even only a _little_ spot is made use of for a few _flowers, shrubs_, &c. let them be duly attended, to _weed, thin, water, trim_ into form, _support, shelter_, and in short _nurse_, but yet not to bring any thing up tenderly, as too much, or long cover in winter, exposes to risk when it is taken away; the plants not being able to bear then even a moderately cold air. A low part of the garden, that has not too much sun, is best for a nursery; if not overshadowed with trees.

_Suckers, slips_ and _cuttings_ of any kind, should be attended to for forming a proper _head_; shortening the _shoots_, and keeping a clear stem below, and the roots free from suckers. Two years commonly fit _suckers_ for planting out, and three years _slips_ and _cuttings_. But remember to fasten the two latter, if not the former, to _sticks_, that the wind, &c. may not loosen them, and prevent their rooting.

_Large plants_, as young _trees_, &c. should be tied to _stakes_ well fixed, at first putting out for the same reason. These should be seen to from time to time, that they remain fast; as also, the _mats or cloths_, that may have been put over _hoops_ to _shelter_ exotic _seedlings_, &c. from heavy rains, or severe _frosts_, for the wind has great power over such coverings.
The soil of a nursery should be dry, free and in heart; but not much enriched with dung, lest a rankness of food give too great a freedom of growth, and a habit in the plants, which not being indulged by a like soil afterwards, disappointments ensue. A dumpy soil also encourages worms and insects, to the injury of seedlings, and makes young plants more liable to be cut off in a sharp winter; too rank a soil, also, prevents the juices of plants from being properly digested, and so they are less fruitful.

On ground designed to be sown, or planted in spring, if it needs refreshing, lay on a little well consumed dung towards winter. See page 46.

A nursery should be laid out into beds of about four feet wide, with alleys of about two; and thus all the work of it will be done conveniently, and the plants will have free air to strengthen them. In the alleys may be buried some dung, which will be at hand, and useful, when consumed by time and turning over, to dress the beds as they may need it.

Stocks for grafting fruit, are raised from suckers of plumbs, cherries, codlins, crabs, pears and quinces; and sometimes from cuttings of codlins and quinces; but those stocks raised from seeds and stones are much best if we consult freedom of growth. If sucker stocks grow ever so well, they are apt to put forth suckers, which is not only a troublesome circumstance, but exhausts a tree, and prevents fruitfulness. It is to be understood, that the graft will (in some measure) partake of the nature of the stock; therefore soft, mealy fruit, ought to be propagated on austere stocks, and the contrary; tender, delicious fruits designed for forcing, should always be on smart flavoured stocks, or they become insipid.

Though crab stocks for apples are mostly used, yet the ripe black seeds of any other smart eating apple may be sown, either in autumn or spring. Sow in autumn, (October or November), and if this sowing fails, the
the spring may be adopted towards the end of February. At these times, the well ripened seeds of pears, or stones of plums, or cherries, may be sown. The stones of any sort of plum, (damsons excepted) produce stocks for apricots, peaches and nectarines; and though the white sorts are commonly preferred, the red wheat-plumb is excellent for the apricot; of black plums the muscled is the best.

Those seeds or stones that are saved early, or are to be kept through the winter for spring sowing, (which many prefer), should be preserved from air in dry sand: Let them be put in a box layer upon layer, three or four courses, covering the top three inches, and guard against mice. Nuts, acorns and chestnuts are put in the ground at the same time, as also the seeds of various sorts of shrubs and forest trees. The tenderer sorts of shrubs and trees are indeed best sown in March, or beginning of April; and a gentle hot-bed would be of advantage, to bring up the seeds with certainty.

The seeds, or kernels of apples and pears may be sown in drills a full inch deep, a foot asunder, and scattered thinly in them, pressing the ground a little to them; or sow at broad cast. But take care not to use the seeds of fruit that has grown on a hollow tree, for they will not vegetate.

The stones of any fruit should be sown at near two inches depth; and nuts, &c. at three or four. Stones and nuts must be set thin, and rather (as of some advantage) the small end upwards, for here the shoot pushes out, or they may be laid flat. If the beds are sown all over, cover the seed with mould previously drawn aside in the alleys; but drills have the neatest appearance, and some little use may be made of the spaces between them the first year.

Prepare the beds by digging the soils well to a full foot in depth, and let the surface be made fine: thus will the roots strike down freely to preserve themselves from
from drought, wet will drain away, and the young plants push straight upward: four feet beds are best.

The enemies of seed beds must be guarded against, as poultry, birds, dogs, cats, mice and frost; the latter by covering lightly with pea haulm or wheat straw, and the former by furze, thorns, or brush wood, and traps. If any hares, or rabbits, get at a nursery, they make sad havoc in sharp weather, by barking the young plants; therefore, guard against them, and larger animals, by good close fences, which will also keep out sharp winds.

During the first year, they should be kept moderately cool, by watering in dry seasons, or laying moss, or some short litter, over the beds. And as to weeding, though they must not be smothered, yet some small weeds may be suffered to grow in summer, as they help to shade the plants, and keep the ground cool. Seedling trees are very apt to suffer by drought. Thin them in the summer, after rain, from two inches to three or four asunder, according to their nature; and at the end of the year (i.e. when a year old) thin to from nine inches to a foot asunder; those drawn may be planted out at the same distance, or at least the best of them; and those left should be re-planted the second year, left the roots strike too much downwards. The first winter, they ought to be protected from severe frosts, by some light dry litter, which remove in mild weather. At all times, except winter, if the roots of young plants are disturbed by any means (as pulling up strong weeds, hoeing, &c.) settle the mould about them by a good watering.

Stocks designed to grow for full standards, should be set in rows, three or four feet asunder, and at one foot and a half in the rows; or if set at the before-mentioned distances, they may be transplanted again, another year or two, wider. Rows for dwarfs need not be so far asunder as those for standards; but before they are planted, the side shoots must be trimmed off, and
and the tap roots shortened, in order to procure a clean straight stem, and a full root.

Protect from frost all new planted trees, by laying pease, bean, or strong wheat straw between them; which may be secured by trampling or laying stones over it, or by pegging down. Seedlings, or stocks, planted out in spring, should be protected from drought also in the same manner, a month or two, (or longer,) and afterwards occasionally watered in dry weather.

The second year, in October, those left at about a foot distance in the rows, may either be taken up and re-planted, cutting the tap to make bushy roots, or, taking out every other, left to grow of a size fit to graft, or inoculate there. This year, only the stronger side-shoots from the stem should be cut off; for the weaker ones will help the stem to thicken, by detaining the rising sap, and imbibing moisture from the atmosphere to feed it; and the getting a strong stem is a material thing, especially for standard trees. Do not top the leading shoot.

Stocks of any kind will be three or four years growing, or two or three from planting out, before they are fit for grafting; and if strong stocks are wanted, (as for standards,) more time will be necessary: The rule of substance may be from a quarter, to an inch, or more diameter. As dwarf trees are grafted, or inoculated within five or six inches of the ground, much less stocks will do for them, than for standard trees, which are grafted at so many feet high; i. e. if for full-sized trees.

Stocks that are naturally of a slow growth, are coveted for dwarf trees, that they may not mount the wall, fill the espalier, or increase to a large head too fast. So for apples, instead of crab stocks, which are commonly of free growth, those raised from the seeds of the paradise apple are recommended as growing dwarf. Or stocks may be raised from cuttings of the Kentish Codlin.
In default of these naturally dwarf-growing flocks, those raised from suckers are sometimes used, as less likely to grow off freely than seedling flocks. Layers also are proper for dwarf flocks, and they are commonly to be had from the codlin; all layers must be carefully taken up to preserve the roots.

For pears, dwarf flocks are raised from quince cuttings, layers, or suckers; but as quince shoots are commonly of a weak and crooked growth, the stocks from pear seeds are mostly used. But suckers may be obtained from pears, quinces, &c. by cutting down an old tree within a foot of the ground, and these being planted out for a year or two, become good stocks. If the suckers, or shoots, lay high, they may be earthed up to induce them to strike. But suckers will be often forced, by only cutting off the top of an old tree, which is an experiment to be recommended, (in pears particularly) as there will be formed a new head, and an opportunity given to graft for another, or a better sort. And if there are no suckers, there may be low-placed shoots proper for layers, of those trees that will thus strike, and most trees will, if not the first, perhaps the second year.

Stocks from suckers, for dwarf plums and cherries, are in one sense better than those raised from stones, as being less free in their growth: and the common red cherry and the black are to be preferred for flocks, whether as to suckers or seedlings. If suckers of any tree grow at a proper distance from the parent stock, they may be grafted or inoculated without removal, till wanted to plant out for fruiting, i.e. in a year or two. Suckers that are for flocks, should always be planted out in autumn, and stand (at least) to the following spring or summer, twelvemonths before they are used. Apricots, peaches and nectarines are grafted by inoculation on plum flocks, but rather on those raised from stones, except for apricots it hardly signifies. Stocks of the wheat plum, or the muscle are the best. Figs, quinces, and
and mulberries (as sometimes codlins) are raised from fuckers, layers, and cuttings, without grafting; but from layers is the best method, being more sure than cuttings, and more fruitful than fuckers, and in one year they will be rooted. The season for both cuttings and layers (a little before or after) is October, though February is rather better for the fig. The layers from fig trees must not be taken off till the beginning of March, as when planted in autumn are apt to die; let other layers, however, be then removed.

Medlars are grafted on pear or crab, or service-tree flocks; but more commonly upon medlar and white thorn flocks; though the fruit (on the last at least) is not reckoned so good.

Grape vines are generally raised from cuttings and layers, (sometimes from buds) either in autumn or spring; but for cuttings rather the latter; and if the vines are pruned in February, or before, lay the cuttings by in dry mould or sand, till March or April. Place the layers in the ground, about four or five inches deep, leaving two or three eyes out. The cuttings should have three in the ground, and only one or two out, or be about a foot or fifteen inches long, and placed a little afloat; choose the most short jointed. Cuttings should have a knot of the old wood at bottom, for those cut off above, though they may strike, will not produce so good, or fruitful plants; they are also best taken from the lower part of the tree, the wood there being the most ripened. Vines are best raised where they are to grow, by opening a hole, and placing two cuttings in, one of which is likely to answer. Keep it to one shoot, and cut down to two eyes in autumn. Keep to two shoots the next summer, and prune down to two or three eyes in autumn, and then the vine will proceed with vigour, and bear well.

Cheesnuts are raised by sowing those that are imported, three inches deep, and four aunder; in rows six inches apart; where growing two years, let them be planted.
out half a yard apart, in rows a yard asunder. When
five or six feet high, they may be moved where they
are to remain: If the seed is good, it will sink in water.

Walnuts are raised from well-ripened nuts, sown
either in autumn or spring; and if the latter (which
may be rather best) preserve the nuts in their outer
cloths, in dry sand. These trees are best but once
moved, and their tap root preserved, if for timber, with
the head as entire as possible; but if for fruit, the tap
root should be shortened, to prevent the tree mounting,
and the head may be cut, to accommodate it to the
root, as to size. The walnut likes a dry soil, and if
gravelly, it does best; and though walnut trees are
many years before they come to bear, yet if it were
only for the wood, posterity would have reason to
commend the planter of them.

Fillberds are raised from nuts, or suckers, and layers,
the latter of which is the best method; or they may be
grafted on the common nut tree. The nuts sown in
autumn, or kept dry in sand till February, produce fine
trees, but generally differ a little from the sorts sown,
and make a variety generally for the worse. Nuts
fruit best in a cool soil.

Currants and gooseberries are raised principally from
suckers, slips and cuttings, but best from the latter.
When from seed, it is with a view of obtaining varie-
ties, and hence the many sorts of gooseberries in some
catalogues. Use cuttings, or slips, of the last year's
wood, from fruitful trees, about nine or ten inches
long, and set them four or five in the ground, half a
yard asunder; train them to one shoot, (or at the most
two,) the first year, and the next head them down to
six or seven eyes, when a fine head will be formed the
following year, and in the autumn they may be moved
where they are to fruit.

Barberries are raised from suckers, layers, cuttings, or
seed sown in autumn or spring. The latter mode of
propagation produces the finest shrubs, with the largest
fruit,
fruit, though it is seldom practised, suckers being generally plenty.

Raspberries are almost universally propagated from suckers, being always abundant; and as this saves a year, and seed produces varieties not desirable, sowing is not to be recommended: This shrub is rarely brought into the nursery to obtain strength.

Strawberries are raised from seed, offsets, and runners, but almost universally from the last; plants from seed produce the finest fruit, and sometimes a variety that is superior to the original. It should be sown in pots, or boxes in March, or April. This method is particularly to be recommended for the alpine, chusing the largest and most conical fruit for seed.

The young offsets of the present year, flipped in autumn, or those of the last year (which will be better rooted) flipped in spring, will do for plants, cutting off the sticky parts; but the first runners are more commonly and properly used; and to have these fine, the runners beyond should be pinched off in time. Offsets, early in spring, and forward runners in summer, (as soon as rooted in June,) may be planted out in cool ground, at six inches distance, by way of a nursery, in order for making new plantations towards the end of September, or in October. This is thought a good way by many, but it is seldom practised: Let the summer plants be well watered till rooted, and suffer no runners to proceed from them. The common method is to let the runners remain till September, and then, as early in the month as may be, to dress the beds, and select the strong and most bushy-rooted sets for forming new beds: It would, however, be an advantage both to the old flools, and the young plants, to suffer only the first or second runners to remain for the purpose: Thus their own beds will be the nursery for them; and except the foil is worn out (perhaps,) the belt.

* * * * * *
The raising of forest trees is rather beside the purpose of this book. They have been mentioned as to the time of sowing, and their treatment is in a great measure the same as for raising flocks for fruit trees; so that to those who would do only a little in this way, much more need not be said.

Forest trees are often left to grow thick on the seed bed, and only thinned a little in the autumn following, and so from time to time as they get bigger; but a little thinning should take place in the summer, by drawing, when the ground is moist. If the soil that seedling trees are to be planted in be poor, let them be raised in earth somewhat sandy, and at any rate not in rich dunged soil.

When young men take to gardening and planting, it is an happy circumstance, and they should lose no time in the business; for it is a thing that persons advanced in years have often repented of. It produces considerable satisfaction, and a peculiar pleasure in the evening of life, when a man can point at good trees, and say, “These are of my own planting!”—but it were a superior thing to add, “And of my own raising too.” Young planters would wisely resolve, therefore, to raise their own trees, especially of the forest kind. “There is no better, or cheaper way of raising woods and plantations, than by sowing the mast or nuts of timber trees, where they are always to remain, and this is best done in spring.”

It is to be observed, that the wild service, hawthorn, holly, and ash keys come up the second year; but most other seeds of trees the first. Ash keys, however, (and probably the others,) if they are buried in a pit with coal ashes sifted fine, or in a sandy earth for a year, will come up the first year they are sown.

To have good seed of the various kinds, is a thing too little attended to; but on which evidently depends much. It should be well-ripened, and the produce of fine healthy trees from the top, or outside branches; withal,
withal, not growing near dottrel, ill-conditioned ones, the farina from the flowers of which might impregnate those of the good tree, and give its seed a degree of degeneracy. Let oak acorns be thrown into water, and those only used which sink quickly;—they should be kept a while to harden, but not too long out of ground, as they soon sprout.

In the management of a nursery, the young plants of trees and shrubs should be dug round once a year, by a downright cut of a sharp spade, a little distance from the stems, nearer or farther off according to their age, to shorten straggling roots, and produce new ones more at home: Let this be done in October or February; the former time is best for the older plants, and the latter for young ones. The spade also may be drove under them to cut off the tap roots, where it is not an object to preserve them. By this practice, a good, full, bushy root will be obtained, fitting plants for a prosperous removal; but it should be done a year before transplanting: It improves also the soil. Evergreens in particular would be safer to move, being thus treated; and if only to be moved from one part of the grounds to another, balls of earth in this case will hold well to them. Immediately after the operation, a sound watering will be proper to settle the earth to the roots, except the ground be quite moist; but this work of digging a nursery is best done when the ground is dry.

SECTION VII.

OF GRAFFING.

GRAFFING, (or grafting,) is the insertion of a cion into a stock, or stem, raised for the purpose, and is necessary to the ensuring of good fruit; i.e. to have the
the same (or at least with little difference) produced on
the new tree, as that of the old one from whence the
graft was taken: It is sometimes performed on the
branches of trees, and may be on the roots, a piece
being raised out of the ground for the purpose.

If the seeds of fruit were left to grow up to trees
without grafting, they would produce a different kind
from that they came from; by chance a better, but
most commonly a worse. The varieties of fruit we
have, were obtained partly from seedling stocks, with-
out grafting, and partly by an accidental difference,
that the stock, or foil, may have given.

Grafting is like planting upon a plant, for though
there is a union of the parts, there is in fact little
other communication than a root has with the ground.
The cion, or bud, draws nourishment from the stock,
but no other than is properly adapted to its own pecu-
liar pores, which by a chemical process (suppose by
fermentation in its little bladders, or cells) it alters, so
as to become exclusively its own. A great variety of
fruit is produced by graft-planting from the same kind
of stock, (and that perhaps a mere crab,) just as a great
variety of plants are from the same foil: By this means
also, some forest, and many ornamental trees and shrubs
are propagated, and thus their particular varieties pre-
served, as in all the variegated forts, &c.

The art of grafting is a very curious discovery, and
though it requires some ingenuity to perform it, a few
trials may make it familiar, and it will prove an agree-
able source of amusement and satisfaction. By being
able to graff, young trees may be always at hand for
replacing old, or unsuccessful ones; and the pleasure
of obliging a friend from our stock in this way, is
peculiarly gratifying.

Skill in this ingenious art is clearly best obtained by
seeing the work performed; and at first trial, to have
an adept at the elbow, would be a great advantage.
There are few gardeners, (even by profession,) how-
ever,
ever, that practice this work, owing to the great number of nurserymen ready to supply trees. But though they raise fine trees, much disappointment has often happened in dealing with them (particularly in the fort) which might be avoided, by a man's being able to raise good trees for himself. Directions precisely descriptive of the business of grafting, are therefore here attempted, and if once understood, trials should be made without minding the discouragement of a few failures; for practice will make perfect.

Proper stocks being ready, and cions, or buds procured, there will be wanting a good sharp narrow-bladed pen-knife, and a sharp smooth-edged pruning-knife, with some well wrought loam, or clay, and some good new bafs, or strong yarn. The clay should be made up as mortar, mixed with short hair, or fine chopt hay, with a little horse dung, and prepared a day or two before-hand; or longer the better, being beat up afresh with a little water every day.

The first thing to be done is, to cut off the head of the stock at the proper height, and in a fair part of the bark, making a smooth flat top: If the stock is too strong for the knife, and a saw is used, it must be smoothed with the knife after. The properest size for stocks, is from half an inch to an inch diameter, a little more or less, however, may do. When a stock is too little, the cion is apt to overgrow it, and when too big, the cion does not so well, or so soon, cover the stock, as might be wished: yet stocks of any size can be used by one mode of grafting or other.

Dwarf trees are to be grafted within six inches of the ground, and standards as high as the stock will well bear, considering whether they are to be half or full standards; the former at about three or four feet, the latter at five or six. But trees designed for standards, may be grafted, or inoculated at a lower height, the graft being trained to the desired length, by keeping it to a single stem.
The cions should be healthy and strong, (not however of a soft, sappy, luxuriant growth,) and taken from the cut sides of fruitful trees, where the juices of the wood have been properly digested by sun and air: they should be taken (if it may be) from trees just in their prime, or at full bearing, and not before. Let them be cut two or three weeks sooner than wanted, and if kept longer they may not hurt, for they had better be cut a little too soon, than too late, at full length, without any side shoots.

Let the cions of pears, plums, and cherries be cut from the middle to the end of January, and at farthest not beyond the middle of February; the season must, however, somewhat govern. Keep them all over in dry mould; close under a south wall, or some shelter, covering them with straw in wet or severe weather. Some preserve them in a cool room, where they will do without mould, but it would be better to set them up an end in a garden-pot, half their length, with mould, or sand, nearly dry.

Cions cut early are prevented from getting too forward in bud; and if the buds begin to start, and look white, they seldom take. By having them as long as they may be kept before used, the sap of the stock gets in forwardness; for it must first begin to stir, and so be ready to push itself quickly into the cion, (now somewhat exhausted,) to form a union with it.

The middle of cions is fittest for the purpose; but do not cut off the tops till they are brought out to graff, for they keep best in length. If cions are to be transported to any distance, let their ends be stuck two or three inches in clay, and so matted round in a bundle; or, if wrapped round with a fine hay rope, and smeared over with cow dung, clay, or a strong earth, they will not soon wither.

Some gardeners say, cions should be only of the last year's growth, and others, that the wood of the year before is best; but it is so far a matter of indifference, that
that they will take much older, though (perhaps) not so certainly. As a medium way, if a little of the former years wood be cut with a cion of the last, and this elder wood be used for the part grafted, it will be found to answer, in covering the stock sooner; though it must be acknowledged, that all new wood is the common practice of those who raise trees for sale; which circumstance is ordinarily a presumptive proof of right. However, if wood of a year's growth is not strong enough, then, at least, some of the old wood ought to be cut with it: and the bigger the stock is, the more this practice commends itself, as the barks will be somewhat more equal in thickness.

Proceeding to graft, take off a little of the lower end of the cion first, and then cut it in length, so as to have three or four eyes to appear above the claying: two eyes will be sufficient for a standard, but four is better for a dwarf that is to be trained. In cutting cions into lengths, let the top eye be just in front, or just behind, but rather the former. Use not, (except upon necessity) the upper part of a cion, as the wood is too raw for the purpose, and will be shrivelled; yet strong cions (properly inserted) seldom miss through drought: indeed they will take sooner than if quite fresh cut and full of sap.

The time for grafting is usually from Mid-February to Mid-March; but in a forward season sooner, and in a backward one sometimes later.

Cleft-grafting has been the most common method of propagation, and though it is not the neatest, yet it is a certain and easy way to young practitioners. The stocks for this mode of grafting should be strong, about three quarters of an inch diameter, or more if it so happen; but it may be used with very young stocks, having cions of like thickness.

Cut off the head, as before directed, so as to have (on the sunny side) a smooth part in the stock, where the cion is to be placed, and cutting a part of the stock off
off slopewise, opposite to this place, leave the top, or the crown of the flock, about half an inch wide.

Then cleft the flock with strong knife, or thin sharp chisel, about two inches deep, as near the middle as possible, so as not to divide the pith, and if any roughness appears in the slit, smooth it off with a pen-knife; but something of the wedge kind must be put into the slit to keep it open to receive the cion, leaving proper room to put it in. Cut the cion on each side to the form of a wedge at bottom, an inch or more long, making that side which is to be placed inwards in the flock, thinner by about one third. Put the cion in, so that its bark, and that of the flock be level; and if the bark of the flock be thick, let the bark of the cion sink in a trifle, as the current of sap that unites them, runs betwixt the bark and wood. The cion being placed, take the wedge out that kept the flock open; yet if the flock be so strong as to pinch the cion too hard, ease it by a little bit of dry wood to be left in the cleft; so, however, as not to loosen the graff, which must be held firmly: or if the flock be very strong, the wedge of the cion may be nearly of equal thicknesses, inside and out, which eases the barked part.

The graff must be nicely whipped round with wet baps pulled tight, and the whole clayed over to an inch above and half an inch below, smoothing it off taper, with a trowel, or knife, dipped in water. And as this is done with a view to keep out wet, sun and air, if the clay falls off, or cracks, it must be immediately repaired, till the season comes to take off the bandage, which is about Midsummer, or rather sooner: yet at this time some clay should be still kept on the top, to secure the cleft from wet, and so continued till the cleft is grown up.

If it is desired to put in two cions, to form a tree for the wall, or espalier, there should be two clefts parallel to one another, one on each side the pith. Some put
put in two cions, merely in case one should miss; but it is not advisable. It need hardly be observed, that in this case the crown must be left whole.

With respect to the time of performing this work, remember that what has been said relates to pears, plums and cherries: apples cannot be grafted till the beginning of March, or later, as the season is, even into April, for the sap must be on the move.

Whip-grafting has the advantage of cleft-grafting in neatness, and not requiring the stocks to be so old by a year or two, as very small ones will do in this way; for the stock is directly covered by the cion, and it takes with certainty if properly performed. Cions suitable to proper stocks cannot however always be had. Stock and cion are to be both of a size, or rather nearly so, is better, the stock having the advantage in bigness; for thus it is not so likely to be overgrown, as it happens when the cion is of a more free nature. When the stock is overgrown by the cion, it will give it some opportunity to thicken, by fitting the bark through downwards, in two or three places. This circumstance is not, however, material in dwarf trees.

Having cut the head of the stock off, and the cion to its proper length, slope the lower end of the cion about an inch and a half, and to a point; then cut the stock to answer it, (the cut of the stock however may be a trifle wider and longer) bark against bark, and tie them together exactly to their place, and clay it. But for the greater certainty of keeping a cion to the part, cut it so as to leave a small shoulder at the top of the slope, and the stock so as to leave a narrow bit of its crown to answer it, and to hold it.

There is a sort of whip-grafting that has been denominated slicing, or packing, which differs only from the one just described, in that the stock is of any size; and this is performed by cutting the cion to a face, as before, and then taking off a slice from the (beheaded) stock,
flock, choosing a gibbous part of it so as exactly to correspond with the cut-surface of the cion, taking care to fit them so that the cion may stand erect (or nearly) when clapped to. Shouldering is commonly practised also in this way.

**Graffing in the bark**, which is sometimes called *crown graffing*, is perhaps as good a way as any, both for ease of operation and certainty of success; but it will hardly suit any other fruit than *apples* or *pears*, as other cions will be past use (most likely) before the bark of the stocks will *peel*, as the time for this business is towards the end of March, or beginning of April.

The head being cut off, make a straight slit down and through the bark from the top, at the place defined for the graft, which should be rather southerly or westerly. This score down the bark should be nearly as long as the slope cut of the cion, which may be one and a half, or two inches. Loosen the bark a little at the top of the score, and then with a smooth instrument rather of dry hard wood, ivory, bone, or silver, than iron or steel, open the bark sufficiently to receive the cion, by pushing the instrument down a trifle below the bottom of the slit. This instrument should be thin, tapered and rounded towards the point, to suit the shape of the cion's face; one side of it flat, and the other a little convex, the flat side being applied to the wood of the stock; let it be rather narrower than the cion, that it may not loosen the bark too wide.

Cut a bit of the bark of the cion smooth off at the bottom that it may not turn up in pushing down. It will be proper to cut the cion with a small shoulder, to rest upon the stock. And because when the cion is in, it will bear the bark up hollow from the stock, score the bark on each side the cion, so that it may fall close to the stock, and to the edges of the cion. Bind and clay neatly. In this way of graffing there is a fort
fort of agreement between the cion and flock necessary; the cion not being too big, or the flock too small, to prevent a proper bedding. If more than one cion be not put in, the flock on the opposite side to the cion should be floped up about two inches in length, to half its thickness.

This way of grafting is used most properly with strong flocks; and sometimes is applied to large branches, and even trunks of old trees, to change the sorts, or renew the wood. In proportion to the largetness of which, from two to five or six cions are put in, and sometimes of different sorts; and if the flock be large, the more the better, as it heals over the sooner, and as they insure the life of the flock, by receiving and carrying off the sap; in which respect a single branch of the head of an old flock may be left on, for the sap to pass off by when it begins to stir.

Having inserted the cions, and bound them, clay the top of the flock well, so as to shoot off the wet. In this way of grafting, the cions are liable to be disturbed, or moved from their places by strong winds, and the best preventative is to tie small long ficks to the flocks, and then the cions to them, taking care to place the ficks so as not to force the cions; and as the shoots proceed to push they may be fastened to the ficks also, and so grow two years, when nature will need no farther assistance.

Side-graffing is done in the bark, much like inoculation, a cion being inserted instead of a bud; but remember, there must be a fluent sap first, i.e. the bark must part readily from the wood, before this mode of grafting is attempted. The head of the flock is not to be cut off, only thinned a little if it be big, and the side shoots taken away. The bark of the flock, where the insertion of the cion is to be, must be cut through in the form of the letter T, as wide and as long as is sufficient to receive the cion, cut as before, with a slope face of at least an inch long, taking advantage,
advantage, if (it may be) of a part of the stock, that is a little gibbous. Let the bark of the stock be neatly raised to receive it, but yet no more than necessary; a little bit of the bark may be sliced off the part that is over the cross cut, to receive the cion the better.

Approach grafting, or inarching, is performed (in April or May) when the stock we would graff, and the tree we would propagate, grows so near together, as to be brought conveniently into contact, and the nearer the graff and the stock are of a size the better. This mode of propagation is esteemed the surest of all, as it will conjoin branches of trees which are scarcely congruous in their nature; and in truth, some things cannot be so well propagated any other way. It is a method that is, or can be, seldom used for common fruit trees; but if any one wishes to try the experiment, the stock or stocks must be planted at least a year before, first making the soil good, as it may need it, being so near another tree, for it of course must be close.

Plants in pots or tubs being easily brought together, are frequently propagated this way; so that inarching is used much in green-houses and hot-houses for various things, as oranges, lemons, pomegranates, jasmines and vines sometimes: oranges and lemons thus treated in May will be united by August.

The method of inarching is, bend the best situated young branch of the tree or shrub to be propagated, to the stock to be graffed, and having determined on the part at which most conveniently to fix the shoot; cut the bark of that part of the shoot off, with nearly half the wood, (not to touch the pith) to the length of about three inches for a strong branch, or less for a weaker. Then cut exactly so much of the bark and wood of the stock off, as will receive the cut part of the branch, or shoot, so as to bring bark and bark in contact in every part; and if the contrivance of lipping be used, it
it will secure them better together. Bind and clay; and if in open ground, fix a stake to tie the work so that the wind may have no power over it; a tie also to a neat stake may be proper for those inarched in pots, &c.

As soon as the graft has taken, which will be probably in four months, (except in the harder woods,) let the head of the stock be steadily cut off with a keen knife, three or four inches above the binding, which then removing, bind and clay again, to remain about a month. In March following, cut off the branch from the parent close to the grafting, and also the stub of the stock that was left. The head of the stock is sometimes cut off before grafting, in which case a flopping cut half way the thickness of the stock, is to receive the cion; but here the graft and the stock must be both of a size, or nearly so. There has been this distinction made, to call it inarching when the head is cut off, and approach grafting when it is not. Gardeners mostly prefer the former method.

Budding or inoculation, though here last mentioned, is the most considerable mode of propagation, and is a pretty summer business. Apricots, peaches, and nectarines are always propagated this way, and plums and cherries may be. Pears are sometimes budded, and apples have been, but the success is uncertain. Not only fruit, but forest, and ornamental trees and shrubs are inoculated. The branches also of trees as well as stems are sometimes budded, which is best done on two years wood, though it may be on both younger and older.

Inoculation begins as soon as good shoots with good eyes, of the present year can be had, so that the season may be reckoned from Mid-June to Mid-August; but about Old Midsummer, or rather after, is the usual and best time for the work: it should be done in a morning or evening, (the latter rather best), except the day be cloudy, when any part of it will do.

Apricots
Apricots being first ready, the budding season begins with them. The stocks to be used are those of the plum (raised from stones, or suckers) when half an inch thick, a little under or over, and the operation is to take place from four to eight inches from the ground.

Peaches and nectarines are propagated on the same sort of stocks; but if the plum stock is first budded with an apricot (very low), and when of proper size budded with a peach, and especially a nectarine, the advantage is reckoned that it takes better so, and comes to a better bearing, producing an improved fruit, and particularly the red Roman nectarine. Apricots may be expected to be less luxuriant by double-budding, in which case the first bud should be of the Brussels sort.

Plums and cherries may be inoculated on sucker stocks of any kind; yet if a free growth is required, (as for standards,) stocks raised from stones are best; i.e. plums on plums, and cherries on cherries, though they will take upon each other.

Pears, if for standards, should be inoculated on pear stocks, and on those raised from seed, rather than suckers, but if for dwarfs, quince stocks may be best used, to keep the trees from growing off too fast, and so getting soon too big for their allotted space; white thorn stocks are sometimes used with the same view, but the fruit gets stony.

Stocks for budding dwarfs should be three years old; but for standards four or more, though small stocks may be budded for standards also, (as mentioned before,) if the shoot proceeding from the bud be trained to a single stem, till of sufficient height to be topped in order to form a head. Standards should be from three to seven feet high, before they are topped, according to the height they are desired to be of, as half or full sized; but dwarfs for training can hardly branch off too low, being budded at five or six inches, or less from the ground, the shoot from the bud should be shortened (at a year's growth) to five or six eyes, or
to four that are well placed; i. e. with a lateral direction for the wall.

Though the longer inoculation is deferred, the riper the shoots will be for furnishing buds; yet there is this advantage in beginning as early as may be, that if the budding appears not to have taken, the work may be done again before the season is out. Or, to insure success, two buds may be inserted in the same flock, (but not in a direction under one another) and if both fail this year, the flocks may do again the next, as the heads in grafting by inoculation are not to be cut off till the spring following, because the inserted buds do not push till then, when they will grow off apace: In a very early inoculation, the bud may shoot the same year; but it then comes weak, and will hardly endure a severe winter.

Let the cions to procure buds for inoculation, be taken only from the outside branches of healthy and fruitful trees. If early budding be attempted, it will be proper to cut off some spare shoot, (not fit for the purpose,) to try first whether the bark will yet readily part from the wood.

The season being right, and the cions at hand, having a sharp narrow bladed knife, and neat tough wet bafs, set about the work adroitly, for the quicker it is done the better; but "make no more haste than good speed." Keep the bud, as much as may be, from sun and wind: they must not be taken from the upper part of the cions, as the bark and buds there are too raw. If cions, or buds, be brought from any distance, they should be conveyed in damp (not wet) moss, or grass, and never kept above a day and night, but the sooner they are used the better.

Before the buds are prepared, get the flock ready to receive them, by taking off lateral shoots, leaving an uncut single stem. At the part fixed on for the inoculation, (which should be smooth, and rather on the north
north side) cut the bark through to the wood, in form thus, T, the cross and the down slit being of the length necessary to take in the bud, which may be cut with from one to two inches of bark; putting the point of a knife (or some instrument rather not of iron or steel) in to the top of the down cut of the flock, raise the bark all the way to the bottom, so that it will just receive the bud easily. There are knives made on purpose for budding with flat ivory hafts.

To procure proper buds, put your knife in (suppose) about three fourths of an inch above the eye, and with a slope downwards cut the cion half through, then do it at the same distance below the eye, and sloping it upwards cut up the middle of the wood, till the knife meets the upper incision, so the eye, or bud, will be directly in the middle.

The next step is, to separate the wood from the bark, which is to be done thus: with your nail, or the point of a knife, loosen the bark at the top, and strip it from the wood; or rather with a swan or large goose quill, made in the form of an apple scoop, (having a regular smooth edge) push it down between the bark and wood, pressing it against the wood.

Examine the inside of the bark, and if there is a cavity just behind the eye, or bud, it is good for nothing, and another must be procured; for the cavity shews, that the root of the bud is with the wood, instead of being with the bark.

The leaf that grows by the eye is to be cut down to near its footstalk, so as to leave only a little bit of it to hold the bud by while inserting it in the flock.

See that the bark of the flock is loosened a proper length and breadth, and if, when the bud is put in, it should prove a little too long, cut the spare part off; so that the top of the bud (being squared) falls in strict with the cross cut of the flock. Thus fixed, bind it moderately tight in its place with the wet bals, beginning at the bottom, and passing by the bud, go on to the
SECT. VII. OF GRAFFING. 93

the top, or rather above it. Care must be taken that the bud is not hurt, and it is to be left only just starting out between the bass: This is the mode of inoculation commonly used.

Some gardeners insist, that it is best to cut the bark of the stock thus \( \frac{1}{2} \), and so insert the bud by pushing it upward instead of downward, because by this method it shoots off wet effectually.

Others squaring the bud to an oblong, clap it to the place to be inoculated, and scoring the stock to its size, cut out the bark of the stock from within the lines, and having put the bud to the place, bind it in: but great exactness must in this way be observed, that the edges of the bark do regularly touch.

Another way, and perhaps as good as any, is this:— clap the bud to the stock, (the bud being first squared) and rather before it is separated from the wood, and score the bark on each side, and across the top; and instead of scoring the bark at the bottom, do it a quarter of an inch (or rather more) above the bottom ends of the side lines; then take off the bark between the lines, and place the bud, by pushing it down this piece of bark, (being first loosened) which will serve to hold it. Bind close, but not overtight. If in this method the bud fits exactly, it is a very sure and neat way of inoculating. As the scoring of the stock is best done before the barking of the bud, a little allowance must be made, as when the bud is separated from its wood, it will spread a trifle wider.

If the buds have taken, it will be seen in about three weeks, or a month, by their appearing fresh and plump. As often as any shoots appear below the budding, cut them off, and also some of the shoots above, if there are many of them; for it is not proper that an inoculated stock should have a large head. In a month loosen the bandage, by taking it off, and putting it on gently again, for another month.

In
In March, cut the head of the stock off with a keen knife, close behind the budding, in a sloping direction; some leave three or four inches of the stock above the bud till the following spring, and it will serve to tie the new shoot to, in order to keep it to a proper erect direction. Suffer no shoots from the stock, but rub the buds off as soon as they appear. It may be of use to shade inoculated buds a few days by a leaf, or a bit of paper.

* * * * * *

Persons designing to graft, are apt to neglect cutting their cions till they get too forward, therefore remember to be in time. To do the work well, there must be good tools, &c. and particularly a keen knife. Choose as good a day as can reasonably be expected, for bad weather occasions hurry and embarrassment; but defer not too long on account of the weather. In handling cions, take care of their eyes, that nothing bruises them, and particularly of the buds used for inoculation.

Some motion of the sap is proper at the time of all grafting, but a free motion is necessary for the mode of grafting in the bark, and as on the sunny side of the stock it moves freest, and is the best aspect as to weather, insertion of grafts, though not buds, if it can be avoided, should be always on a part of the stock inclining to the West. Remember to take off, or at least to loosen, the bandages on grafts, as soon as they have taken. Silver (as a fruit knife) is best to raise the bark with, or any thing is preferable to iron.

Though inoculation may seem the slowest mode of propagating fruit-trees, it proves eventually the quickest; and is the most certain way to produce free growing trees, with a well covered stock. The insertion of a bud
A bud has also the advantage of a cion, as a failure does not hurt the stock so much. Avoid this work in very hot, dry weather.

Many words have been necessarily employed in directing to the business of grafting, but let not that circumstance deter ingenuity from setting about the work; or a few failures prevent perseverance, which will at length be crowned with success, and the achievement be a pleasing reward. Make proper marks, or memorandums, to be assured hereafter of the sorts.

Lipping, mentioned page 88, is cutting the slope-face of the cion so as to leave a rib down the middle; and then cutting out a notch in the part of the stock that is to receive it.

Double-budding, mentioned page 90, is twice-budding, first the stock, and then the shoot when it is grown big enough, which is in two years.

SECTION VIII.

OF PLANTING.

As so much depends upon proper planting, every attention ought to be paid to it. This business may be arranged under these several heads. 1. The choice of plants. 2. The act of planting. 3. The soil. 4. The situation. 5. The season.
1. As to the choice of plants. Trees ought to be the best of the kind; and therefore no care in raising, or caution and expense in purchasing, should be spared, that at least there may be a fair prospect of satisfaction. To plant, and after waiting a long time, to be disappointed, is rather a serious misfortune; especially when the work is to be begun again late in life.

Having some confidence that the sort is right and good, the plants must be seen to, that they are healthy; they should appear sound as to any external injury. If they are of a squat, weak, bushy growth, there can be little expectation of their becoming good plants; though it may sometimes happen that a tree of poor promise will rally.

Trees grafted on old stunted stocks, or that have often been removed, or frequently cut down, seldom grow off well in any soil, and should be rejected. Let those that are purchased be seen to, as nurserymen often have such trees, having remained long on hand.

Good young trees have a smooth, bright, and strait appearance, rather of a robust growth than otherwise; though the most luxuriant are not to be preferred, for their wood is raw, and wants that firmness which is necessary to fruitfulness; they may get off this crude state in time, but the moderately free-growers are best.

Young fruit-trees are the best to plant; for though old ones may sometimes succeed with good management, yet they are liable to stunt, and dwindle off; whereas the former establish their roots quickly, and grow off apace; so that young trees planted at the same time with old ones, generally overtake them in a few years, and are superior.

To have moderate shooting trees for the wall, or espalier, choose such whose twigs are rather slender, provided they are healthy: they will not only be kept easier within compass, but in general prove more fruitful.
2. The act of planting. Trees taken up for planting should be dug carefully, with (as much as possible) their full roots. Many a good tree has failed merely by being taken up badly, and then planted so. The roots of fruit-trees are often not only mangled, and too few, but are also put into the ground without any dressing or care.

The left roots are exposed to the air the better, and the sooner trees are planted after being taken up, the more likely they are to succeed well. Trees properly packed (i.e. the roots well covered) may live out of ground ten days or a fortnight, in autumn, or early in the spring; but nothing except necessity will justify the keeping a tree out of ground a day longer than can be helped, for the fine roots dry off space.

If it be determined for any length of time before hand, when and where to plant, the opening the ground, and exposing the holes to the sun and air, (and if it may be to frost also) will both correct crudities in the soil, and enrich it from the various stores of the atmosphere; this opening should be as wide and deep as convenient, that the benefits of the air may be extended.

Some people do the work of planting very idly, as if it were sufficient to see that a tree has a root, and that it was only necessary to hide it in the ground. Every one who plants trees should stand by himself, or have some trusty person to see the work done, or the necessary labour may not be bestowed. It is frequently the way (for instance) to dig a hole n° bigger than will receive the roots of a tree twisted and forced in; but being thus cramped, and the vessels of their roots distorted and broke, it cannot be expected that such unnatural treatment should answer.

But the above violence is not all; the roots are confined as in a prison, (in a tub or a basin) which, if the soil is strong, detains wet, and chills and cankers, if not rots the fibres. To plant well, the roots of a tree should have liberty to strike out freely every way, and the
the ground well broke for their easy progress. Let the
hole for a tree be loosened about two feet deep, and as
wide as will be much more than sufficient to receive
the roots in their full spread as they grow, with little or
no direction given contrary to the original one.

When the tree is to be planted, take out the earth a
little lower than necessary for the roots, at the depth
the tree is designed to stand; then dig the bottom to the
full spade's depth. Trim any dead or damaged part of
the root clean off; thin it of the finer fibres where
withered, or matted thick, and the more, according to
the time the tree has been out of the ground, for the
fine, if dead, ought not to be on. Trees moved only
from one part of the garden to another, need have but
few fibres cut off, but some amputations are necessary
to help the sooner to new roots, which shortening al-
ways forces out. If the root has a tap, (or downright
spur) it should be cut to the general level of the other
roots, and never be left longer than a foot from the
highest part of the root. Those great roots that lay
awkward, or crossing, should be judiciously rectified
with a sharp knife; be cautious, however, of taking
off too much, for the head will produce stronger
branches in proportion to the goodness of the root.
Though it be little practiced, it may be very well to
apply some mixture, as of rosin and bees wax, to large
amputations: Cow dung may do.

The head of a tree should be somewhat conformed
to the root. Some reduction of the head may take
place at the time of planting; yet not all that may be
thought necessary should be taken off at first; but let
alone till the sap rises at spring, and then care should
be taken to proportion the head to the root; and not
leave on a tree too many buds, for a few stout branches
are preferable to many weak ones. This is the or-
dinary practice with respect to wall trees, and why
not of all others? See articles, Orchard and Pruning,
Sect. 3 and 12.
The hole being made as directed, form a little hillock in the middle of it to lay the roots on and round; clap the tree upon it, and having thrown on a little good and well-broke mould, give the tree a gentle shaking lift, which will let the earth in close among the roots, and bring the tree up towards its proper height; by not doing this, the roots are sometimes turned up at the ends, instead of laying rather downwards: Set the tree high enough to allow for a settling of the earth, in proportion to the depth it was loosened. Young trees, however, should have their roots nearly upon a level, and so must have their ends raised with the hand, if they are suspected to be too much depressed. The mould should be thrown on gently, a little at a time; and if some that is finer and richer than the rest be put about the roots, just to cover them, it would well answer the trouble, helping the tree to strike fresh roots, and grow off the fatter.

Trample the mould gently about the roots, beginning at the out-side of the hole, and so towards the stem. Finally, leave the ground a little hollow on the top, to receive rains or waterings.

As to depth, trees in a light dry soil may have the top of their roots settled at about five or six inches below the surface, and in a strong soil about three inches; or it may be a general rule to plant a tree no deeper than it was before: for trees planted too deep never do well. Always keep the roots of a tree above a heavy clay, for the making trenches in it will not answer, and an unhealthy tree may be looked for. See next article Soil. If the good soil is thin, the roots should be almost planted in light, raising the earth about them. Take care to protect the roots of all, but especially of high set trees, from frost the first winter, and drought the first summer. This covering of new planted trees about their roots from extremes of weather, may be either with good solid turf, litter with stones on it, or stones alone, which by their weight help to hold the tree fast.
Litter should be laid near a yard round, and five or six inches thick, to keep off severe weather. Where plenty of moss is to be had, it is a neat material to lay about roots to keep them from drought. If litter alone is laid about trees, (particularly against an old wall) mice are apt to harbour in it, and bark them: where such covering is used for winter, move it early in the spring, and supply the place with turf, which will be proper to continue all summer.

*Watering* is to take place if trees are planted *early* in autumn, which settles the mould about the roots, but let them not be sodden with it. *Late* in spring water will be safely and necessarily applied, and must be repeated also if dry weather; but yet with caution, for many new planted trees have been injured (if not killed) by keeping the roots wet. *Late* planted trees should be *occasionally* watered throughout the summer: those planted in winter need none, if the spring be not very dry.

In planting *wall trees*, (the budded part outwards) try in the hole which way they will best stand against the wall; and if they have a head designed to remain for training, place it carefully for the branches to be laid to; but keep the tree as *far* from the wall as may be, (suppose eight inches) that the roots may have the more room to strike behind: cut off, or shorten much, all roots whose *direction* is straight towards the wall. Nail the tree to it, that wind may not disturb the roots.

In planting *standards*, it will be proper to fix a *flake* near the stem to fallen the tree, in order to prevent the roots being disturbed by wind, which prevents their striking out new fibres; rocking about opens the ground also about the stem, and admits frost, by which a tree is sometimes loft, or succeeds badly. This flaking is best done while the holes are *open*, and the roots of the tree seen, as by driving a flake in afterwards, it might damage some principal root, and the hurting a root is to be avoided as much as bruising a branch.

Take
Take care to fix the stake firmly, and to tie the tree so with a hayband, that it may not easily get galled. Twist the band close round the tree first, and then round the stake and tree.

In late spring planting it will be found of good use to make a mixture (in a barrow) of 

*fresh cow dung and fine mould*, half and half, to put about the roots, which will greatly help to keep them cool, and plentifully to nourish them. In default of cow-dung, a *puddle* of fine sifted mould and water will do. Or, if the soil is light, mix half mud from a pond or ditch.

Circumstances may occur to make summer planting desirable, if it could be safely done. It is certain that roots quickly strike in summer, and if the head of the tree is a little reduced, and some shading contrived for a while, even *waln trees* may be then planted with cow dung. But the greatest point in this business is, that the tree be not out of the ground so long as to dry the roots; by some means they should be kept cool, and if dried, put into pond water a few hours before planting. Trees thus planted will not need watering for a long time, and must not have it, for over moisture might rot the delicate new fibres.

3. The *soil* for planting fruit trees should be good, or nothing pleasing can be expected: It should be sweet and nourishing; and therefore if not naturally so, it is to be improved by art and labour. Tillage or breaking up a soil, to expose it to the atmosphere, is of much benefit. See article *Soil*, in the *Formation of a Garden*. Sect. 3.

If nothing more can be done at the present, at least make the ground fairly good where the tree is to be set. Two or three barrows of *fresh* earth, if of a good quality, is far preferable to dung; but if the soil really needs manure, let it be well incorporated by the spade; and work some rotten dung in deep, below the roots, which will be properly confumed before the new roots reach it; much must not be used.
In the case of only making the soil good for the present, the first opportunity, (or at least before the roots spread far) should be taken to extend the benefit as far as may be, even to several yards round, and let this work be done deep enough, or as low as the part made good for first planting, i.e. two feet, or as near upon it as the case will allow. In a few years this attention should be extended (in bad soils) to where it may be thought possible for the roots to have reached. For want of this, a tree sometimes fails when just come to its full size and principal time for bearing. When roots reach a weak, ill-conditioned, poisonous soil, the tree must fail; and it should be remembered, that the extreme branches of the root are what chiefly nourish a plant, and not those about the stem.

Fruit trees (though they like a rather strong soil) will not prosper, or hardly grow, in a cold clay; but in a soil that is tolerable above, they may be planted, by improving, or raising this, as the case may require, and cautiously avoiding going into the clay. Some persons have laid flat stones, or tiles, below the root to a considerable distance, which perhaps may answer; but it seems advisable only to do it about a foot square, (or a little more) as this may give the roots a desirable horizontal direction. It has been recommended to do this in all kinds of soil, in order to insure a more superficial spread, than without such contrivance could be expected. If the soil be good, (at the same time strong) above any bad soil, and the roots take to run towards the surface, it is surprising how trees will thus prosper.

When planting takes place superficially, let a hillock of earth be laid round the roots, and the tree secured by a stake for two or three years to hold it steady; and keep turf or moss about the root till the tree is well established. The hill may be from six inches to half a yard high; in the latter case, lowering it a few inches every year in autumn till within six of the root.
In a foil that trees are found to canker in, and get otherwise diseased, it is of no use (generally speaking) to wait their getting better; but if there is any spot of a more promising quality, those that are not too old and far gone may be removed there, and perhaps recover; but let the root be examined, as well as the head, to cut out any diseased part. If the shoots should be weak the first year, prune down close the second, and strong wood may possibly follow.

With respect to the foil that suits every particular kind of tree, there is some variety of opinions. Generally speaking, a true loam suits every thing. See Formation of a Garden, Sect. 3.

The following particulars seem to have a pretty common consent. *Vines* love a rich dry foil, gravelly or sandy, if it does not bind. *Figs* like much the same foil, though they need not so rich a one: ashes are good in the foil for *figs*. *Apricots* flourish in a light loam; but *peaches* and *nectarines* should have a somewhat strong loam, and the latter needs the warmer or richer foil of the two. *Pears* like a strong but dry foil; *apples* a strong and a cool one, if it is not wet. *Cherries*, *plums*, *walnuts*, and *mulberries*, prefer a dry, sandy, gravelly, or light foil, though they will grow in a stronger; *plums* do very well in a moist foil, and produce the larger fruit in it, but the flavour is inferior. *Quinces* flourish most in a rich and moist foil, as by a brook or river's side, or where a rich wash from sinks, or dunghills, runs occasionally about their roots: in a dry foil their fruit is small, though higher flavoured: it is an universal rule, that fruits are forwarder and more grateful in dry foils, but of less size.

Though the *vine* be planted in a right foil, yet it will require to be fed and enlivened with some spiritous manure, either in autumn or spring. For this purpose water impregnated with *sheep's dung* and fresh urine has been used. The top foil being removed, *bullocks*, or which is best, *hogs blood*, is sometimes applied;
applied; or it may be let in by making holes with a smooth sharp-pointed flake, not too near the stem. A little sheep's dung, or that of poultry, dug in regularly every autumn, is a good, neat, standing rule.

4. The situation properest for planting any particular kind of tree is to be considered; for some like a low, some a high, some a moist, some a dry situation; but it is spoken here chiefly of fruit trees. Particularly observe that pears grafted on quince stocks, must have a moist soil, or they will not do well.

The general situation of a country will in a measure rule; for though England be but an island it has many climates in it, and certain plants will do better in one place than another, (even within the space of a few miles) as to effects from weather. The difference between hill and valley in the same place, is something, so that in the latter the tender blossoms of trees shall escape, when in the former, unkind winds shall cut them off:—not that valleys are always safe, for they have sometimes destructive blasts from mists.

Peas sown to stand the winter, in a garden on a hill, and in another only a hundred yards below, in a vale, the former exposed, and the latter well sheltered, will demonstrate what situation will do; for the peas below will live when the others are cut off, and perhaps come in a week earlier, when both survive the winter uninjured.

In very exposed places, especially northwards, little fruit can be expected from the more delicate wall trees; it is prudent therefore to avoid planting in cold places the tenderest, or the earliest, or the latest sorts. The difference of latitude between Middlesex and Northamptonshire makes commonly a fortnight in the coming in of many things; so that, generally speaking, what is called an October peach, is of little worth in the latter county, though in the former it may do well: Without plenty of walling for experiment, therefore, do not plant late fruit far northwards of London.

The
The farther north, however, is not a certain rule for the productions of the garden being proportionally later; for in some parts of Yorkshire they produce vegetables and fruits, nearly as early as about London. This has been ascribed to subterraneous heat from coal beds, or minerals, acting as natural hot-beds; but it may be attributed simply to a rich, warm, and deep soil, having gravel below it, especially when in a valley sheltered by winds on the cold side.

With regard to situation, we should consider the garden itself, and not plant choice fruits in a cold or shaded part of it: the aspect must be good for them as well as the soil. From an error of this sort, Vines have frequently been planted and pruned for years, producing nothing but wood and leaves.

Figs and vines, nectarines and peaches, (as natives of hot climates) should have a full sun here, or little fruit can be expected from them; and Apricots ought to have a good share of it, though they do very well (in some places) against an east wall, and perhaps against a west. An east aspect is not so safe as a south one, as to the embryo fruit at the time of blossoming, nor does it bring the apricots so forward; but the fruit is commonly better: it has the earliest sun all the morning, and the benefit of a gentle warmth afterwards, by the wall, (the sun shining hot on the other side) if the tree is nailed properly close. See Formation of a Garden, articles Situation and Aspect.

From what has been said on situation, the young gardener will be led to make some discrimination in planting, and not hope to succeed when working against nature. If his garden is small, let him contract his desires; and proceed upon sure grounds: but if large, experiments and risks are not of much consequence. Favourable and unfavourable seasons make a great difference; but hope should have a foundation, and we cannot expect a prosperous end, without the use of probable means.
5. The season for planting is a matter of consequence, though some persons are apt to neglect it, who should, and do, know better. The proper rule is, to plant as early in the season as can be; so that if the ground is ready, trees had best be put in when the leaves begin to fall, i.e. in October; yet some good planters have recommended even an earlier time than this; and scruple not to plant all the latter half of September, though the leaves be full on. Some trees will form fresh roots in the winter; and those which do not, yet get so united with the earth, and prepared for starting in the spring, that they are ready to answer a supply of juices much more freely than when late planted; and consequently the new shoots must be stronger. Let nothing but necessity put off planting in autumn, except indeed the foil be a cold one, and then the work done early in spring is proper.

The season for planting in a dry foil may be all winter for deciduous trees, i.e. those that lose their leaves; but all evergreens, (except the Scotch fir, which may be planted at any time) should be moved early in autumn, or late in spring, and rather the latter, as they are somewhat uncertain in taking kindly to the ground, especially if the weather is unfavourable at the time of planting. The oak and larch (though deciduous) are removed safest in the spring. In spring-planting give a sound watering at the time, and if late in the spring, repeat it once a week or ten days, in dry weather.

Let even the meanest trees and shrubs, as currants, gooseberries and raspberries, have the like attention paid to them as to their superiors; for their fruit will prove the finer, and the argument is cogent for an October planting of these, as they are expected to bear the next season. Let them be taken up, and planted with care; for the best way of doing every thing ought to be the rule of practice in all cases, and a gardener should follow it above all persons.
SECTION IX.

OF SHRUBS, SHRUBBERIES, &c.

We are indebted to shrubs for much of the pleasure we enjoy in our gardens and plantations, and they justly merit every care, though they produce us no (or few) edible fruits. They assist in forming an agreeable shade, they afford a great variety of flowers with leaves differently tinged, and are standard ornaments that give us no great trouble.

Of shrubs too little care (however) in general is taken to plant them properly, or even to choose good plants for the purpose; and hence they often fail to flourish, and are mortifying us with a dwindling growth, and unhealthy appearance, when they should have become objects of admiration.

Many shrubs are raised from suckers, others from layers, some from cuttings, and most may be propagated from seeds, which, though the slowest method, generally produces the finest plants. Before they are planted out for ornaments, they should be trained two or three years in a nursery, to be formed into a full and regular shaped head.

Though deciduous shrubs may be planted almost at any time, yet October is much the best month, especially if a moist season; the exception being made as to a cold wet soil, in which all sorts of planting (as observed before) is best done in spring.

Evergreen shrubs must be cautiously planted and should not be ventured upon in winter, and even in autumn.
autumn and spring ought not to be meddled with in harsh weather: drying winds are apt presently to injure their roots. It is a good rule, let the weather be what it will, and the sorts what they may, to expose the roots to the air no longer than can be helped; evergreens should therefore be immediately planted after they are taken up, and their roots also very carefully preserved whole. And if the shrubs are small, and it can be, let them be removed with balls of earth to them, trimming off projecting ends.

As shrubberies, clumps, &c. are often made on poor or indifferent ground, the soil should be previously cleared, well dug, and trenched, and that as long before planting as may be. For spring planting, this preparation work ought to be done in autumn or in winter, that the soil may have the benefit of frosts, and other helps from the atmosphere, which is a circumstance of much consequence in the case.

Tillage not only saves manure, but is superior to it, where time can be allowed exhausted ground. In planting shrubs and trees, it is desirable to do without dung, as much as possible; and therefore a little foot, or turf-asbes, &c. sprinkled over the ridges of trenched ground, is good; and if the trenches were turned over once a month, the advantage in success would be fully answerable to the trouble.

As spring is, on the whole, rather the fittest time for moving evergreen shrubs, and as the deciduous sorts do then also very well, shrubberies and clumps will properly enough be the work of March, a little earlier or later, according to the soil and season. Light sandy soils should always be planted in good time, and any fair weather that appears settled, should not be neglected: the beginning of April, however, is by some reckoned the best season for planting shrubs. A good medium way is to plant the deciduous sorts the beginning of March; and, leaving places for the evergreen kinds, plant them the end of March or the beginning of
of April. But it were still a better way (if the ground is in order) to plant deciduous shrubs in autumn, and the evergreen forts in spring.

If autumn be the season fixed for planting, it will be proper, before the frost comes in, to cover the roots of shrubs, and especially of evergreens, with litter, and indeed at spring it should be so; for neither frost nor drought should be suffered to affect new planted trees, or shrubs. Let the outside plants of a new shrubbery, towards the sun, be covered about the roots all summer: Turf will be neatest.

What has been said of the art (or method) of planting fruit trees, should be observed of shrubs. In dressing the roots of shrubs, shorten them moderately, prune the heads so as to form them handsomely. Settle the ground to the roots by watering, and leave a little hollow round about them for future watering, if the season should require it. Let the taller plants be tied to stakes, as the wind is apt to disturb them, and hinder their speedy rooting.

The proper disposition of shrubs, where there are many to be planted, should be considered in several particulars; for the beauty and prosperity of a plantation depends greatly upon it.

The distances must be according to the size they usually attain. Some grow off slow at first, but afterwards get large; but still these should be rather considered in a middling way, otherwise the ground will be a long time naked. Some sorts will require not more than a three feet distance, others four, five or six; but as they are small, when planted, and perhaps much of a size, the future height and spread are frequently not considered. See Sect. 19.

The situation, to accommodate them as well as may be, according to their tender or hardy nature, should be attended to; not to plant evergreen shrubs, or the more delicate deciduous sorts, on the outside towards the N. or N. E. and as there may be an irregularity in the
the ground, the lower parts and deeper soil will be more
suitable to some, and the higher and shallower may do
very well for others.

Tender shrubs should not only be sheltered for
protection, but be planted in a dry spot open to the sun:
Some things will live abroad in a dry and poor soil, that
would seldom survive a winter in a rich and moist one.
The more towering sorts must be placed behind,
and the less so before them, gradually declining to the
low growing ones, in a sort of theatrical order: This
is necessary in a shrubbery, and indeed all plantations,
but more so in the disposition of plants in clumps, keep-
ing the center high, and falling gradually towards
the edge. Thus the fronts, and naked parts of the higher
plants are hid by those before them, and the whole
appears to the eye a full scene of verdure.

The season of shrubs flowering and leafing is a
material point to provide for, by a proper distribution,
that there may be a sprinkling of decoration every
month, in every part. And in this business, an equally
dispersal mixture of the evergreen, and deciduous sorts,
is necessary to be observed. See Sect. 19.

As to the proportion of this mixture, it will depend
upon taste, and the opportunity of procuring the one
sort, or the other; but the circumstance may direct (in
a measure) whether the plantation of shrubs be about
the house, or at a distance from it. In the former case,
more evergreens should be made use of, as in light in
winter: generally speaking, perhaps, one evergreen,
and two deciduous shrubs, or one and three may form
an agreeable shrubbery at all times.

A regularity in planting shrubs is not necessary as to
lines, but is rather to be avoided, except just in the
front, where there should always be some low ones,
and a border for flowers, chiefly of the spring, as sum-
mer ones are apt to be drawn up weak, if the shrubbery
walks are not very wide. The flowers should be of
the lowest growth, and rather bulbous rooted. To-
wards the edge may be planted aconites, snow-drops, crocusses, primroses, violets, polyanthuses, hepaticas, wood anemones, daffodils, cowslips, &c. In open shrubberies an edging of strawberries is proper, and the haukboy preferable, on account of its superior show when in flower; but in these situations the wood strawberry is more commonly planted, as it will produce fruit with less sun and air than any other sort.

The management of a plantation of shrubs comes next to be considered. It should be kept clean, or much of its beauty is lost. Let it be frequently hoed and raked, to give it a fresh appearance, and prevent the growth of moss, which spreads apace from the ground up the stems of plants, and thus injures them much. The usual time for pruning and digging about shrubs is spring; but autumn (and early in it) is better, if the plants are well established in the ground, and especially when old and full of roots. The pruning should not be late, (October best) as some sorts are apt to lie down; these, however, might be left to spring, or only shortened in part: They should constantly be kept free from suckers and luxuriant wood. See pruning of shrubs. An autumn dressing is particularly to be recommended as lessening the work of spring, the hurry of which season sometimes occasions shrubberies to be neglected too long, and to be but partially attended to.

The suckers, or young plants, found in digging and dressing about shrubs, are often left carelessly on the ground, but if likely to be wanted, ought to have their roots buried as soon as possible: Why should they be suffered to wither, because they may recover?

For hedges about a plantation, (i. e. for the divisions of it) the laurel, yew, and holly, are the principal ever-greens; the former as a lofty and open fence, the second as close and moderate in height, and to be cut to any thing, the last as trainable by judicious pruning to an impregnable and beautiful fence. Deciduous divisions are best made with the small leaved elm, or the hop hornbeam,
hornbeam, as they are tonsile, and of a peculiar neat foliage to the very bottom. If a lofty hedge is wanted, the beech makes a good one.

Old walls and pales are somewhat unsightly, and if covered with plants are rendered agreeable. The evergreens to be recommended for hiding them, are the laurel, phillyrea, alaternus, pyracantha, yew, box, and laurustinus; but if the aspect of the wall be N. let them be planted late in spring. Ivy, box-thorn, and other climbing shrubs, answer the purpose: the white and yellow striped Ivy are beautiful. If a mere summer covering be desired, and the wall is high, hornbeam, (rather the hop) and witch elm, do very well when planted close: lilacs, or even black currants, also may do, and will soon come to a cover: But whatever is planted for the purpose, let it be kept regularly trimmed, and trained close as may be to the wall. The gable end of a building may be covered with a pear-tree, or a vine, for though the vine should not bear, it will answer its prime end, and looks well when in full leaf.

SECTION X.

OF FOREST TREES.

PLANTING of forest trees, in some extent or other, may be an object with some young gardeners; and those who have a taste this way, and ground to exercise it on, will amuse themselves in a very
very respectable manner by so doing. Let the work be set about with all speed and resolution; for every year lost to planting is to be lamented, both in a public and private view.

What if forest trees produce nothing for the table, or no immediate profit, they afford, in their raising, planting, and nursing, present entertainment of a very grateful kind: they may ever after be viewed as objects of satisfaction, and posterity will have reason to praise the work, and the planter.

Plantations of forest trees do very much ornament a country, and there are some grounds peculiarly situated to become objects of delight in this respect, which could not be better employed. A place without trees being desitute of one of the most useful materials for buildings, utensils, &c. is in truth to be lamented as unfurnished and forlorn. The demand for wood is perpetual, and the consumption is great; and therefore a provision for generations to come, by planting of forest trees, must afford the sincerest (because most disinterested) gratifications of pleasure to the mind.

Though every one has not ground to form plantations of any considerable extent, yet if it were only a single tree here and there, i.e. to do what little might be in this way, it would shew a worthy spirit, and make a man an honourable benefactor to society. Corners of fields might have little clumps conveniently planted, without much expence of fencing. A few trees might be planted in, or rather just without, hedge rows; but these should be chiefly oaks. It is a practice with some, to plant trees in hedges when first made; but they are commonly too small, and so the quick choaks them, and they never thrive.

But the planting of forest trees is profitable as well as pleasing and respectable; and a young planter may live to reap much reward from his labour, or he may leave a valuable inheritance to his children. "The plantation
plantation and care of timber is like buying the reversion of an estate—for a little money expended, we become heirs to great sums. In countries scarce of firing, and where poles and rails are wanted, underwood will pay the proprietor triple more value than the best fields of corn, and the oaks among it remain a great estate to succeeding generations. Poor land, that does not answer for corn, would be profitably cultivated in wood; but such ground should be sown, rather than planted. Wet places may be advantageously planted with the amphibious tribe, as willow, sallow, withy, eser, &c.

For those who may be disposed to plant forest trees, the following directions are offered:—The manual work proper to this business, may be gathered from what has been already said on planting fruit trees and shrubs; and though plantations of forest trees need not be so nicely attended to as fruit trees, yet the better the work is performed, the fairer is the prospect in growing good timber: a check by an error at first planting is a loss of time, and a damage done to trees which is sometimes never recovered. To give an instance:—the mould is often thrown on the roots of a forest tree in lumps, when if a little sifted earth were used, so as just to cover them with fine mould, the trouble would be amply repaid by the quick striking, and future strength of the tree.

Ground designed for planting should be prepared as long as it can beforehand, by the use of the plough or spade; and if some sort of previous cultivation, either in corn or vegetables, were adopted, the soil would be better fitted to receive the trees. At any rate, the places where the trees are to be set, should be previously dug somewhat deep, and cleared of rubbish, perennial weeds, twitch, &c. If wet, let it be properly drained, for none but aquatics can do well in a cold and very moist soil.
In open planting for timber, to make only the holes good where the trees are set, is sufficient, if the soil is not strong, (which generally speaking however it should be,) and in such plantations, the plough being used for corn, or some sort of crop to be carried off, the whole soil will be prepared for the trees' roots to spread. A plantation of this sort may be constantly under the plough, till the trees shade too much, and then it may be sown down for grass, which laying warm, and coming early, would be found useful. The opportunity given to improve a soil by this cultivation, would insure very fine timber.

But a plantation of trees being made, (as suppose of oaks) at due distances, and the ground ploughed for two or three years, while they got a little a-head, then it might be sown profitably, with nuts, keys and seeds for underwood, observing to thin the plants the second year, and again the third, till two or three feet asunder in poor ground, and to three or four feet distance if rich. In fourteen or fifteen years, (or much sooner for some purposes), the asb poles, &c. will be fine, and meet with a ready sale as useful stuff: Afterwards the underwood will be fit to cut, in a strong state, every eleven or twelve years. In the management of underwood, some have thinned the plants while young, to three feet asunder, and cut them down at three years, to about six inches, in order to form stools, which in about ten years are cut, having produced several stems from each. Some persons have cut seedling trees down at this age to three inches for timber, leaving only one strong shoot to grow from each stool; and thus finer trees, are frequently (or rather certainly) produced, than from seedlings not cut down.

The distances of the timber plants, may be from twenty-five to thirty-five feet, according to the soil, or opinion of the planter. If no view to underwood, the above open planting may be made close, by setting first the principals (which should be fine plants) and then filling
filling up with others that are worse, to within about eight or nine feet of one another. They will at this distance come to fair timber, or may be thinned at pleasure; and even among these, a small crop of underwood might be had which would shelter the timber plants, and help to draw them up straight.

As to little plantations, of thickets, coppices, clumps, and rows of trees, they are to be set close according to their nature, and the particular view the planter has, who will take care to consider the usual size they attain, and their mode of growth. An advantage at home for shade or shelter, and a more distant object of sight, will make a difference. For some immediate advantage, very close planting may take place, but good trees cannot be thus expected; yet if thinned in time, a strait tall stem is thus procured, which afterwards is of great advantage.

For little clumps, or groupes of forest trees, (as elms) there may be planted three or four in a spot, within five or six feet of one another; and thus be easily fenced: having the air freely all round, and a good soil, such clumps produce fine timber.

Single trees of every sort, grow off apace, and are more beautiful than when in the neighbourhood of others, and particularly firs, pines, larches, limes, walnuts and chestnuts: the edible fruited chestnut is only good for timber; but the horse is very ornamental, flourishing however only on high dry ground. As to rows of trees, whether single or double, when planted for a screen, they may be set about seven or eight feet asunder, upon an average, according to their nature, taking care to prune them occasionally, from too galling an interference.

Avenues are now seldom planted, but when they are, two good rows of elms, limes, chestnuts, &c. should be set at the width of the house, at full thirty feet distance in the rows: to thicken which, intermediate plants may be set; and also an inner row, to be removed when
when the principal trees are full grown. Avenues to prospects, should be fifty or sixty feet wide.

The best season for planting the deciduous kinds of forest trees, is the latter end of October, and evergreen forts, the latter end of March; though the soil, whether light and dry, or heavy and wet, should somewhat direct; evergreen trees being to be planted generally with safety, early in autumn, if the soil is warm; but in all cases trees should be planted in dry weather, that the mould may be loose to drop in, and lie close between the roots, which is a material thing: Trees planted in rain or mists, are injured by the moisture moulding the roots.

Forest trees for planting are generally preferred rather large, and being so, should not be taken up idly, but with as much of an uninjured spread of roots as possible: yet, free growing plants of about three or four feet high, promise in the end to make finer trees than those that are planted larger. Some say they are best at this size from the seed bed; and others, to have been once planted out, having had their tap roots then cut, and generally speaking, this is the case, as they have a more bushy and horizontal root.

In the act of planting, let every thing be done as directed for fruit trees; i.e. the hole dug wide and deep, the ground well broken, or rather sifted, to lay immediately about the roots, &c. Let the trees be made fast by stakes, and litter laid about their roots to keep out frost and drought. It is of much consequence to take care that the roots (especially of evergreen trees) do not get withered before planted. Evergreens do best in a dry, but deciduous forest trees (generally) in a moist soil, if it is not wet. Oaks in particular, though at first they may appear to do poorly, grow well in strong moist ground, and make the best timber.

Fencing is the last thing to be considered. If trees are planted where cattle go, their stems must be protected from barking and rubbing. The common way of
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of small posts and little rails is well known; but if large cattle are not fed where the trees are, good thorns fluck round them, and tied to them, is sufficient, and indeed this might do in almost all cases. There are various ways, ordinarily known, but whatever mode is used, let it be at first well executed, and afterwards repaired in time, as often as there is need. Something concerning the raising of forest trees will be found at page 78.

Whoever plants forest trees, should take care to dress them by proper pruning, and suffering no suckers to remain about their roots. Their tops should be kept equal, and not permitted to spread too much in heavy branches, but trained in a light and spiral way; always preserving the leading shoot, to encourage mounting, which is the perfection of a forest tree. The stems of all trees designed for timber, should be constantly and timely attended to, as it is necessary to rub off buds, or to cut off the side shoots, except here and there a small one, which may serve to detain the sap to the swelling of the trunk; but branches being left on of any strength, keep the tree from mounting, and draw it crooked, and such branches, if cut off when large, occasion knots, and sometimes a decay at the part.

Plantations, growing thick, should be thinned in time; but not too much at once, especially in hilly situations; for as those trees which remain, come suddenly to be exposed, (after having been brought up under the shelter of others,) suffer much; getting crooked, stunted, and bushy, instead of having their desirable erect form, without which they are not adapted for superior uses, or agreeable to the eye.

Ornamental trees, as the crab, black cherry, mountain ash, &c. may prove profitable, as well as agreeable, here and there one amongst forest trees, and should therefore not be omitted: The wood is good.

SECT.
SECTION XI.

OF RURAL AND EXTENSIVE GARDENING.

Rural and extensive gardening is naturally connected with a taste for planting forest trees; and an idea of the picturesque should ever accompany the work of planting. Merely for the sake of objects to gratify the eye, planting is very often pursued, and wherever trees can be introduced to improve a view from the house, or accustomed walks, there a man, having it in his power, as proprietor of the land, ought certainly to plant.

If to planting in clumps, coppices, groves, avenues, and woods, be added levelling of ground, improving of water courses, and pastures, making lawns, &c. the expense incurred would be honourable, and answered by pleasures of the sincerest kind! There are ways of spending money, that could be named, which are found mischievous in the extreme, and are therefore deservingly branded with disgrace; but he who distributes wealth into the hands of industry, working to useful purposes, and that deleterious end of making the country about him a garden, does it in wisdom.

Yet here some caution may be necessary. "Do nothing too much," is a wise maxim. Building, planting, and gardening, upon a large scale, have been sometimes attended with serious consequences, as when a man's fortune has not been equal to the undertaking.
It were desirable to be able to persuade to great things in this way; but prudence must guide.

Those who would do much in rural and extensive gardening, should not be forward to trust their own taste altogether, though they may be ingenious. In this business there is no making experiments, but all should be executed, as much as possible, upon certainty. There are professional men in this way, whose peculiar practice, and appropriate talents, will enable them to conceive improvements, and the best manner of executing them, which would scarcely be projected by any private person. There is a variety of works and decorations in extensive gardening which injudiciously introduced, might create a wasteful expense. This is an error that ought to be avoided, and most probably would be, by those who have been in the habit of studying nature, and the powers of art, as her subservient handmaid.

Artificial decorations are at this time much less made use of than formerly, and the grandeur of past times in the way of gardening would now be thought trifling and mean. Witness the Tartar trees, statues, vases, water works, figured parterres, &c. in that style of gardening, imitated from the Dutch, which has been long deemed a mere burlesque upon Nature, the grand characteristics of which are easy and simplicity.

The pleasure we seek in laying out gardens, is now justly founded upon the principles of concealed art, which appears like Nature; but still, whether ingenious contrivances and decorations, (altogether artificial,) should be so entirely laid aside as they are, may deserve to be considered. Gardens were formerly loaded with statues, and great improprieties were committed in placing them, as Neptune, in a grove, and Vulcan at a fountain, large figures in small gardens, and small in large, &c. but perhaps works of the statuary might still be introduced, and the meeting with Flora, Ceres, or Pomona, &c. well executed, and
in proper places, could hardly give offence. A terrace as a boundary, is now seldom formed, but in some situations, such an eminence however might in several respects be agreeable.

It would certainly be too much to attempt here particular directions for extensive gardening. The peculiar capabilities of any place must suggest what may be done, and much judgment is necessary to plan aright. It is presumed only to give a few hints to those private persons who would do something in this way, which they may consider as they please.

If trees are planted injudiciously, the error is a trifle; but if cut down so, the consequence is serious, and has often been sorely lamented; extirpation should therefore be well thought of before it is executed; especially trees about houses, for many dwellings have been thus too hastily exposed, and deprived of comfortable shelter and shade. And why should a taste have prevailed for so sudden a transition, as no sooner out of the house than to arrive in the open country, or why should an extensive garden be thrown as much as possible into a single view, when meeting with new objects in our walks is so agreeable?

Hilly spots that are in view of the house should be planted with firs, as pleasant noble looking trees, and very hardy. Beech does well on high ground, especially, if chalky. In low ground, not to mention alders and that tribe, the birch, and even the oak, should not be forgot, where the wet does not long stand.

About the house some shady walks ought always to be provided, by thick planting, if not of trees, yet of flowering shrubs, and evergreens, of which the laurel will be found the most useful. Here should be also a good portion of grass plat, or lawn, which so delights the eye when neatly kept, also borders of shewy flowers, which if backed by any kind of fence, it should be hid with evergreens, or at least with deciduous shrubs, that the scene may be as much as possible vivacious.
If there is good room, single trees of the fir kind, at due distances, are admirable ornaments about a house, and clumps of shrubs all of the same kind have a good effect.

Those who have much space of ground to decorate, do well to plant trees and shrubs of every kind, as enlarging the sources of amusement, and affording opportunities for observation; but if the allotment of ground for this purpose is contracted, then, of course, those only should be planted, which by their neat foliage, natural symmetry, and gay flowers, may be truly esteemed ornamental. They should be such as strike the eye of persons in general though they have nothing of singularity to engage the attention of the curious in plants. It too often happens, that good old sorts of trees, shrubs, and flowers, are excluded for new ones, but if the latter are not more elegant, and generally pleasing, the practice is surely not a wise one: in ornamental gardening, on a small scale, great care should be taken, in the choice of what is really pretty, that nothing dull or rambling be introduced.

In the most sheltered place, near the house, there should be an inclosure of a compact nature, as suppose of yew, dwarf elm, or hornbeam, (rather the former) open only to the South, as a necessary apartment to place things in from the greenhouse, or occasionally the hot-house, tender annuals, or any hardy curious potted plants, for a summer residence. Spruce firs answer very well for a screen, being kept clipt a little after Midsummer. For this purpose, or for hedges to separate, or divide, any spot of ground, the hop hornbeam is better than the common firt, which holds its dead leaves on all the winter, and makes a litter at spring. This business may also be easily effected by planting elder cuttings at a foot asunder, which will grow up quickly, being kept moist.

The walks should always be wide, some (in general) serpentine, and contrived as much as possible upon a level,
level, as walking up and down hills can hardly be called pleasure. That they may be extensive, they should skirt the grounds, and seldom go across them. In small pleasure grounds the edges of the walks should be regularly planted with flowers, and long ones occasionally so, or with the most dwarf shrubs; and neat sheltered compartments of flowers, (every now and then to be met with) have a pretty effect. If the walks are extended to distant plantations of forest trees, every opportunity should be taken, to introduce something of the herbaceous flowery kind, which will prove the more pleasing, as found in unexpected situations: The outer walk of pleasure grounds and plantations, should every now and then break into open views of the country, and to parts of the internal space, made pleasing, if not striking, by some work of art, or decoration of nature.

Water should only be introduced where it will run itself clear, or may be easily kept so, as also in full sight, and some fall of it should be contrived, (if possible,) for the sake of giving it motion and sound, because a lively scene of this element is always much more pleasant than a dead one. Every spring of water should be made the most of, and though fountains, &c. are out of fashion, something of this kind is agreeable enough. Near some pieces of water, as a cool retreat, it is desirable that there should be something of the summer-house kind, and why not the simple rustic arbour, embowered with the woodbine, the sweetbriar, the jasmine and the rose. Pole arbours are tied well together with bark or ozier twigs.

"Before the design of a rural and extensive garden be put in execution, it ought to be considered, or anticipated, what it will be in twenty or thirty years time; for it often happens, that a design which looks handsome when it is first planted, and in good proportion, becomes so small and ridiculous in process of time, that there is a necessity either to alter it, or destroy..."
destroy it entirely, and so plant it anew." This observation of Mr. Miller’s, justifies the advice given of employing the most skilful in planning and directing pleasure grounds. To proportion the breadth of walks, the size of carpets, casting and levelling of grounds, parterres, &c. The disposal of fountains, statues, vases, dials, and other decorations of magnificence to most advantage, requires a particular address, says Mr. Evelyn, or to speak more emphatically, a prophetic eye; and though the taste is not now what it was in Mr. Evelyn’s time, yet, perhaps, the only difference is that more skill is requisite.

What has been said of the difficulty of rural and extensive gardening, is meant only as advice to proceed with cautious steps. The work is truly of the most worthy nature, and a taste for it deserves to be cherished. Mr. Shenstone, in an ode on rural elegance, defends his favourite employment thus:

And oh! the transport, most ally’d to song,
In some fair villa’s peaceful bound,
To catch soft hints from Nature’s tongue,
And bid Arcadia bloom around:
Whether we fringe the sloping hill,
Or smoother below the verdant mead;
Whether we break the falling rill,
Or through meandering mazes lead:
Or in the horrid bramble’s room,
Bid careless groupes of roses bloom:
Or let some shelter’d lake serene
Reflect flow’rs, woods, and spires, and brighten all the scene;
O sweet disposal of the rural hour!
O beauties never known to cloy!
While worth and genius haunt the favour’d bow’r,
And every gentle breast partakes the joy!
While Charity at eve surveys the swain,
Enabled by these toils to cheer
A train of helpless infants dear,
Speed whistling home across the plain:
Sees vagrant Luxury, her hand-maid grown,
For half her graceless deeds atone,
And hails the bounteous work, and ranks it with her own.
Why brand these pleasures with the name
Of soft, unfocial toils, of indolence and shame?
Search but the garden, or the wood,
Let you admir’d carnation own,
Not all was meant for raiment or for food;
Not all for needful use alone;
There while the seeds of future blossoms dwell,
’Tis colour’d for the sight, perfum’d to please the smell.

Why knows the nightingale to sing?
Why flows the pine’s nectarious juice?
Why shines with paint the linnet’s wing?
For sustenance alone? for use?
For preservation? Every sphere
Shall bid fair Pleasure’s rightful claim appear,
And sure there seem of human kind,
Some born to shun the solemn strife;
Some for amuse’rve talks design’d,
To soothe the certain ills of life;
Grace its lone vales with many a budding rose,
New founts of bliss disclose,
Call forth refreshing shades, and decorate repose.

Mr. Shenstone succeeded admirably in laying out his
grounds, and producing a delightful scene about the
Leafwes. Several gentlemen have done great things
in picturesque gardening, without the assistance of pro-
feffional artists; but they have had a peculiar talent this
way, improved by study and observation. Thus Mr. 
Walpole makes an easy affair of it, and says, “the
poifferor, if he has any taste, is the best designer of his
own grounds.” And indeed, as they have come so
frequently under his own eye and contemplation, he
must, in a great measure, be competent to the work;
and at least, ought not to give up his judgment too im-
plicitly to general undertakers of rural gardening.
Ornamental gardening depends much on the form of the ground, and therefore to shape that is the first object. Some situations may not need it, and, perhaps, a little alteration may produce a happy effect in others; therefore great alterations should not be attempted without manifest advantages, as either levelling, or raising ground, is a heavier business than is commonly supposed, both as to time and expence.

Too much plane is to be guarded against, and when it abounds, the eye should be relieved, by clumps, or some other agreeable object. Hollows are not easily filled, and eminences, mostly are advantageous, in the formation of picturesque scenes, in which the general principle of ornamental gardening consists. This idea has been pressed so far, that it is contended, a gardener should be a studier of landscape paintings. But without an immediate view to pictures, no doubt, grounds may be laid out in a way sufficiently picturesque. That view may be very agreeable in Nature, which would not be so in a picture, and vice versa.

Pictureque gardening is effected by a number of means, which a true rural genius, and the study of examples only can produce. These examples may be pictures, but the better instructors will be scenes in Nature; and the proper grouping of trees, according to their mode of growth, shades of green, and appearance in autumn will effect a great deal.

To plant picturequey a knowledge of the characteristic differences of trees and shrubs, is evidently a principal qualification. Some trees spread their branches wide, others grow spiral, and some conical; some have a close foliage, others an open one, and some form regular, others irregular heads, the branches and leaves of which may grow erect, level, or pendent.

The mode of growth in trees, as quick or slow, the time of leafing, and shedding leaf, with the colour of the bark, are all circumstances of consideration in order
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to produce striking contrasts, and happy assemblages, in the way of ornamental gardening.

"To range the shrubs and small trees, so that they mutually set off the beauties, and conceal the blemishes, of each other; to aim at no effects which depend on a nicety for their success, and which the soil, the exposure, or the season of the day, may destroy; to attend more to the groups than to the individuals; and to consider the whole as a plantation, not as a collection of plants; are the best general rules which can be given concerning them.

"In considering the subjects of gardening, ground and wood first present themselves; water is the next; which, though not absolutely necessary to a beautiful composition, yet occurs so often, and is so capital a feature, that it is always regretted when wanting; and no large place can be supposed, a little spot can hardly be imagined, in which it may not be agreeable. It accommodates itself to every situation, is the most interesting object in a landscape, and the happiest circumstance in a retired recess; captivates the eye at a distance, invites approach, and is delightful when near: it refreshes an open exposure; it animates a shade, cheers the dreariness of a waste, and enriches the most crowded view. In form, in style, and in extent, it may be made equal to the greatest compositions, or adapted to the least: it may spread in a calm expanse to soothe the tranquillity of a peaceful scene; or hurrying along a devious course, add splendour to a gay, and extravagance to a romantic situation. So various are the characters which water can assume, that there is scarcely an idea in which it may not concur, or an impression which it cannot enforce."

On the works of art in gardening, the following passage is pertinent: — "Art was carried to excess, when ground, wood, and water, were reduced to mathematical figure, and similarity and order were pre-
ferred to freedom and variety. These mischiefs, however, were occasioned, not by the use, but the perversion of art; it excluded, instead of improving upon nature, and thereby destroyed the very end it was called in to promote. Architecture requires symmetry; the objects of nature's freedom; and the properties of the one cannot, with justice, be transferred to the other. But if, by the term art no more is meant than merely design, the dispute is at an end; choice, arrangement, composition, improvement, and preservation, are so many symptoms of art, which may occasionally appear in several parts of a garden, but ought to be displayed without reserve near the house: nothing there should seem neglected; it is a scene of the most cultivated nature: it ought to be enriched, it ought to be adorned; and design may be avowed in the plan, and expence in the execution. Even regularity is not excluded: a capital structure may extend its influence beyond its walls; but this power should be exercised only over its immediate appendages. Works of sculpture are not, like buildings, objects familiar in scenes of cultivated nature; but vales, statues, and termini, are usual appendages to a considerable edifice: as such, they may attend the mansion, and trespass a little upon the garden, provided they are not carried so far into it as to lose their connection with the structure."
SECT. XII.

OF PRUNING.

SECTION XII.

OF PRUNING.

1. OF WALL TREES.

Of this "master work of gardening," it has been said, "that gentlemen prune too little, and gardeners too much;" these extremes are to be avoided, as attended with peculiar evils, equally mischievous: Wall-trees are presently spoiled by either practice. If they are too full of wood, the shoots and fruits cannot be properly ripened, and if they are too thin, the consequence of the cutting that has made them so, is the production of wood, rather than fruit, forcing out shoots, where otherwise blossoms' buds would have been formed. The designation of trees to a wall necessarily occasions cutting, and on the skilful use of the knife much depends; but let not the ingenious young gardener be discouraged at the appearance of difficulty: a little study, practice, and perseverance will clear the way, and if he does not become a complete pruner at once, he will in a reasonable time, and the work will prove one of the pleasantest amusements of a garden, not attended with fatigue.

Every one who has wall-trees cannot keep a professed gardener, nor is every one who calls himself so, qualified to prune properly. It is a great mortification to a man, who wishes to see his trees in order, not to see
be able to get an operator to attend them; let him resolve to learn the art himself; and the ability will be very gratifying to him.

Proud of his well-spread walls, he views his trees
That meet (no barren interval between,)
With pleasure more than ev'n their fruits afford,
Which, save himself who trains them, none can feel.

Cowper.

As many words must be used on this article pruning, for the sake of a little order, and the appearing less tedious, the business of managing wall-trees may be thus divided: — 1. Concerning the form. 2. The health. 3. The fruitfulness of them. A tree may be kept in good form, but be neither healthy nor fruitful, and may be both in good form and health, yet not fruitful; but if it is fruitful, it must possess both the former qualifications.

1. As to the FORM, or general appearances of the wall-trees. If a tree is young and newly planted, the first thing is to head it down, by cutting off (if it is a nectarine, peach, or apricot) all the shoots, and the stem itself, down to a few eyes, that the lower part of the wall may be furnished with new and strong wood. Make the cut sloping, and behind the tree, taking care (by placing the foot on the root, and the left hand on the stem) not to disturb the tree by the pull of the knife. Plaster the part with a bit of cow-dung, clay, or stiff earth.

The heading down is to be made so as to leave two or three eyes, or four, if a high wall, on each side of the stem, from which shoots will come properly placed for training. The number of eyes may be also according to the strength of the tree, and its roots. If there are not two well placed eyes on each side of the stem, two shoots, thus situated, may be left cutting them short to
two or three eyes each. Eyes or shoots behind, or before, consider as of no use, and let them be early dis-
placed by rubbing, or cutting. This work is to be performed in spring, when the tree is putting forth
shoots; i. e. about the beginning of April.

If towards the end of May, there should be wanting
shoots on either side the tree, having, perhaps, only one
put forth where two were expected, that one shoot
should be cut, or pinched down, to two or three eyes;
and before summer is over there will be found good
shoots from them, and thus a proper head be obtained.
This work of shortening shoots of the year may be done
any time before Midsummer; but in this case, all ill-
placed, or superfluous growths, must be rubbed off as
soon as seen, that those to be reserved may be the
stronger, receiving more nourishment.

As the lateral shoots grow, let them be timely nailed
to the wall, close, strait, and equi-distant; but use no
force while they are tender. If they are quite well
placed, they will need no bending; but sometimes shoots
must be laid in which are not perfectly so. Lay in as
many good moderate sized shoots as may be throughout
the summer, for choice at winter pruning, yet do not
crowd the tree. As the shoots proceed in length, nail
them to the wall, that no material dangling of them be
seen; but avoid using too many shreds.

In the formation of a tree, keep each side as nearly as
can be equal in wood, and the shoots inclining down-
wards, which is a mode of training necessary to fill the
lower part of the wall, (none of which should be loft)
and to check the too free motion of the sap, which wall
trees are liable to from their warm situation, and con-
tinual cutting. All the branches should have an
horizontal tendency, though the upper cannot have it so
much as the lower ones. Those that are perpendicular,
or nearly so, mount the wall too fast, and run away with
the food that should pass to the horizontals, which being
impoveryished by the vigorous middle branches, gradually
become
become too weak to extend themselves, and nourish the fruit. The pruner, therefore, must be content to have some of the wall, over the middle of the tree, unoccupied; or, at least, suffer none but weak, or very moderate shoots, to find a place there.

The idea of a well-formed tree is somewhat represented by the ribs of a spread fan, or the fingers of the hand extended. Regularity is allowed to be so necessary to the beauty of a wall tree, that some have even drawn lines for a guide to train by; but Nature, (ever free and easy) will not submit to so much formality, and such a perfect disposition of the branches are not necessary. A tree may be regular, without being linear, and the proper useful shoots are not to be sacrificed to a fanciful precision. Though crossing of branches is against rule, yet cases may happen (as in want of wood or fruit) where even this awkwardness may be permitted. The object is fruit, and to obtain this end, form must sometimes give place. "Barrenness being the greatest defect, crossing must not be scrupled, when barrenness cannot otherwise be avoided." A tree may be in fair symmetry, and yet badly pruned; and thus some ignorantly, and others cunningly, put trees in order without a proper selection of branches, so that the best shall be cut out, and the worst left, merely because the latter suits the form better, and gives a favourable appearance to the work as regular.

All fore-right and back shoots, and other useless wood, should be displaced in time, for they exhaust the strength of the tree to no purpose, and occasion a rude appearance. It is a very expeditious method to displace superfluous young shoots, by pushing, or breaking them off; but when they get woody, it is apt to tear the bark, and, in this case, the knife must be used: the better way is to dis-bud by rubbing; yet a young luxuriant tree should be suffered to grow a little wild to spend the sap. There is one evil, however, attending on dis-budding, and rubbing off young fore-rights,
rights, that some fruit spurs are thus lost; for apricots
are apt to bear on little short shoots, of from half an
inch to an inch, (or more) and there are peaches which
do the same; so that it is a rule with some pruners to
wait to distinguish spurs from shoots, and then to use the
knife; yet use it as little as may be in summer.

In regulating a tree, at any time, begin at the bottom
and middle, and work the way orderly upward and
outward. Never shorten in summer, (which would pro-
duce fresh shoots) except a forward shoot where wood
may be wanting; but where the tree is really too thick,
cut clean out what may be spared. None of the shoots
produced after Midsummer should be nailed in, except
where wood is wanting to fill a naked place: They
never bear fruit.

The proper use of nails and shreds is necessary to the
beauty of the tree, as well as a regular disposition of
the branches; and in this business ingenuity will evi-
dence itself in neatness.

Nails that are weak and small can hardly be used,
for they must be of sufficient strength to hold fast; but
large nails do not look well, and hurt the wall more
than smaller. There is, however, a fort made on pur-
pose for this work, with flat heads, and robust shanks,
called garden nails, and these are generally to be used;
there is yet a smaller fort, with flat heads, that, in many
cases, might do, and they have somewhat the advantage
in neatness. In default of these there are lath nails, of
two or three sizes, that may be brought into use. It is
proper to have two sizes, the larger for strong and the
smaller for weak shoots: trees trained to wood can
hardly have nails too small.

Shreds should be adapted to the strength of the
branches, and the distance of the buds from each other;
so that with strong shoots, having their buds wide,
such broad shreds may be used, that would make weak
shoots unsightly, and spoil them by covering the buds;
many a well cut tree has been made disgusting.
merely by irregular and dangling shreds. An uniformity of colour can hardly be accomplished, but a regularity of size may; scarlet, if all alike, looks best; and white the worst. The general width of shreds should be from half an inch to three quarters, and the length two inches to three, having some wider, longer, and stronger, for large branches. In the disposition of shreds, some must have their ends turned downwards, and some upwards, as best suits, for bringing the shoots to their proper place, and strict direction. Though some pruners observe a sort of alternate order, yet the ends hanging chiefly down, will look best. Use no more shreds and nails than necessary to make good work, as the effect is both rude and injurious.

The hammer used in nailing branches should be neat and light, with a perfectly smooth and level face, about two thirds of an inch diameter, having a claw for drawing nails. As nails are apt to break out pieces of the wall in drawing, it is a good way to give the nail a tap to drive it a little, which loosening it from its rust, makes it come out easier, and so saves a wall from large holes, which is a material thing.

Trellises have been recommended to be placed against walls, as a means of keeping a wall found, and giving the fruit more room to swell. In the training of fruit trees that do not require the greatest degree of sun, and in situations where the loss of a little heat is not material, this method of training trees is a good one. But, perhaps, there are not many situations in England, (common as it is on the continent) where this mode of culture can be adopted, as all the sun we meet with here, is generally but barely sufficient for peaches, nectarines, grapes, and figs. Apricots, however, may do, and when trained upon a trellis, in a southern aspect, grow finer, and are less mealy than directly against a wall. A durable, neat, and almost invisible trellis might be made of wine.

**Trellises**
Trellises should be made of seasoned deal, and squared to slips of three-fourths of an inch, or a trifle wider, and fixed close to the wall, so as to form upright oblongs of twelve inches by six. In this way of training, the shreds ought to be finer, and the nails much smaller; but the branches may be tied with baps, &c. if the trellis is set a little from the wall, as suppose an inch.

It may be observed, that tying saves the expense of nails and shreds, close set buds are never covered, and damage from the hammer is avoided. By trellising, a tree will be cleaner and less infested with vermin, which breed in the holes made by nailing. In this mode of training, the fruit swells freely, grows larger, and is of more equal flavour; so that it deserves trial where it is likely to succeed by fine situations.

Let the young gardener be advised resolutely to observe the pruning laws, and keep all in perpetual order, for his trees will run presently to confusion and ruin, if inattention and neglect take place.

2. The HEALTH of wall trees is greatly provided for, by observing the directions already given, concerning their form; for if observed, each shoot will have the proper benefit of sun and air, to concoct its juices and prepare it for fruiting.

It injures a tender shoot when it presses hard against a nail. If the hammer strikes a shoot, and bruises the bark, it often spoils if not kills it, by the part cankering. The shreds may be too tight, so that the shoot cannot properly swell; and if shreds are too broad, and too numerous, they are apt to occasion sickness, and prove a harbour for insects and filth: Let the number be lessened at all opportunities. A slip of the knife may wound a neighbouring branch, and make it gum, canker, or die. It will require care, and some practice, to avoid this accident; and in order to it, keep the point of the knife sharp, and mind the position of it when cutting.
cutting. Cut close and flogging behind the eye; neither so near as to injure it, nor so wide as to leave a stub.

Digging deep with a spade about borders sometimes injures the roots, and keeps them too low in the ground, when they should be encouraged to run higher; and as nothing but well-consumed dung, or other manure that drops freely, should be used about fruit trees, it is a good way to dig, or stir the ground carefully with an asparagus fork. Wounds and bruises hurt roots, as much as branches, and though cutting small roots afunder by a spade, does good rather than harm, yet large ones are often much injured by this instrument.

The extremities of a tree will not be in vigour without a strict attention to the middle, that it have no strong wood, growing erectly; this was before directed, and must be observed. When the sides of a tree are well extended, and full of healthy wood, then some shoots of moderate substance may be trained up the middle.

The bending of a branch much is a violence to be avoided; so that every shoot should be kept from the first in the direction it is to grow.

Luxuriant wood must be particularly attended to, to get rid of it in time, before it has robbed the weaker branches too much. That is luxuriant wood, which, according to the general habit of the tree, is much larger than the rest; for a shoot that is deemed luxuriant in one tree, may not be so in another. If strong wood, that is not very luxuriant, happens to be at the bottom of the tree, so that it can be trained quite horizontally, it may often be used to good purpose, as this position checks the sap. A luxuriant shoot may be kept in summer where it is not designed to retain it, merely to cut it down at winter pruning to two or three eyes, for getting wood where wanted the next year; or this shortening may take place in June, to have new shoots the present year. Luxuriant shoots may be sometimes retained for a time, merely as waste pipes.
More concerning luxuriant wood will be found in what follows.

All diseased, damaged, very weak, or worn out branches (as they occur) should be cut out, to make way for better; but if a tree is generally diseased, some caution must be used not to cut out too much at once, if there is any hope of restoring it. A very old tree, or a young one, that does not thrive, may be cut a great deal; but prune it so as to have a general sprinkling of the best of the branches, and keep short lengths of an eye or two, of the weaker ones, in a sort of alternate order.

Young trees are very apt to decline, and sometimes die, if suffered to overbear themselves the first year or two of fruiting: The remedy is obvious, and should resolutely be applied.

A weak tree is helped much by training it more erectly than usual, as less check is thus given to the sap, and so the shoots are more likely to swell: such a tree should be kept thin of branches, and always pruned early in autumn, keeping the top free from such wood as is stronger than that which is in general below, and all the shoots shorter than usual.

Old decaying trees should be lessened a little every year, and constantly watched, to observe where young and strong shoots are putting out below, in order to cut down to them; and though the time for doing this is commonly at autumn or winter pruning, yet it may be best done in summer, as the shoots would thrive the better; observing to put some grafting clay, or cow dung, to the part, to prevent gumming, which summer pruning is apt to occasion. A judicious pruner may bring the oldest, and most ill-conditioned tree, to a healthy and bearing state, if all is but right at the root, it having a good soil about it.

Keep all wall trees clean, and particularly weak ones, from mofs, cobwebs, or other filth; and attend to insects, snails, caterpillars, and other flies. Any bark that
that is decayed by cracks, &c. must be cleared away to the quick, either by rubbing, or the knife, as filth and insects are apt particularly to gather there; wipe the part clean, with sponge and soap.

Consider the soil about an unthrifty tree, and if it is thought bad, improve it by moving away as much of the old as conveniently can be done. The roots may be laid carefully quite bare, and examined, in order to cut off decayed or cankered parts, and to apply immediately to them some fine and good fresh earth, with a little thorough rotten dung in it, and a sprinkling of foot, or wood ashes.

Hog dung, applied fresh, is said to have a peculiar efficacy in recovering weak trees; and cow dung may reasonably be expected to do good, if the soil is a warm, or hungry one, and if not so, the hog dung is not so proper, as it is a cold dressing. If the soil is a strong one, a compost of fowls, or sheep's dung, time, with any fresh light earth, one part of each of the former, and three of the latter, mixed with the soil that is taken off, will be a proper manure; to which a little sharp sand may be added. An animal dressing, as of entrails, or any carrion, or bullock's or hog's blood, applied to the roots, has been frequently found effectual to make fruitful, and to recover decaying trees, and in particular vines. All these applications should be made late in autumn, or early in spring.

The constitution of a tree is sometimes naturally barren; or the soil that the roots have got into may be so nought and deleterious, that no pains, or perseverance, will avail any thing; but continuing fruitless and sickly, admonishes the owner to take it up, and try another plant, rectifying the soil thoroughly, if the evil is thought to arise there. The mother fly does sometimes repeatedly attack the same tree, which is a sign of inherent weakness, for the juices of a sickly tree are sweeter than those of a found one, and so more liable to such attacks. Sometimes a tree of this kind, when removed
removed to a good soil, and pruned greatly down, does very well. A foil too rich of dung often occasions trees to be blighted, and the remedy is to impoverish it with a sharp sand.

In order to health and strength, a tree must not be kept too full during summer, as it prevents the proper ripening of the wood, and makes the shoots long jointed. If more than one shoot proceed from the same eye, reserve only the strongest and best situated. A crowded tree cannot be healthy, and it becomes both lodging and food for insects. The blossom buds of a tree being always formed the year before, they will be few and weak in a thicket of leaves, as debarred of the necessary sun and air: But in order to avoid an over-fulness, do not make any great amputations in summer, left the tree should gum.

In clearing a tree of superabundant wood, take care not to cut off the leading shoot of a branch. All shoots after Midsummer should be displaced as they arise, except where wanted to fill up a vacancy. In a too vigorous tree, the Midsummer shoots may be left for a while on those branches that are to be cut out at winter pruning, as cutting such trees in summer is to be avoided as much as possible; so that a little rudeness in a luxuriant tree may be permitted as a necessary evil, provided it becomes not too shady, or unsightly. Watering wall trees with an engine smartly on a summer's evening, is conducive to their health, and frees them from insects.

The subject of blights is too difficult, and uncertain, to be entered upon here, though it may seem a proper place for it.

3. The FRUITFULNESS of wall trees, (the ultimate object of planting and training them) comes now to be spoken of. Their proper form and health being good, the foundation is laid, but several things are yet to be done to obtain the end proposed, and this chiefly
chiefly regards the principal cutting, or what is called winter pruning.

If trees have been planted far enough asunder, it is a happy circumstance, as the proper horizontal form, and the open middle, may be preserved. The longer the horizontals are, the more necessary it is to be careful to suffer none but weak branches in the center uprightly. If trees are confined as to length of wall, they of course take a more erect form, but still strong wood should not mount just in the middle.

If the trees have been properly attended to during summer, there will be now (at their principal, or winter pruning) the leaves to do; and the leading objects are, to thin and to furnish them, or, in other words, to take out what is to spare, and to cut what is left, so as to fill the tree properly again by succeeding shoots.

A tree is to be thinned of damaged, unpromising, and ill-placed shoots, and of woody branches that are decaying, or reach far without fruitful shoots on them, and always some of the old wood should be cut out, where there is young to follow, or supply its place. Of the fair and well placed shoots also, the superabundance is to be taken away, so as generally to leave the good ones at four, five, or six inches asunder, according to the size of the wood and fruit.

Luxuriant wood, i.e. those shoots that are gigantic, must be taken out from the rest, as they would impoverish the good, and destroy the weak branches, and are never fruitful; but if a tree is generally luxuriant, it must be borne with, and the leaves it is cut, comparatively speaking, the better. Such a tree, after a few years, may come to bear well; and when it begins to shoot moderately, some of the biggest wood may be taken out each year, or shortened down to two or three eyes, and so brought into order. The more horizontally free shooting trees are trained the better, as the bending of the shoots checks the sap. A strong shoot or two,
two, of a very luxuriant tree, may be trained perpendicular for a time, to keep the horizontals the more moderate.

As the pruner is to begin below, and towards the stem, so the object in thinning must be, to prefer and to leave those shoots that are placed lowest on the branches, that so the tree may be furnished towards the center. See that those left are found, and not too weak, or over strong, for the moderate shoots generally bear best. Weak shoots are always more fruitful than strong ones; and if they are furnished with fair blossoms, should be kept where a tree is full of wood, and even preferred to moderate ones, on a very flourishing tree.

In this thinning business, the young pruner must be content to go on deliberately, that he may consider well before the knife is applied. To make a proper choice is the great point. After hesitating, to be sometimes at a loss, must not discourage a learner, for good pruners often are, and no two adepts would choose just the same shoots for reserve.

The next object is to furnish a tree. In order to this, the thinning of old wood, young being ready (or easily to be procured) to follow, has already been mentioned; but the principal step is the shortening of the shoots, which occasions them to throw out below the cut, for future use. If they were not to be shortened, the tree would presently extend a great way, bearing chiefly at the extremities, and all over the middle it would be very thin of fruit, and thus a great part of the wall lost; which not to suffer, is the art of a pruner that shows he has indeed skill.

The mode of bearing in peaches, nectarines, and apricots, is on the last year's wood, which makes it necessary to shorten, in order to a certain supply of shoots for bearing the next year; and thus to have succession wood in every part of the tree.

The rule for shortening is this: Consider the strength of the tree, and the more vigorous the shoots are, cut off
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off the leaves. If a luxuriant tree were to have its shoots much shortened, it would throw out nothing but wood; and if a weak tree were not pretty much cut, it would not have strength to bear. From vigorous shoots one-fourth may be cut off; from middling ones, one-third; and from weak ones one half.

In shortening, make the cut at a leading shoot bud, which is known by having a blossom bud on the side of it, or, which is better, one on each side. Blossom buds are rounder and fuller than leaf buds, and are discernible even at the fall of the leaf, and plainly seen early in the spring. It is desirable to make the cut at twin blossoms, yet as this cannot always be done, the due proportion of length must generally determine. It often happens, that the blossom buds are chiefly, and sometimes all, at the end of the shoot; but still it should be shortened, if it is at all long. Never cut where there is only a blossom bud, and prefer those shoots that are shortest jointed, and have the blossoms most in the middle. The shoots that lie well, and are fruitful, or healthy, and but a few inches long, may be left whole. Always contrive to have a good leader at the end of every principal branch.

Young trees (as of the first year of branching) should have the lower shoots left longer in proportion, and the upper shorter, in order to form the tree better to the filling of the wall: the lower shoots may have three or four eyes more than the upper.

In furnishing a tree, consider where it wants wood, and cut the nearest unbearing branch (or if necessary, a bearing one), down to one, two, or more eyes, according to the number of shoots desired, for in such close shortening, a shoot will come from each eye. With a view to wood for filling up a naked place, a shoot formed after midsummer may be thus shortened; though the general rule is, to displace all such late shoots as useless; the dependence for blossoms being on the early formed shoots.

The
The *time* for the principal, or *winter* pruning, is by some gardeners held indifferent, if the weather is mild at the time; but a moderate winter’s day is often quickly followed by a severe frost, which may hurt the eye and blossoms next the cut. The best time is at the fall of the leaf, and should take place as soon as the leaves begin to fall. *November* is, generally speaking, a good time, and if this month is past, then *February*, if it is mild, or as soon after as possible, for when the blossoms buds get swelled, they are apt to be knocked off by a little touch, or jar of the hammer.

An *autumn* pruning will make the tree stronger, and the blossoms come bolder and forwarder; and if trees are then cut, as it lessens the work of *spring* much, this alone is a good argument for it. This practice gives also a better opportunity to crop the borders (moderately) with cauliflowers, lettuces, radishes, &c. to stand the winter. Pruners in general, however, like a *spring* cutting, because they then see the blossoms plainly, and thus more readily make their election of shoots. Yet if the first fine weather and leisure were embraced in *autumn*, it were certainly better; and surely it must give satisfaction to see the trees in order all the winter.

But though an *autumn* pruning is to be earnestly recommended, it were best to leave young trees, for a year or two, after heading down till *spring*; and luxuriant trees ought certainly to be so left, not only to check the strength of the coming shoots, but to see better where their blossoms are, that no fruit be lost, as when in this late they bear but idly.

In an *autumn* pruning, *apricots* should be cut last; but if *spring* be the time, the rule is to begin with *apricots*, then *peaches*, and then *nectarines*. *Apricots* should not be so much shortened as peaches, nor do they so well endure the knife. Shoots of the *apricot*, if under a foot, may be left uncut, if there is room. The *spurs* of *apricots* should be spared, if not too long, or nume-
numerous, for they bear well, and continue for years. Some sorts of peaches are also apt to put out fruit spurs, and must be managed accordingly.

If much alteration is to be made in a wall tree, it will be necessary to un-nail a great part, if not the whole tree, or a side of it, at least. When a tree has filled its space, something of this sort must be done, and the worst, oldest, largest, and most unprofitable wood taken out. If good fruitful wood be cut away to reduce the tree, then that is to be reserved which will lay in straighest and in the best form, branching out the nearest towards the stem.

Thus having finished the directions for pruning apricots, peaches, and nectarines, a few short observations may be made, and something said concerning the management of those wall trees, in order to obtain good fruit.

After trees have been pruned, it will be proper to look them over, to see what can be amended, as they will hardly be done perfectly at first; this business may be let alone till blossoming time, and then some judicious alterations may perhaps be made, (with care) as taking out some weak, or other shoots, that prove barren, and may be spared, or cutting some down to the knit-fruit, both to benefit that, and make room for the new wood: April will be the time for this.

The pruner's business is not simply in providing a present, or a next year's crop of fruit, but to manage his trees so as to lay a foundation for years to come: He is to anticipate consequences, and provide for the future.

Particular as the directions here given for pruning have been, they cannot have comprehended every possible case, but good sense and experience will readily supply what may be wanting, if the instructions afforded are understood.

Those who hire a workman to perform their pruning, should have three summer operations besides the winter; i.e.
To preserve blossoms from inclement weather, is a thing some persons are curious in, though on the whole they may be (as they generally are) left to take their chance. After expense and trouble, this business is often done to no purpose, or a bad one. The covers sometimes knock off the tender blossoms, and if the work is done irregularly, as perhaps covered too close for a time, and then left uncovered, they are sooner cut off.

Many contrivances for shelters have been used. The old way of sticking cuttings of yew, or other evergreens, or fern, (which is best when dry) is as little trouble as any; but they should be fixed carefully, so as not to slip, or be moved by wind, and not so thick as to shade overmuch. A flight covering is of service, and rather to be recommended than a thick one.

Nothing more than an old net has been used successfully by some gardeners for the purpose.

A coping projecting from six inches to a foot, according to the height of the wall, is serviceable, as keeping off heavy rains, and also frosts, whose action is perpendicular: This coping, when it is of thatch, though not so tightly, is best: But perpetual covers, if wide, do harm by keeping off dew and gentle rains.

The best covering for the protection of blossoms is, perhaps, that which Mr. Miller recommends, "made with two leaves of flit-deal, joined over each other, and painted, fixed upon the top of the wall with pulleys, to draw up and down at pleasure, forming a sort of penthouse."

Iced or straw hurdles have been used to place before the trees in severe weather; and if only set at right angles
angles against the wall, towards the east, when the wind is strong from that quarter, they do good: a long tree might have one set up against the middle of it, as well as at the east end. Hurdles, covered with a mat, or cloth over them, do very well; and if too short to reach the top of the wall, they may be set upon forked stakes falt in the ground.

Poles fixed in the ground to the height of the wall, at small distances, and six inches from it, might be covered with mats.

Whatever covering is used, it should be left no longer on than necessary, and it should be well secured from flipping or rubbing against the tree by wind. It should not be used till the blossoms get a little forward, nor continued longer than while the fruit is well set, being regularly put up at night, and taken off in the day, except in very bad weather: Trees covered too long get sickly.

The thinning of fruit, when too thick upon the tree, is a matter that must be attended to, for it will eventually prove loss, and not gain, to leave too many for ripening. It weakens the tree, prevents the knitting of so many, or so strong blossoms for the next year as are desirable, and hinders the fruit from coming to its size and flavour. Do this work when the fruit is about the size of a horse-bean.

The rule for thinning should be, to leave no two fruits so close as to swell one against another; except indeed the tree is generally short of fruit, when twins may be left on strong branches. Three or four, on a long and strong branch, are quite enough, and so in proportion for weaker wood: this is said of the larger sorts of peaches and nectarines; apricots may, in general, be left somewhat thicker on a flourishing tree, and the lesser kinds of peaches and apricots may still be somewhat more numerous, as the early masculine apricot, the nutmeg peach, and nutmeg nectarine: there may be more nectarines left on a tree than peaches.
As the apricots gathered to thin a tree are used for tarts, so are sometimes the nectarines, but let not too many of either grow for this use, or stay too long on the tree before they are gathered. Thin the more freely flourishing young trees, (to the third year) and weak old ones. Trees should be thinned by cutting off the fruit with a sharp pointed knife, and not by pulling, which may tear the bark, and, if joined (as in clusters) to another fruit, the pulling off one, often damages the foot stalk of the other, and occasions its dropping.

As to thinning the leaves of wall trees, too much liberty should not be taken, though in some measure it may be necessary to give colour and ripeness to the fruit. Thinning away a few leaves, where thick, is serviceable to ripening the wood to form blossoms. When leaves are greatly multiplied, and shade the fruit much, a few at a time may be displaced, if the fruit is nearly full grown, but rather by pinching or cutting the leaves, just above the foot stalk, than by pulling.

In gathering wall fruit, do not pinch it to try if it is ripe, but give it a gentle lift, and if fit for eating, it will readily part from the foot stalk. Those peaches and nectarines that drop by their ripeness are yet good (some say best) for the table; but apricots have a smarter and more agreeable flavour before they are thoroughly ripe.

As to the dropping of fruit when it has attained to some little size, in very light soils, it may be owing to drought, use watering therefore deep and wide. But the cause seems often to be some injury from insects, or frosts, that the embryo fruit has suffered at the foot stalk, which can only sustain its burthen for a while, and then its own weight breaks it off. See p. 51.

* * * * * *

Vines require frequent attention, as to pruning and training; but all will avail little, if they have not a warm
warm soil, and full sun, or some accidental advantage, as being planted at the back of a warm chimney; and though they will grow and bear leaves any where, they will not fruit well in England, without a favourable season, or hot summer.

Young new planted vines should be pruned quite short, for two or three years, that they may get strong. If the plant has a weak root, not above one shoot ought to grow the first year, which should be cut down in autumn, or to two or three eyes.

The best time for the principal, or winter pruning of vines, is best as soon as the fruit is off, or the leaves falling. November does very well, and if this month passes, February should be adopted, rather than quite in the winter. Late in the spring they are apt to bleed by cutting, which greatly weakens them.

The mode of bearing in vines is only on shoots of the present year, proceeding from 

year old wood. The rule, therefore, at winter pruning is, to reserve such shoots of the year that are best situated as to room, for training of those shoots that are to come from them, which will be almost one from every eye. Make choice of those that are placed most towards the middle, or item of the vine, that all the wall may be covered with bearing wood; and every year cut some old wood out that reaches far, to make room for younger to follow.

The form that a vine takes on the wall is various, and not very material, whether it be more horizontal, or perpendicular. The form must be governed according to the space of walling allotted to it; sometimes it has ample room, as at the gable end of a house, and sometimes it is confined to a low wall, or between trees, windows, &c. The reserved shoots should be twelve or fifteen inches asunder, if they are strong, and weak ones may be something less: hardly too much room can be allowed them.

The shortening of the shoots should be according to their strength and the space there is for training those shoots.
shoots that will be produced, which always grow very long. If there is room, three, four, or five eyes may be left, but not more to any shoot, except it is desirable to extend some shoot to a distance to fill up a particular space, and then eight or nine eyes may be left, which being repeated again another year, and so on, a vine will soon reach far.

Sometimes vines are trained on low walls by a long extended horizontal branch, a few inches from the ground, as a mother bearer. Those shoots that come from this horizontal are to be trained perpendicularly, and cut down to one or two eyes every year, that they may not encroach too fast on the space above them. If the vine is confined to a narrow but lofty space, it is to be trained to an extended perpendicular mother bearer, having short lateral shoots pruned down to a single eye, or at most two. The management of vines requires severe cutting, that they may not be too full in the summer, for they put out a great deal of wood, and extend their shoots to a great length; and therefore the young pruner must resolve to cut out enough.

An alternate mode of pruning vines is practiced by some, one shoot short, and another long; i.e. one with two eyes, and another with four or five. Severe cutting does not hurt vines, and make them unfruitful as it does other trees; and therefore, where short of room, they may be pruned down to a single bud, as the case requires.

The summer management of vines must be carefully attended to. As soon as the young shoots can be nailed to the wall, let them not be neglected; but remember they are very tender, and will not bear much bending: train in only the well-placed shoots, rubbing or breaking off the others. The embryo fruit is soon seen in the bosom of the shoot, and those thus furnished are of course to be laid in, as many as can be found room for, in preference to those shoots that are barren, which nevertheless should also be trained, if they are strong and well
well placed, and there is space for them. Rub off all shoots from *old wood*, except any tolerable one that proceeds from a part where wood is wanting to fill up some vacant space. If two shoots proceed from one eye, displace the weakest, or the outermost, if they are both alike, and the *fruit* should not direct otherwise. *Vines* grow rapidly, and must be nailed to the wall, from time to time, as they proceed, that there may be no rude dangling, which would not only have a slovenly appearance, but in several respects be injurious.

The *flopping* of the shoots is to take place, both as to time and measure, according to the strength and situation of them, or whether *fruitful* or *barren*. Those *weak* shoots that have fruit, and are rather ill placed, or confined for room, may be flopped at the second, or even first joint above the fruit, early in the summer; but those shoots that are *strong* and have room to grow, should not be flopped till they are in flower, (in *July*) and at the third or fourth joint above the fruit. In shortening the shoots of the vine, do it about half an inch above an eye, floping behind a plump and found one. The *barren* shoots are to be trained at full length, and not flopped at all, if there is room for them, or, at least, but a little shortened towards autumn, as in *August*, because they would put out a number of useless and strong side-shoots, if cut before.

The *side-shoots*, i.e. those little ones put out by the eyes that are formed for next year, are commonly directed to be immediately displaced by rubbing off, as soon as they appear; and if the vine is large, and the shoots slender, it is very proper; but if otherwise, their being left to grow awhile (so as not to get too rude and crowding) is rather an advantage, in detaining the sap from pushing the shoots out immoderately long; and when these are taken off, the lower eye of each may be left with the same view. But the side shoot, that proceeds from the *top* of each shortened branch, should be.
be left on, and when it gets long, then shortened down to an eye or two.

In order to fruitfulness, vines will need dressing with some sort of manure, for though they grow in vineyard countries on rocky hills, and in very shallow soils, and have done so on some chalky, hot, gravelly hills in England, yet some warm manure they must generally have applied, or they will produce little good fruit.

Some people are very fond of exposing the fruit of the vine to the full sun, by stripping off leaves; but this should not be practiced till the bunches have attained their proper size, needing only to be ripened, and even then but little should be done in this way: The loss of leaves is an injury to every plant.

Fig trees are best pruned early in October, (cutting the leaves off) but the more usual time is early in spring, as after an autumn cutting (if late) they are apt to die down; but if not completely pruned at this time, let, at least, stragglers be taken out, and the rest laid in close without training: Thus they will be more conveniently covered.

The mode of bearing in the fig is, that fruit chiefly comes the present year on the little shoots from wood of the preceding, and that towards the ends of the branches; which circumstances dictate the rules for pruning: Two years old wood will bear some, but older wood never.

The shoots, during summer, are to be laid in at full length, plentifully, as room will permit. The weak, ill-placed, or superabundant ones, cut clean out; yet rather break, or rub them off, in an early state of growth, for cutting branches or shoots in summer is apt to make them bleed, as it is called; i.e. the sap run; when cut in autumn, the fig will sometimes bleed for a day.
day or so, but if late cut in spring, the oozing will continue perhaps a week.

At the principal pruning, the strongest and the closest jointed shoots are to be preferred, and left about seven or eight inches asunder, without shortening. Let the spare shoots be cut out close and smooth, and as much of the old wood as may be; for the tree will increase too fast, and get too naked of bearing wood in the middle, if this is not freely done; and the essential point in the management of fig tree is, (as indeed of all wall trees), to have young wood all over it, and particularly in the middle, and towards the bottom. Wood is seldom wanted in a fig tree, but where it is the shortening of a shoot, properly situated, (by taking off the leading bud, or cutting lower, as the case requires) is sure to produce it: Do this in April, as the best time.

When hard frosts are expected, strew some ashes, and some litter, over the roots of fig trees. Mats should be nailed over their branches, (first pulling off the figs), as the succulent nature of their wood makes them tender. These coverings are to remain till the frosts are judged to be over, and then let them be covered up at night, and not by day, for a week or two, to harden them by degrees.

But fig trees will mostly survive hard winters, when in standards, without covering; and though shoots trained to a wall are tenderer, yet peafehauflm hung close among the branches (at the approach of sharp frosts) will preserve them. This sort of protection, as affording plenty of air, is by many good gardeners preferred to the more common practice of matting. But if mats were contrived to roll up and down, or kept a little distance from the tree, so as to give more or less air, as the weather is, the health and fruitfulnefs of the tree would be better insured, for too close (and as it commonly happens in consequence too long) covering is injurious to both. Fig trees that have been close covered are
are often hurt by an early uncovering, and yet the spring air, as soon as possible, is desirable.

It is worthy consideration and trial, whether fig trees, against a good wall, would not do best on a trellis, as thus, if they have sufficient heat, they would not be forced into wood, which they are apt to have too much of. In this way they might be protected in winter, by tucking in branches of evergreens, fern, &c.

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PEARS come next under our consideration, as a few of the best sorts are a good wall fruit.

A young pear tree, being planted against a wall in autumn, should not be cut down till spring, when the head is to be reduced according to the goodness of the root, and so as to lay a proper foundation for covering the wall. If it has a bad root, all the shoots should come off, and only the stem be left, with a few eyes to form new shoots, as was directed for peaches, &c. But generally some of the shoots are to be left, with due shortening, only taking it as a rule, that it is not proper to leave much wood on; but to prune down freely, in order to the putting out strong shoots for parent branches. See heading down, under the directions for espalier pruning.

The form of pear trees is to be governed by the wall. If the space allowed the tree is low and long, it must of course be trained perfectly horizontal; but if there is room above, and a deficiency of length, the form becomes more erect: Yet even in this case, the lower and more horizontal branches should be allowed to get the start a year or two, before the middle is permitted to fill, which ought not to have any over strong wood, left it run away with the strength of the tree, and keep the extremities weak. Train the branches at length, without shortening, and keep them at from six to eight inches distance, according to the size of the fruit;
fruit; remembering it is essential, that the branches be clear of one another, for the sun and air to have free access: Pruners should consider this circumstance, in all trees, more than they generally do. The reason for not shortening the branches is, that wood is always thrown out from two or three eyes below a cut, and so the tree would become a thicket of useless wood, if such cutting took place.

The mode of bearing in pear trees is on short spurs, which appear first towards the ends, and then form themselves all along the branches, which do not produce blossoms for three or four years from planting, and sometimes (according to the sort, or perhaps soil) for several years more. When they are come to fruiting, some pears bear pretty much on year old wood, some on two, others on three. The same branches continue to bear on spurs from year to year, and most when five or six years old; but as in course of time the branches may become diseased and barren, and not produce so fine fruit as younger wood, it is always proper to procure a succession of young bearers, as the opportunity of good shoots offer, cutting out old wood.

As to projecting wood, most gardeners allow of it in wall pear trees, though some not. The wood should not, however, be suffered to project above three or four inches; and though there are blossoms at the ends of year old wood, yet they should be either cut clean out, or down to an eye or two, for forming fruit spurs, as they will often do; though they are more apt to produce only wood shoots. These shoots being cut down again, turfs of wood are thus produced, which makes a tree appear ragged; so that whether it is best to cut all spare shoots clean out, or to cut (some of them at least) down to little stubs, or false spurs, is hardly yet determined: The advocates for both practices, however, speak very positively for their way. The cutting clean out is much the neater, and less troublesome way, and is therefore best, if as much fruit is to be obtained.
tained by it: It has been said more may be, but I have not seen it proved.

The occasional pruning of pear trees during summer is necessary, lest the strength of the tree be spent in vain, the fruit robbed and shaded, and the extremities impoverished. Whether all the shoots that are clearly known to be wood shoots (from their length) should be cut out during summer, is a question, but proceed as follows:

Where fruit spurs are wanted, the moderate wood shoots may be left to grow to some length, till the wood is hardened, and then broke off to about six inches, which, being left to the winter pruning, may be cut down to one eye, with the hope of getting a spur there. But even fair spurs should not be suffered to grow too thick: trees bearing small pears may have theirs four inches asunder, and the large six.

Several summer shoots will come out about the fruit spurs; yet it is not advisable to cut all of them off as they appear, but only the strong and most unsightly: one moderate shoot may be left to each, and shortened when the wood is hardened, to about six inches, and cut clean out at the general pruning. All superfluous shoots except those mentioned as allowed of, should be displaced while young; but though rubbing, or breaking off, in all cases are preferable to the knife, do not use this method when shoots are so big as to tear the wood with them. Shoots from spurs will never come to any thing, and must not be trained.

The time for general or winter pruning of pear trees ought to be November, as the blossoms are then very discernible, and at spring pruning they get so turgid and tender, that almost the least touch knocks them off, or even the jarring of the tree. What is now to be cut out will be understood from what has been said; only when the bunches of spurs get too thick and projecting, some must occasionally be removed, and a thin sharp chisel and mallet will do the work well, where
the wood is too strong or awkwardly placed for the knife. When a tree gets to the extent of its bounds, it is to be shortened down to a well-placed young shoot, which may serve for a leader; which leader should be already provided by a provident selection in the summer.

Where wood is wanted to fill a vacant place, a shoot may be accordingly shortened; but otherwise there must be no shortening, except down to a single eye, with a view (as was said) to forming fruit spurs, where the tree is thin of them. And when wood is desired in any particular part, where there is no shoot to cut down for the purpose, a notch crofwise, (somewhat long), will generally produce it, and the more certainly, if made just above a joint, or knot. Such notching of pear trees does no harm, but rather good; as many choose to do it freely, in order to check their too great aptness to luxuriancy.

The thinning of the fruit on pear trees is frequently necessary. They put forth numerous blossoms, and many of them fall, and even the fruit will do so when it is set; but as soon as it is promising (by the healthy thinning appearance of the skin) that the fruit will hang, thinning to one pear on a spur, will improve the fruit left, and help the tree: this work do with a small sharp pointed knife.

To check the luxuriant growth of pear trees, many schemes have been tried; but the best is here and there to strip pieces of bark off, behind the stem, and some of the principal branches, half round, or rather make so many wide notches, not going to the pith.

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Apples are sometimes planted against walls, &c. What has been said of pruning and managing pears is applicable to them; the branches, however, may be laid in somewhat closer; the they will not require so much room; yet they ought to have from twenty-five feet
feet in length of a low wall, or on a high one something
less.

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Mulberries are still more rarely cultivated as wall-
fruit.

These trees require good room, as their mode of
bearing is mostly at the end of the trained shoots,
which are therefore not to be shortened. Twenty or
twenty-five feet should be allowed them, and a new
planted tree is to be headed down as directed for pears,
&c. Train regularly as many shoots as may be in
summer, and at winter pruning, lay them about six or
seven inches distance. A succeffion of new wood
must be always coming forward, and of course some
old taken out, for the fruit is produced chiefly on year
and two-year old wood; and as it comes on spurs, and
also small shoots of the same year, the leaving short
stubs (of moderate wood) in pruning, seems justified,
though by some condemned.

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Cherries should be found against walls in every good
garden; but plant young trees, not more than two, but
better if one year only from budding.

A new planted cherry tree is best to have but one
strong shoot from the bud; and then cut down at spring,
so as to have two or three eyes on each side, to lay in
well to the wall; but if older and fuller of wood, head
it down as will be directed presently, in the article,
Esfalier Pruning.

Cherry trees should be trained at length, four or five
inches asunder. The fruit comes from spurs all along
the shoots, on one and two years old wood, which will
continue to bear. In pruning have an eye, however,
to some fair shoots for successors to those that are
getting diseased, or worn out. Some cut all super-
fluous shoots clean away, and others leave a sprink-
ling
ling of short stubs, which may be allowed; but let them not advance fur foreright.

The morella cherry has a different mode of bearing from others, the fruit proceeding mostly from eyes along the branches of new, or year old wood, the pruner, therefore, is to lay in a proper supply of young wood every year, always removing older wood to make room accordingly. For the better opportunity of furnishing the tree with young wood, the bearing branches of this tree should be at six inches distance, and then one young shoot trained between, makes them three inches distant, closer than which they should not be. The morella, it is clear, ought to have no stubs left in pruning, with a view to spurs, nor must any foreright shoots be suffered to grow at all, but let them be rubbed off while very young, or rather while in the bud.

The morella cherry is commonly planted against north walls, where they grow large and hang long, as they are commonly not wanted till late in the season to preserve; but if planted upon warmer walls, their fruit is finer, and (when thoroughly ripe) excellent for table use in September, or October, according to the aspect of their growth: Yet a full south wall may be too hot for it.

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Plums of the finer sorts are often planted against walls, and deserve a good one.

For the pruning of plum trees, the directions given for cherries apply to them, only that the branches should be laid somewhat wider; i. e. at five or six inches, according to the sort, as free, or less free in their growth.

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Filberds, or other nuts, may be trained. Lay them at full length, the branches about six inches distance,
distance, shortening only the shoots of new planted trees, in order to the furnishing a proper head and spread of branches, which should be kept very horizontal, to check their free growth.

They bear upon the sides and ends of the upper young branches; so that young wood must be continually bringing in, by removing some of the old.

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** Currants and sometimes Gooseberries are planted against walls:**

Train the lower branches somewhat horizontal as far as their allotted room, and then train upwards, filling the middle as they grow. Keep the branches about five or six inches asunder. They bear fruit upon young wood, and on little spurs of the old. Superfluous shoots of the trained branches, are to be cut down to little stubs or spurs, about half an inch long, which will throw out fruit shoots and spurs. The mother branches of currants and gooseberries will last many years; but when good young wood can be brought in for principals, a renewal every three or four years is necessary to produce fine fruit. Take care to provide shoots to the very bottom of the wall, that no space may be lost. In the early gathering of these fruits for pies or tarts, there should be left a sprinkling all over the trees to come on for table fruit. They will prove fine.

** * * * One general observation may be here made: that all fruit trees mentioned since vines, are pruned much in the same way, so that the young gardener will not find the business of pruning so intricate as he might imagine, from the number of words severally bellowed on the occasion.**

** Wall trees are spoken of as to situation, distance, &c. in the section of the Formation of a Garden, which see, with other particulars.**
2. OF PRUNING ESPALIER TREES.

The work of pruning espalier trees is much the same as for wall trees. The only difference is, that instead of being spread upon walls, the branches are fastened to slates, or frames, as trellises. The fastenings are commonly ties of ozier twigs, bark of withy, balsam, yarn, or soft packthread, instead of nails, which however may be used to frame work, if they are small and sharp pointed. See formation of a garden.

As trees planted for espalier training should be young, let great care be taken to set them off right at first, by regular shoots, full furnished immediately from the stem; which is effected by proper heading down, as below; much as was directed for wall trees, page 130. Apples, pears, plums, cherries, &c. in the general need not to be so much freed of all branches at planting, as peaches, nectarines, and apricots. There are however gardeners who prune down to the stem, all sorts of wall and espalier trees, as peaches are.

The heading down of a young tree, (i.e. apple, &c.) for an espalier, that has only one shoot from the grafting, or budding, should be so low, as to leave two or three, or at the most four eyes on each side of the stem, from which will proceed shoots properly placed for training. If the tree has two shoots, one on each side, which branch out right and left, so as to be made principal leaders, cut each of them down to three or four eyes. If it has three shoots, the upper one, if not over strong, being shortened down to a few eyes, may be trained straight up, and the two lower ones shortened as above, as laterals; and thus a good foundation will be made for a proper spread of branches. If it has four shoots properly placed for training, two on each side, the lower one may be cut down, to seven or eight eyes, and that above to three or four; If the tree has more shoots, they may be either all cut out to two on each side, shortening as before, or one (if not over strong)
left perpendicular, being cut down to a few eyes; or if the tree is somewhat old, and has a good root, more well-placed shoots may be left on, keeping the lowermost longer than the upper by two or three eyes, making the upper ones very short. If these directions are properly observed, an espalier (or a wall) will be properly and presently filled with branches.

The best time for heading down is the spring, though when trees are planted early in autumn, it may be then done. All cuts should be close behind an eye. When a strong stem is to be cut down at spring, remember to place the foot against it, to keep the root in its place, and use a sharp knife.

Heading down is advised to be deferred till spring, not only on account of frosts possibly injuring the top eye of the fresh cut shoots; but because the head of a tree helps to push out roots. The properest time to prune the heads of new planted trees, is when new roots are formed; and then a head disproportioned to the roots should by no means be suffered, as the new shoots in such case would be too weak to be healthy, or fruitful. For planting espaliers, &c. See page 36.

3. OF PRUNING STANDARD TREES.

The principle of pruning standard trees is the same, whether full, half, or dwarf standards; and the object is to form a compact handsome round and open head rather small than large, equal on all sides, with tolerably erect wood, capable (as far as the art of the pruner can go) of supporting the fruit without much bending. Perfect symmetry indeed is not necessary, but confusion of branches, weak and crossing, crowded and dangling, is to be prevented by pruning; for a proper, (rather free) use of the knife, is capable of doing much towards the beauty and fruitfulnes of standard trees. A little pruning of standards every year, and a general one (rather free) every three or four years, to cut
cut out what is decayed, and some of the older wood, where a successional supply of young may be obtained to succeed, is the way to keep them in vigour, and have the best of fruit; for that which grows on old wood, gets small and austere. To take off large branches a thin broad chisel is proper; but if a saw is used, smooth the part with a knife.

Clear trees from moss, by scraping them with a long narrow bladed blunt knife, on a bit of hard wood, and cut, or rub off bits of decayed bark, in which infects are apt to breed, and wipe the part clean. Some use a scouring brush in this business, the long end hairs of which are well adapted to clean the fawky parts. A bit of haircloth is also used for the purpose; and a finish is properly made to do the business well, with a brush and soap and water.

In the first year of new planted standards, they are to be cleared in the spring, of all weak and improper shoots, reserving only a few of the strongest. If there are four regularly placed shoots opposite to each other, it is sufficient to form a good head, shortening them down to a few eyes each, or, (in general) cutting off about one-third may be a rule. What the head will be, may be pretty well foreseen, by conceiving two or three shoots to come from each of the buds below the cut.

If the shoots of the tree are weak, or the root but a poor one, cut the reserved shoots down to two eyes each. If the head is not regularly furnished with shoots, a judicious pruner will yet be able to manœuvre it into form in a year or two, and this must be effected by close pruning the first year.

The second year (rather in spring) attend to the head, and cut out, or shorten, so as to provide for the future form and strength of the tree; reserving only such shoots as recommend themselves for their position and vigour, as widely placed as may be from each other, and but few in number. After this,
this, the head will form itself, so as to need only cutting clean out a few superfluities: but no shortening is allowed, except some of the lowest branches, or any one where wood is wanted to fill a vacancy; for which purpose, a weak shoot may do, cut down to one or two eyes.

If trees are too full of wood, the shoots must necessarily be drawn weak and long jointed, and so be the less fruitful, and unable to support the fruit they have; but on the other hand, too much pruning will occasion a tree to be always putting forth wood, rather than fruit, and so a medium must be observed. The branches should be kept about six inches asunder; and as superfluous weak shoots will of course be cut out, so let also the over strong wood: for though it is desirable to have standard trees of able wood, yet those shoots that much exceed the size of the rest, would, if left on, infallibly weaken the others, and make an awkward tree.

Let no shoots remain on the stems, below the head, nor suckers above the roots. With respect to cherry trees, rather than cut more than necessary, drooping branches may be suffered, as the fruit is not heavy, and the heads of cherry trees may be fuller than other fruit trees. Wherever a cut is made in a full headed standard to shorten a shoot, it should be (generally) at an eye situated within side, that so the shoot from it may point more erectly, as the weight of the fruit is too much for those branches that grow downwards, or quite horizontal.

Gooseberries and currants may be ranked under the denomination of dwarf trees, and the principle of pruning them will be the same, as for other standard trees; only more frequently cutting out old wood, to make room for a succession of young. The keeping these trees, or bushes, more open than they commonly are, would improve the fruit in size and flavour, and bring it forward; yet some of them should be suffered to grow rather full of wood, in order to keep the fruit longer,
longer, especially in a northern aspect of the garden, or some shady place; and if to this situation and fullness, be added matting or netting, they may be preserved till November.

The time of pruning these trees, is commonly held to be indifferent, and any time between leaf and leaf may be adopted to cut them as opportunity offers. But when they are getting into leaf is (perhaps) the best time; as when pruned early, there is frequently a loss of almost the whole fruit, by birds eating the buds. Leaving the whole head on till spring, is a security, as to a crop of fruit, as the case would be bad indeed, if some good branches are not left, properly furnished with uninjured buds; but still it is allowed, that an early pruning strengthens the tree, and tends to increase the size of the fruit.

Currant trees need not to be kept so open as gooseberry, the branches of which should be (for fine fruit) five or six inches asunder, and as little shortened as possible. Those sorts of gooseberries whose shoots grow in a curved manner, may have their long branches, when in fruit, supported with little forked sticks. Keep these trees clear of suckers, and all shoots from the stem, that are within nine or ten inches of the ground.

For planting standards in orchards, &c. See section 3.

4. OF PRUNING SHRUBS.

Many shrubs are cultivated for their ornament, and some for their fruit; of the latter kind are raspberries and barberries.

Raspberries bear fruit on little side shoots of the present year, proceeding from stems of the last, and sometimes produce a little on those of the same year. To prune or dress the shrub, therefore, first cut out all the old bearers, whose wood dies, then cut out, close to the soil, all the new shoots, except three or four
four of the best situated and strongest, which may be carefully twisted from the bottom upwards, or tied together at the top, or if upright and strong, left to support themselves singly. The best situated, or those standing close together, near the centre of the stool, and ranging well in the row, are those to be selected. This done, let all straggling shoots between the rows be clean dug out. Shorten raspberries, either just below the bend, or from three to four feet high, according to their strength.

Raspberries must not be shortened in summer; and the time for cutting them is from October all through winter, till they begin to shoot at spring, though the former is the best: especially if anything is to be planted between their rows. See page 28.

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Berberry; is a beautiful and somewhat large shrub, which should be suffered to grow with a full head, like a dwarf standard tree. It bears along the sides of both young and old wood, but chiefly towards the ends, and its branches should, therefore, not be shortened, except with a view to throw out wood. Keep the root free from suckers, and the stem from shoots in its lower part, and prune out weak, luxuriant, straggling, and crossing branches, forming it to a somewhat round head, which keep moderately open. Let the stem be freed from lower branches to the height of three, four or five feet, according as the shrub may be desired to approach to a tree. See page 76.

Strawberries require pruning off the runners during summer, which strengthens the plants, keeps the soil from being exhausted, and gives all a neat air of culture. This work should be particularly followed up in edgings of strawberries, that they may not run over the walks: If plants, however, are wanted
wanted for new beds, they must be suffered to run. See pages 39, 78.

The dressing of strawberries consists not only of pruning from runners; but cutting down the great leaves in autumn (early) with a scythe; or, which is better, by taking them up in the hand, and using a knife. At this time they must be weeded, and the ground stirred between them, deep enough to cut the ends of the roots a little. Then there should be spread over the beds a little rotten dung, or good fresh earth, and all afterwards kept free from the weeds. Let the surface of the ground be stirred again in spring, and any hollows that may be between the plants filled up with earth, and a little dung amongst it, if none was applied in autumn. Thus with good management the delicious strawberry will be had in abundance and perfection, the season not being unpropitious.

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Flowering Shrubs are of great variety, and the method of pruning them is to be determined according to the several modes of bearing, of which consider chiefly these; that is, whether they produce their flowers upon the last year's shoots, or the present; on the ends, or the sides of their branches. If a shrub bears on the last year's shoots, it is evident that it must be cut away no more than is necessary to keep it within bounds, open, and handsome as to its form; in this case, it is the business to cut clean out, or very low, what is to be spared. If a shrub bears on the present year's shoots, the old wood may, and must be cut down freely, so however as to leave eyes enough for new shoots to proceed from, to make a sufficient head and show. If the shrub bears altogether, or chiefly at its ends, no shortening must take place; but if some of the branches are too long, they may be either cut out, or quite low, leaving the shorter ones to bear. If the shrub bears along its sides, the
the shortening is of no consequence, and the desired form may be freely provided for at pleasure.

The season for pruning shrubs is generally reckoned the spring, but autumn is better, if not too near winter; as at this time, sharp weather might occasion some of the sorts, (as jasmines and honeysuckles) to die down. The time of flowering, must in some measure direct the time of pruning. Shrubs that flower in winter, (as the lauruslinus,) should be cut in spring. Those that flower in spring may be pruned immediately after their blow, or in summer. Those that flower in summer should be pruned in autumn; and those that flower in autumn should be pruned either soon after flowering, or in spring.

Be sure to take off in time, i.e. as soon as discovered, all suckers and over strong shoots from shrubs; for by their luxuriancy they greatly impoverish the proper sized branches, which are the fruitful ones, and such large sappy wood looks very unsightly.

The height of shrubs in certain situations, is material, and to provide for this, the art of pruning is in a great measure competent. To keep them low, cutting down is of course necessary; but it will be well also to make the soil poor if too rich. To encourage them to mount, keep trimming off close the lower branches, and improve the ground by digging and dressing occasionally.

Flowering shrubs should be better attended to, as to pruning, than they commonly are; for we sometimes see them either wholly neglected, or cut down at random, perhaps only sheared into a little form; and so they make a return quite suitable to the desert of the owner for his neglect. To be crouding full of branches prevents the production of flowers. Shrubs should not be choked up from sun and air, either in themselves, or by their neighbours: The larger plants must not be suffered to overshadow the less, if possible.
The general directions already given for pruning shrubs might suffice, but that the young gardener may not have to discover (by observation alone) the proper application of the given rules, he is here particularly directed to the work of pruning a few of the more common sorts.

Roses bear upon shoots of the present year, and upon those formed after Midsummer in the past year, but chiefly upon the former. Therefore, they may, or rather should be cut down low, leaving only three or four eyes to a shoot; except some of those short shoots formed the last year too late to blow then, which leave whole. If rose trees are not close pruned they will be unable to support their flowers properly. Use a sharp knife and cut close behind an eye or bud. Roses for forcing should be pruned in July and August.

Honeysuckles flower on shoots of the present year, and, therefore whether trained to walls, or kept in bushes, should be also pruned close, but not so short in the latter case as the former; for those against walls should be cut down to an eye or two, and those in bushes to three or four eyes.

Sweetbriars flower on shoots of the present year, and therefore should be cut after the manner of honeysuckles. These shrubs (and most others) are seldom pruned down enough; so that in a few years they get very rambling and unsightly; but if kept compact we have beauty, as well as sweetness, to recompense our care. In all cases, a less number of fine flowers, obtained by short and open pruning, is certainly preferable to many indifferent ones.

Lilacs bear their flowers at the ends of shoots of the last year, so of course at spring must not be shortened. If got rambling and crowded, cut either clean out, or very low, what may be superfluous. If they need much reduction, let them be cut down as soon as (or somewhat before) they have got off flower, and then the shoots that
that come after will form for blow before the summer is out, for next year.

Laburnhams bear along the sides and ends of old wood. Jasmines should be pruned down close, even to half an inch, and when trained to a wall, the shoots kept rather wide, like vines, (particularly the scarlet trumpet) as they bear at the ends of weak shoots of the year; which should therefore (as all others bearing in the same way) never be touched in summer with a knife, but be suffered to grow rude.

Sennas bear also on shoots of the present year, yet are best left rather full of wood: prune them as soon as off flower.

Syringa, or Mock orange, and Hypericum frutex, bear along the sides, as well as ends, of old wood, and of course may be shortened.

Spirea frutex, Guelder rose, and many others, bear on shoots of the year, and may therefore be pruned short.

Pyracantha bears (chiefly) on two and three years old wood; therefore the oldest wood is to be cut out, and young in every part retained, and at length. The time of pruning should be autumn; but early in spring will do, as the flowers may then be seen.

For the pruning forest trees, see page 118. Berberries, see page 165.

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SECTION XIII.

OF HOT BEDS.

The dung of animals, but chiefly of horses, is put together for fermentation, in order to form bodies of heat for two purposes. 1. To raise vegetables, flowers, &c. not otherwise to be produced, or, at least, not in perfection. 2. To raise such things, as though

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they come in perfection by open culture, yet may be forwarded by artificial warmth.

According to the quantity and quality of the materials put together for hot beds, the heat will be proportioned as to strength and duration; and by a judicious use in making, and the management afterwards, many advantages may be obtained from them. The great point is, to suit the degree of heat to the nature of the different plants to be cultivated, that they may have neither more nor less than is necessary to promote a regular vegetation.

Two errors are common in the use of hot beds, sowing or placing in the same bed things of a very different nature, as to the climate they grow best in, and forcing with too much heat even the tenderest. Though it may not answer our often too hasty views, the heat of a bed had better be slack than otherwise. A strong hot bed, that ought (at least) to be made a fortnight before it is used, is sometimes furnished by impatience in a few days, and various ill consequences follow, which naturally frustrate expectation.

The place where hot beds are worked should be open to the full sun, catching it as early as possible in the morning, and having it as long as can be in the evening; and if not naturally sheltered, it should be screened from the north and north-east winds by a boarded fence, or rather one of reeds, as from a solid fence the wind reverberates; but straw, or flake hurdles, set endwise, may do. A screen of some sort, (and a close clipt hedge is as good as any) not only protects the inclosure from the harsher winds, and confines the warm air, but keeps a rather unsightly work from view, and straws from blowing about, the litter of which is so disagreeable. In large gardens, however, they have detached grounds for the work of hot beds, where such litter is of no consequence.

Working of the dung is necessary previous to the making a hot bed; i.e. it should be thrown together on
on an heap, in a conical form; and when it has taken a thorough heat, and has been smoking or sweating for two or three days, it should be turned over, moving the outside in, or mixing the colder parts with the hot. When it has taken heat again for two or three days, give it a second turn as before, and having lain the same time, it will be in proper order for making a good lasting bed with a steady heat. If in haste, it may be made into a bed after the first heating; but it will be better for leaving again, or even a third time. When dung is ready before wanted, keep turning it over, lest it be too much spent. It will be proper to begin to work fresh dung a week or ten days before it is to be used; but if the dung is not fresh, it is only necessary to throw it together for once heating.

Dunghills, from which it is designed to collect materials for a hot bed, should be taken notice of in time, that they are not left to work themselves weak by long smoking, without opening and turning over. Beds may be made of dung from a week to a month old.

If heavy rain, cutting wind, or driving snow, should keep the heaps from heating, and the dung is wanted, lay some straw round it, and it will protect and fetch up the heat. If at first putting it together there is not a general moisture in the dung, it must be given it, by calling water evenly over it as it is laid. This may be done with a hand-bowl from a pail, but it would be better to use a large watering pot. No water must be used to dung when it is got dark; this is, however, the colour that it should begin to have when put together in a bed, which the directions given for working it will bring it to.

The size of a hot bed, as to length and breadth, is (of course) to be according to the frame; and the height of it according to the season, and the degree of heat requisite to the nature of the plant to be cultivated. In a dry soil, a bed may be sunk in the ground, from six inches to a foot, to make it more convenient to get at...
and manage. But beds made forward in the season should rather be on the surface, for the sake of being able to add the stronger linings, &c.

The bed should not be of greater dimensions than necessary to hold the frame up firmly, i.e. three or four inches wider every way, though some approve of making it fix, which may be proper if the frame is small, as otherwise the body of dung might not hold heat enough for the necessary length of time. As a guide for laying the dung regular, (according to the size of the frame) drive stakes, of about the height the bed is to be, at the four corners.

It is the practice of some gardeners, when they mould the bed, to take the frame off, and lay it two or three inches thick all over, and then put the frame on again. This is done to guard against steaming, and is proper when the frames are shallow: in this case, the bed must be six inches wider every way than the frame, in order to hold up the mould for the frame to rest upon.

In case of an insufficient quantity of good horse dung, that of cows, oxen, or pigs, if it is strawy, and not too wet, may be mixed with it, in the proportion of one-fourth, or upon a pinch more; especially in an advanced part of the season, or to cultivate things that are only forcing, and do not naturally require heat. In the case of a deficient quantity of proper materials also, some dry old worn-out horse dung may be laid at bottom, and a little of it on the top. Offal hay may be mixed as the bed is made; or a little of mown grass, or weeds, especially for late made beds; but clear straw, well wetted, may be put at the bottom a foot thick, and reckoned about equal to five or six inches of dung. Cucumbers and melons have been raised upon straw beds, mixed with sea coal ashes; and thus the rank steam of dung avoided, which sometimes injures plants, if it does not give the fruit a less agreeable taste than they otherwise would have. Sea coal ashes among dung, has been recommended to continue the heat of the bed, and
and to moderate it, in the proportion of one-fifth or sixth part; tanners bark has been used in the same way; and these have been sometimes mixed generally, and at others in layers three or four to a bed.

The making of a hot bed is performed thus: lay some of the most strawy dung at bottom, and keep that which appears least worked toward the middle; let all be well broke, and laid evenly without lumps; keeping the ends and sides upright, (or rather hanging over) not suffering them to draw in, lest the bed be made too little for the frame, or should thus catch wet. Having laid it about half a yard high, most gardeners trample it with the feet set close, and again when raised a foot higher, and lastly when near finished; but beating it down well with the back of the fork is by some gardeners thought sufficient, except indeed the dung be fresh and strawy, and then trampling ought to be used. The cleaner dung is, it must not only be more trampled, but more wetted, and the greater quantity of it used. To make beds of unsoiled straw, it is recommended to lay it in a pond for two or three days, and then to throw it in a heap to drain and heat a little first.

If any dung is to be used directly from the stable, let it be equally mixed with the rest; but if there is a coldness in the other dung, it will bring the heat forward, by laying a good part of the fresh in the middle, which will soon kindle, and spread warmth. The litter that is made use of for this purpose should be foul; and if not, it may be made so, by mixing cow or hog dung with it, or rather by collecting the draining from a farmer's muck hill, and sprinkling with it; which helps to fermentation.

The best sort of dung is that of bean straw, next wheat, rye, oats, and barley. When the season is pretty much advanced, hot beds may be made of grass mowings, (as from an orchard) and weeds, which is a common practice in the cider countries. These heats,
heats, however, are often too violent, and last not long; yet may they be lined with the same materials if done in time, otherwise if a green hot bed gets greatly cool it will not be recovered. A graft's bed may be used as soon as warm, but let it not be overweighted by putting on heavy frames, or more mould than necessary. It should rather be worked with hand glasses, or oiled paper covers.

Hot beds are sometimes made of the refuse bark of a tanner's yard, and also of oak-leaves; but these must have walled pits for them, of a large size, and are seldom used but in hot-houses. A bark-bed properly made, and managed by forking up at two or three months' end, &c. will hold a fair, moderate, and steady heat, four, five, or six months.

The bark is to be got fresh, after it has been thrown out of the vats a few days, and if not moderately dry, kept a few days longer to drain, and if the weather is fair, it may be opened to the sun to dry; for it will not ferment if it is put together wet. When it is made into a bed it must be only beat together with the fork, and not trampled. In a fortnight it will have come to a fine heat, for immediate use.

The pit should be eleven or twelve feet long, five and a half or six feet wide, and a foot, or a little more, higher than the bark in front, and two feet higher behind, to receive the mould on a body of bark, three feet deep: But if for the cultivation of any thing in pots, as there will need no mould, the pits need not be so deep, the pots being plunged in the bark: or the pit may be made level all round, of a depth to hold the bark and mould, on which frames of wood may be set. Let the pit be sunk one third, or one-half in the ground, as the soil about it is dry or not.

To increase the heat of a dung bed when it declines, a warm lining of straw, or hay, put round it, a foot thick, and laid high up the sides of the frames, will recover it for a few days; but a lining of hot dung, one
one foot and a half wide at bottom, and narrower at top, should be applied first to the back, and in about a week after to the front, before the heat is greatly gone off; and if very bad weather comes, there should be a lining of straw all round this. In cases of great declension of heat, the ends should have hot dung applied to them, or, at least, a good thickness of litter, or straw. Lay all linings a few inches higher than the bed, to allow for sinking; or, not being laid quite so high at first, add more afterwards, when a little settled. Early made beds may require two or three repeated linings. Should dung of a brisk heat for a new lining be wanting, the old lining may be worked up with what there is, and if shook up with quite fresh (but foul) dung from the stable, do very well.

To decrease the heat of a bed, several holes may be made in it, by thrusting an iron bar, or a thick smooth sharp pointed stake, up to the middle, which holes are to be close stop'd again, with dung or hay, when the heat is sufficiently abated.

The uses to which hot beds may be applied are various, but chiefly for the cultivation of cucumbers and melons, for which see the next section. At the spring of the year, hot beds are commonly made use of for forcing crops of several vegetables, as radishes, carrots, cauliflowers, lettuces, potatoes, turnips, kidney beans, purslane, tarragon, small fallading, &c. Fruits of several sorts, as cherries, strawberries, raspberries, &c. are sometimes brought forward by dung heat; as also various shrubs and flowers, by means of forcing-frames. Tender annuals, as balsams, and other flowers, that necessarily require heat to bring them up; and the less tender, and some even of the hardy sorts, are also cultivated on hot-beds, or other assistance from dung, to produce an earlier blow than could otherwise be had. Directions for which, will be given in their proper places. See Sect. 18.
As to the forcing fruits, peas, asparagus, and the raising of mushrooms, these things are not commonly practiced, and it can hardly be expected in such an initiatory book as this, to find instructions for all things.

SECTION XIV.
OF RAISING CUCUMBERS AND MELONS.

I. OF RAISING CUCUMBERS.

See Cucumber in the next Section.

GARDENERS usually provide three crops of cucumbers in the season, all of which will be indebted to hot dung to produce them; except sometimes indeed, the last sowing be upon cold ground; which, in some favourable situations, and in some seasons, may do for picklers. We begin with the early crop, which is most valued.

Make a seed bed of the size of a one-light frame, (or a two-light were better), from three to four feet thick, and if ambitious of being forward, do it sometime between the first and fifteenth of January, though some gardeners sow about Christmas: But the sooner this work is begun, the more hazard there is of failing, and the more skill and trouble will be necessary to manage them successfully.

The young gardener is advised not to attempt this business till the middle of February; and then, if he has good fortune, he will cut fruit about the middle of May. When he has attained some skill in the work, he may begin sooner; for there is nothing that professed gardeners are so fond of exhibiting, as early cucumbers, which is a proof, that no little ingenuity and
and attention is necessary to produce them. All favourable circumstances coinciding, as sowing the forwardest seed in kind, mild and sunny weather, and plenty of dung, with good frames, managed by skill and industry, early cucumbers are sometimes raised in about eight weeks, and later in the season have been raised in six; but near upon three months must commonly be allowed.

A bed being ready, agreeable to the directions given in the last section, which may be four feet high in January, three and a half feet in February, and three feet in March, or the medium as a general rule; let it be covered with the frame and lights, raising the glasses a little to let off the steam that will come strongly from the bed.

When the heat has been up three or four days in a single light, or a day or two more if a two light frame, let it be taken off, and see that the surface of the bed is perfectly level, but rather rising behind; and if you think the bed is hardly strong enough, the opportunity is given to add a course or two more of dung. Having levelled the bed neatly with the fork, heat it smooth with a shovel or spade, and put the frame and glass on again.

The temper of the bed is now to be attended to, that it be not moulded till the burning heat is over; a judgment of which may be formed, by keeping two sharp pointed smooth sticks thrust in behind, and occasionally drawing and feeling them, by a quick grasp of the hand. Endeavour to hit the exact time, not putting the mould on too soon, as it is liable to burn, nor delaying too long, and so to lose time, and too much of that heat, the bed was made for.

The moulding is thus; lay all over the bed about three inches thick of rich loose (not over light) and dry earth, and add as much in the centre of the light as will raise a hill eight or nine inches deep, which as soon as warm through, is to be used, except the bed.
feem too hot, and likely to burn; in which case, draw the chief of the mould aside round the frame, that the heat may have vent in the middle, for a day or two. As it is a thing essentially necessary in the cultivation of early cucumbers, to have rich earth, properly dry, it should be prepared, and laid by in autumn; in some airy shed or hovel. Let it be, if possible, some fresh under turf earth, mixed with about one fourth part of thorough rotten horse dung, often stirred together to incorporate and sweeten.

The sowing may be made upon the hill of mould, levelled down to about six inches deep; but if any suspicion of burning (or in short at any rate), it were better to sow in a small pot or two, which should be filled with the warm mould, and plunged a little way in, more or less according to the heat of the bed, for if the bed appears to be over hot, the pot may be raised from it; cover the seeds half an inch, and add a gentle pressure of the earth upon them. In a bed of proper temper, they will be up in three or four days, and sooner or later, if there is too strong or too weak a heat; though the age of the feed will occasion some difference. Very old seed (which some gardeners are fond of, as running less to vine, and so reckoned the more fruitful,) will sometimes come up weak, and also rot, when the mould is damp, and the heat not strong; so that feed of two, three, or at the most, four years of age is to be preferred: That of a year old only comes up certainly, but too luxuriantly.

Whether the first seeds come up, or not, on the third day, sow a few more, and so again and again; for the early young plants are incident to failures, from various causes. As the seed must not be sown in wet earth, so if it gets too dry, sprinkle the mould to moisten it a little below the depth of the seed; but let it be with water previously set in the frame (in a bottle) to warm. Be sure to give the plants air, according to the weather, raising the lights from one half,
half, to a whole inch; and now, and ever after, while there is a strong heat in the bed, tilt one corner of a light for the fleam to pass off on nights, and let a mat hang, or be nailed loosely over the open part, to keep out the wind.

The prickings out the young plants is to be done when they are three or four days old, taking them up carefully, and the mould being warm, put three in a small pot, as the common practice is; but no more than two, or only one in a small pot is a good method. If a single plant is put in a pot, it certainly may be expected to grow stronger, and be continued longer therein, and three of these may be planted close together in the fruiting bed. If only one plant is put in, set it upright in the middle of the pot nearly up to the feed leaves. If more are put in, take the mould out of the pot in a basin-like form an inch or more deep, as the thanks are, laying the roots smooth towards the centre, and the leaves towards the edge of the pot; cover up to the top, and give the earth a gentle pressure: the root ends may be clipt, if long.

If the mould is very dry and the bed hot, a little water may be immediately given to the roots; but if otherwise, the next day will be best.

Give very little air the first day, but afterwards more, as the sun shines or not, or the day is mild or sharp, still or windy. As the plants get older and hardier, air may be given up to two inches, when there is a good heat, and extraordinary fine weather, to three or four inches of tilt: For this purpose, wedges of wood, about four inches thick at the wide end, are proper. If suspicious of the air coming in too suddenly, tack a bit of cloth, or mat before the place. Air is to be given in different degrees, regularly as the weather alters in the course of the day;—a little air in the morning, more as the day advances, and less again as it declines.
Cucumbers will not do well, if the air in the bed is long confined, or flagrant: Sun is necessary as well as air, but as that we cannot furnish, every advantage that is in our power we should not fail to make use of with care. The plants are to be nursed, and preserved moderately warm, by keeping the pots plunged less or more in the bed, placing them towards the outsides of the frame when there is a great heat, and more in the middle when it is moderate.

Keep some mould round the inside of the frame, ready to earth up the pots to the rim, as the heat declines. There should not be less than two, or more than three inches depth of mould, in the intermediate spaces of the frame: for when the bed is moulded too thick, it keeps down the heat too much, and occasions burning. Young plants should be guarded from much sun, if the season is advanced, and especially when the bed is hot; Give air in these cases freely.

Attend to the weather, and if rain, snow, or wind, is either of them likely to chill the bed much, provide against it in time, by laying straw round; and if the heat naturally declines much, line, &c. as directed, page 174, in order to recover and keep it up, for the plants will soon be spoiled, or lost, if the bed gets cold. They are to grow in the pots till their first rough leaves are two or three inches broad. When there is only one in a pot, a plant (upon a pinch) may grow in it till it blossoms.

Use water (soft) but moderately at first, till the roots get spread about the pot, and then wet the thongs of the plants as little as can be helped, if the season is early, or there is little sun. When the roots are got to the bottom of the pot, take care to water to the bottom; but over-much watering of young plants makes them sickly. Once a week, at an early season, will be sufficient, except the heat is very strong in the bed, and the weather very funny; the water must be in a small degree warm,
warm, and given in the morning towards the middle of
the day. Shut them close for half an hour.

If the **seed bed** is not likely to hold the plants so long
as directed, (or nearly) in a free growing state, an **inter-
mediate bed** should be made in **time** to receive them;
for it is not proper to plant them out into the fruit bed
too soon, lest there be a failure in keeping up its heat
to set the fruit, and bring it on. This intermediate
bed should be made of proportionate strength, for the
**time** it is wanted, and may do at two and a half, or three
feet thick; nor need there be any great objection to an
intermediate bed, as it tends to insure success, and brings
the plants on faster, and saves trouble in keeping up the
heat of the feed bed.

**Burning** is a thing to be suspected when a bed is very
hot, and in proportion as the mould is damp; and should
therefore be seen to, by drawing away some mould from
the bottom near the middle; and if it appears disco-
loured, of a greyish hue, and caked, let what is so be
taken out from all parts of the bed as soon as possible;
but take care that in doing it, too much cold air do not
get in and damp the bed, or injure the plants. Do this
work at the best time of the day, while the sun shines, if
it may be, and rather at twice, allowing an hour be-
tween. Fill up with fresh and dry mould, and keep
the glassess close, till the earth is got thorough warm
again. Burning, however, is not of so much con-
sequence now, as when the plants are put out to fruit,
for the **pots** may be drawn up from the evil; but burnt
mould contaminates the air, as well as injures the roots
that it reaches to. See **Burning** again presently.

**Steaming** must be guarded against, and the rank efflu-
via which rises in the bed at first, and whilst the dung is
quite hot, must have **vent** night and day, by raising the
lights. A little rise will do on nights; and if a mat
hangs before the aperture, or is nailed down loosely over
it, the too sudden entrance of cold air will be prevented.
But when the strong heat of the bed is certainly over,
flush close on nights, and give but little air in unfavourable days. Rank steam is sometimes drawn into a frame from the outside of the bed, occasioned by the mats hanging over it; therefore, in covering, it is necessary to keep up the ends of the mats, so that the glass and frame only be covered. Danger of steaming arises also from the application of fresh linings, the smoke of which, wind may drive into the frames; so that the lining should either be covered with two or three inches of mould, or, which is better, a good thickness of fine dry hay. Sometimes steam will infinuate itself round the frame within, through the bed settling unequally, so that the mould draws from it: Prevent this by filling up the apertures.

Covering up at night has been just directed to be only over the glasses, for a reason given. Put the cover on a little before sun set, and take off a little after sun rise, except very bad weather dictate otherwise; yet remember, that light is a most necessary article in the welfare of plants, and guard against permitting cover longer than compelled to it. While the bed is in a good heat, one mat is sufficient, but yet if the weather is sharp, more should be used; for though not necessary for the warmth, it will be useful to keep the steam of the bed from being so suddenly condensed as to drop on the plants, which would injure them. As the bed declines in heat, and the weather is cold, a thicker covering must be put on; and a very warm covering is made thus:—lay on a mat, and over it a coat of straw, or rather hay, and then a mat on the top, which tack down round the frame. It will help to warmth, to push into the dung some little sticks round the frame, and fill up the space with hay. Covering round the bed with straw and lining have been spoken to; let the applications be made in time.

The seed bed, by good management, may be kept with a good growing heat for six weeks, when the plants.
plants being about five weeks old, will be ready to putting into a new bed to bear fruit.

**Stopping** the plants is to be performed about a week before they leave the feed bed; i.e. as soon as the second rough leaf is expanded, and shews in its bosom the little bud, or eye, that produces a runner. This is to be nicely cut off with a pen-knife, or small sharp pointed scissors, or picked out with a needle, though, if it gets forward, it may be pinched off. Soon after this operation, the plant thickens, and will push for runners again, which the stopping is designed to dispose them to; and the effect is an earlier and more plentiful bearing. The practice of stopping is again to be performed upon the first runners when they have three joints without shewing fruit.

The **fruit bed** comes now, and it should be made of good materials, duly prepared, and well put together, towards four feet thick. It ought not to be of a size less than for a two-light, but better for a three-light frame; as the heat is more certainly to be kept up a proper length of time, in a full sized frame, without which all the previous labour is lost. Preparations must be made for this bed at least a fortnight before it is wanted, in the way directed in the last section.

Before **earthing**, take care that the burning heat is over, and that the mould to be used be properly dry. Lay it all over the bed not more than three inches thick, (for reasons given, page 180) making hills where the plants are to be set about twelve or fourteen inches depth. A two-light bed (of proper materials) will not be ready for moulding in less than a week or ten days from making; nor a three-light in less than ten days or a fortnight. But if it should be desired to plant out quick, on account of the feed bed having got cold, a security from burning the plants is found in forming a hole in the bed, where the plants are to be, two inches deep, and about a foot, or fifteen inches over, and filling up with fresh cow dung; through this the heat will not burn,
burn, and if it catches the other parts of the bed, the disease may be easily remedied, in the way before mentioned, without disturbing the plants. Some gardeners place turf under the plants, with the graps downwards, to prevent excess of heat; and it helps to keep the mould, in other parts, from burning, to stir it about in time. A preventative used by some, is to put on a layer of five or six inches of old dung, when the bed is made. It should seem, that a layer of about three inches of old bark might prevent burning. See Burning, pages 180, 181.

Planting is to take place as soon as the heaps of mould are warm. Spread the earth on the top a little; and having the hills a full ten inches depth, make a hole in the middle six inches deep, to receive the pot of plants; which pots will be from four and a half to five inches deep, and consequently the plants sink in this hole a full inch more in mould than they were in the pot; and they will have four inches depth of mould at the bottom, which there should be below the roots. Draw the mould up to the plants, and press it gently between, and to them, all round the hillock. It is spoken here of a pot of plants with three, but if only one in a pot, the whole hill must be thrown down to four inches depth, and the plants, with all the mould, set one close by the side of the other, and then filled up and round with the earth of the bed.

To shift plants out of the pots with the ball of earth entire about them, put the fingers between the plants, and turning the pot up, give it a gentle tap on the knee, or edge of the frame, and the whole will come out; a little pressure at the same time through the hole at bottom, with a finger of the other hand, will assist: turn the plants up carefully, and place them in so. To secure their coming out whole, water the pots to the bottom the day before; and if not too wet, they will slip out. If the plants hold tight to the pots, when turned up, a long thin narrow bladed knife will be
be proper to loosen the sides. If the mould should fall from the plants, carefully spread the roots in planting, and they will be sure to grow, only their having no mould to them will occasion a little loss of time till they have struck root again. Thus having settled the plants, shut the lights close till all is thorough warm, and then give a little air; if the mould put round the roots be dry, give a little water.

Management as to air, covering, watering, lining, and guarding against burning, steaming, &c. is now to occupy the constant attention of the gardener: On these heads, what has been before said may serve for instruction now; only as the season advances, and the plants get strong, the more air and watering may be ventured on, and if the heat of the bed is good, less covering will do. As the season advances, water earlier in the morning, or later in the afternoon, so as not to have a full sun come directly upon the leaves while wet; for drops of water act as convex glasses, to draw the rays to a focus, and thus scorch. As the weather may be cool, or the bed gets cool, water the more sparingly; and in this case, especially, avoid wetting the shanks of the plants much. It will be known when water must be given, by the larger leaves flagging, without any violent sun to occasion an extraordinary perspiration. Bottles of water may be kept in the frame, which is preferable to that warmed at a fire; yet the latter must be used when there is not enough of the former, to water so widely and deeply as necessary. When the frame gets full of vine, it gets full of root; and as by this time the days get long, and may be sunny, a good portion of water for the whole may be wanted twice, or, perhaps, thrice a week, from a watering pot.

Air should be given (as before directed) in fine weather to a tilt of three inches, or more. While there is a brisk heat in the bed, give a little air on nights. If the bed gets cold, it may be helped by covering up earlier and warmer, and uncovering later; though the plants
plants should not be deprived of more light than what must be, through bad weather.

In case of burning being discovered, take the burnt mould from under the plants carefully, but quickly, as far as can be, without throwing them down: remember to be cautious of steaming, and think of lining (180) in time, that the plants be not flinted by cold, for when they are materially checked, they hardly ever recover it. Sometimes the application of linings will so increase the heat as to occasion burning; let this be seen to, and (at least) remove a part, and remake it when the violent heat is abated.

Earth up the stalks with dry mould, (kept in the frame on purpose) as the plants increase; and let warm mould be added to the sides of the heaps, as soon as ever the roots begin to appear through, or the runners need support; proceeding thus, from time to time, till the bed is filled up level all over. For this end, keep bringing in a little cold mould frequently, laying it round the sides of the frame. When the bed is filled with mould, it is a good way to press it tightly round the frame, about a hand's breadth, to keep the roots longer from the outside.

Some gardeners mould the bed all over, as soon as they are satisfied there can be no more burning; but it is best to do it at several times, and not sooner than is necessary to cover the roots, and support the runners; because, where the mould lies thin, the heat comes up better to warm the air in the frame, for the leaves will want warmth as well as the roots.

Train the runners close down regularly with neat pegs, as they proceed in growth, and prune the tendrils off as they appear, but take care not to break any of the leaves. When the days get long, and prove very funny, the shade of a single mat, for two or three hours in the middle of the day, will be proper, as suppose from eleven to two.
Thus very particular directions have been given, but still much will depend upon circumstances, and discretion must direct. Let it be remembered, no neglected will be borne with. If any imprudent person should lift the lights high, to pry into the bed in improper weather, perhaps an early tender crop might at once receive their death blow, though exposed but a very short time. Success in raising cucumbers and melons chiefly depends upon keeping the bed in due temper; the plants being neither burned nor chilled.

Setting the fruit is the practice of most good gardeners, as generally infusing the embryos from going off, as they are apt to do at an early season; when not much wind can be suffered to enter the bed, and no bees or insects are about, to convey the farina from the male flowers to the female. The male flowers have been ignorantly called false blossoms, and so have been regularly pulled off (as said) to strengthen the plants, but they are essential to impregnate the female flowers; i.e. those that th ew the young fruit at their base: This impregnation, called setting the fruit, is artificially done thus:

As soon as any female flowers are fully open, gather a newly opened male flower, and stripping the leaf gently off from the middle, take nicely hold of the bottom, and twirling the top of the male (reversed) over the center of the female flower, the fine fertilizing dust from the male part will fall off, and adhere to the female part, and fecundate it, causing the fruit to keep its colour, swell, and proceed fast towards perfection. This business of setting the fruit may be practised through the months of February, March, and April, but afterwards it will not be necessary; for the admissi on of so much air as may afterwards be given, will disperse the farina effectually; but if the weather still is bad, or remarkably calm, setting may be continued a little longer. If short of male flowers, one of them may serve to impregnate two females. Pull off all the male flowers as
fail as they die upon the vines. Lay a bit of tile, or some such thing, under forward fruit.

Something of pruning may perhaps be necessary, for plants will not bear well, either in quantity, or quality, if the frames are crowded. The rule (of course) is, to cut out those runners that can be best spared, as being weak, most in the way, or having the smallest fruit on them. But as the fulness is generally owing to the putting in the bed too many plants, the better method is to cut down to the root a whole plant; and that in time; i.e. on the prospect of being too full of vine: this may seem a great sacrifice, but it will prove a profitable one. Let the discharged plant lay a day to wither, that it hang not hard to the others, and break their leaves, in drawing it out while fresh. About Midsummer, the frame may be raised, to permit the runners to strike out, and in a fortnight after taken entirely off; though once in a frame, and always in, is better, if convenient.

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A second crop of cucumbers may be sown at any time between the middle and end of March, if they are to be brought up in frames; but if under hand-glasses, or paper covers, then any time from the beginning of April to the middle, is soon enough, at least in Northamptonshire. A hot bed for sowing the seed at this time, need only be from two and a half to three feet thick, and a one-light frame. On this bed also may be sown, in pots, or otherwise, tender annuals; and it is a very good time for most of them. Or the seed for plants to ridge out under hand-glasses, may be sown in pots, and placed in other hot beds, to bring them forward till they have been stopped.

What has been said about making hot beds, and sowing, and managing cucumbers, will direct now; only at this season, mowings of grass may be put round a bed to increase the heat, and will be found useful to lay on the top of dung linings when funk.

A seed
A seed bed, at this time, should have a growing heat for one month, when the plants will be fit (the latter end of April, or beginning of May) to put either into another two feet and a half hot bed with a frame, or only under hand-glasses, &c. which should be rather large, because plants running from under them much before Midsummer will hardly endure the weather. Let them be covered up on nights with a single mat; and when they must run from under the glasses, sticks, or hoops, may be first to keep the mats off from pressing upon them: fasten the covering down at the corners with pegged sticks, to keep them from blowing away. Let the ground about the bed be stirred, and also raised, to train the plants level, and to give the roots full room to strike freely.

For ridging cucumbers, that are to have only hand-glasses, or some such cover, observe (as advised) not to sow too forward, for better be rather late, than have the plants cut off, or much injured, just as they are going to bear. The hot bed, or ridge, made in May, for hand-glasses, should be sunk in a dry soil, two spades deep; and two feet and a half thick of good dung is now enough. The mould that is thrown out (if it is good) may be used to cover the bed; and if but indifferent, may be laid round it, or on it, towards the outsides. Lay on it at first only three inches of mould, except where the plants are to be, at which place lay a depth of about nine inches, rather more than less. It is not necessary that the earth should be very dry, as directed for early cucumbers, but let it be warm first to plant in. If it be Mid-May before the plants are put out, holes of two or three barrows full of dung will be sufficient to bring them on through May, and then the season (if it is not bad) will be warm enough to keep them pushing forwards. There should be near four feet distance between each set of plants. Shade them for a few days at first putting out, and cover on nights till Mid-June.
Cucumbers not sown till the beginning of April, may be brought to bear fruit on the good bed, if under a large frame; and such a bed would, at the same time, serve very well to sow, or to prick out, tender annuals. See section 18, On flowers.

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A third crop of cucumbers may be sown any time, from the middle to the end of May, (or even a little later) either in a pot or not, upon some hot bed in use, to grow for a week or ten days; or sown upon a little heat of two or three barrows full of warm dung, trod close, and previously thrown together for the purpose: or if fresh and moist from the stable, it will, though at present cold, heat itself. Cover the dung with six inches of mould, and sow half inch deep, and half an inch asunder, under a hand-glass; and when the plants are completely up, thin them to an inch asunder, where let them grow, earthing them up as they get tall, till they show rough leaf. Then prepare more such little bodies of heat to plant them out upon, three or four in a patch, which cover with a hand-glass, or otherwise, and shade also for a day or two, if sunny. If you can take three or four plants up together by a scoop trowel, with earth to the roots, the better; and if not, plant them pretty near together, laying them afloat, so that the shanks be covered two or three inches. Keep these plants earthed up, and as much under their covers as may be, till towards Midsummer, covering the parts that run out on nights till this time. The third crop is that generally sown for picklers. Guard against the spot by a mat cover in September.

Sometimes, at this season, cucumbers are sown for picklers in cold ground, especially about London, or south or west of it; but foil, situation, and season, make a great difference in the cultivation of all, and particularly of delicate plants. If any seed be sown on cold ground, let it be in dry weather; give them a favourable
able situation, and sow in patches eight or nine seeds in a hole, formed like a shallow basin, covering half an inch deep; and if covered with hand glasses, to bring them up a little while, it were much better. Thin them when getting into rough leaf, to four or five of the best plants; spread them a little, and earth up to the feed leaves, giving a little water; and if, afterwards, the number of plants is reduced to three, it would be better than more. Give plenty of air by day, and a little on nights. Raise earth above the thorns as they grow, and let it lie about them, while the plants are small, in the form of a shallow basin.

As to saving the seed of cucumbers, as it is of some consequence to be ascertained of a good kind, when the early nature and approved quality of any sort is known, it ought to be an object to save it well; which will be best done from plants of the second crop, that have been ridged out, i.e. brought up under hand glasses. From this crop that plant which shews fruit first (under the same culture) should be reserved for feed, judging that its early disposition may be continued, and because the first fruit of any kind (if uninjured) always produces the best feed.

Fix upon handsome fruit, and prefer that which is placed lowest, or grows nearest the root. Leave no more than one fruit for feed upon a plant, and let it remain on the vines through August, or as much longer as the weather will permit, to be very ripe: when cut off, place feed cucumbers against a south wall, till they appear decaying.

Being got rotten ripe, scoop out the pulp and feed into some vessel, and stir it well up, which repeat for several days; then let it be washed in two or three waters, which will separate the pulp, and leave the feed clean: spread it thin for two or three days, that it may dry thoroughly, and putting it up in paper for use, keep it in a place free from damp. Let it be every now and then examined
examined and rubbed in a dry cloth, and it may be kept for several years.

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OF RAISING MELONS.

See Melon in the next Section.

MELONS are raised much in the same way as cucumbers. They should not, however, be thought of so early, and from the middle of February to the middle of March will (for most persons) be soon enough to sow them. The place where they are cultivated should be well sheltered, so that winds may blow over the frames, as mentioned in the directions about hot-beds. They require a stronger soil to grow in than cucumbers, and more heat, both at bottom and top, and need less water: they take up more room, so that one plant, or at most two, will be enough under one full sized light.

Cucumbers may be raised on a feed bed till fit to plant out on the fruit bed; but melons will (generally at least) require an intermediate bed. During the whole time of the cultivation of melons, (till high summer) they must have a lively bottom heat, in order to bring them forward, and succeed well; and, if melons are late, as soon as September enters, a lining of hot dung may be put to the bed, to afford some degree of heat to the outer roots, as an equivalent to the failure of the season. Melons never do well in a shady summer. As cucumbers are about three months coming in, so melons are about four. They set their fruit in about two months, and are about the same time in ripening, though forty days will sometimes effect it.

The seed of melons (procured from well ripened and fine flavoured fruit) should be about four years old, though some prefer it much older, as judging it so much the less likely to run to vine: If it is too old, however, }
sect. xiv. of raising melons, 198

it comes up weak, and is apt to rot, when the mould is not sufficiently dry, and the seed bed not very warm. If new seed only can be had, it should be carried a week or two in the breeches pocket, to dry away some of the more watery parts: The earlier the seed is sown, the older it should be. Melon seed may be sown in a cucumber bed, that is in a brisk heat, in pots plunged towards the middle; but a bed should be ready to move the young plants into before the cucumber bed gets too cool. Sow only three or four seeds in each pot, and cover a little more than half an inch: The earth in which the seed is sown, should not be so strong as that in which the plants are to grow for fruit. When the seedlings are three or four days old, take them up carefully, so as not to break any of the roots, and either plant one in a small pot, or two in a little bigger; but depend on no plants which do not appear healthy and strong. Sow a few seeds every four or five days, lest accidents happen to destroy the first plants.

As melons require skill, and occasion trouble to raise them, the greatest possible care should be taken that the seed is of a good kind. Melons should never grow near cucumbers, especially if for seed, as the farina of the cucumber may impregnate the blossom of the melon, and give it a watery flavour, or quite alter the nature of it: Do not sow foreign seed, except for experiment.

Though melons may be sown in a cucumber frame, that is in a good heat, yet rather make a seed bed, of about three feet thick; and having put on the frame and light, tilt the glass a little, and when the great heat is abated, put on some dry, rich, and fine, but not very light earth, to the thickness of four inches all over; and the next day, if the mould is not too hot, sow the seed some in the beds, and some in pots, placed just in the middle, which may be drawn up out of the way of any burning heat.

When the plants appear, give them air, and beware of rancid steam from the glasses dropping on them: They
They may be wiped with a woollen cloth, or turned to dry in fine weather. Consider what was said about cucumbers, concerning too much heat, too little, &c. After the melons have been up two or three days, (as was said before) let them be potted and plunged to the rims, towards the middle of the bed; and the next day, a little water (warmed in the bed) may be given the roots; or a little may be given at the same time, if the mould is quite dry.

As soon as the plants are potted, think of making a second bed, to be ready in a week, ten days, or a fortnight, (as circumstances dictate) that so the young plants may receive no check through a decline of heat in the bed where they are. This bed should be stronger than the seed-bed, and rather for a two-light frame; and being moulded as soon as it can be, not to burn, let the pots in, about an inch deep, and in a day or two draw a little mould up round them, and so on again. But if the first bed is warm enough to hold the plants longer, the heat of this second bed (if violent) may be suffered to evaporate a little more first. Here they are to grow till in the second rough leaf, when the plants should be stopped, as was directed for cucumbers.

The third, or fruiting bed, is to be (observe) ready by a few days after the time of this hopping the plants. It should be a strong bed, of four feet thick, and for a three-light frame, and made the higher, the more strawy the dung is. As soon as the burning heat is sufficiently abated, let the bed be covered all over with good dry melon mould (the best is a rich moderately strong loam) three or four inches, and heaps made under each light of about fourteen inches depth. Melons do not fruit well in a light mould, but yet it should not be a heavy one. If the mould is thought too light, let it be pressed a little together to give it consistence.

To a fresh maiden soil, or good earth from the kitchen garden, that is known to be in heart, (by the strength of the plants it has produced) add about one fourth, or one
one third, of well confumed dung, and it makes a good compost, but it must be completely incorporated by frequent turning and exposing to sun and air, and kept by some means dry, as under a shed, &c. as directed for cucumbers. Much depends on the melons growing in a good soil, and rather a strong one.

The planting of melons takes place as soon as the hills of mould are warm through; only if a violent heat is in the bed a day or two’s delay does not signify, if the plants are doing well where they are; yet the roots must not be cramped longer in the pots than necessary. Melons require a greater depth of mould to grow in than cucumbers, and the bottom of the roots, at planting, should not be nearer than five or six inches from the dung. Shade them from much sun, till they have taken root.

If the lights are small, one plant under each is sufficient, and if large, let there be only two; for melons require much room. It is a great error in the cultivation of melons not to allow it them. Earth the plants up with dry mould about the shanks as they proceed in growth, and bend them gently down with pegs, to give them a regular and snug direction all over the bed. When fruit is set, there must be only one of the large, and two of the small sorts, (fair and promising) left on each principal runner, and this runner should be pinched off at the second, or rather the third joint above it, which is called stopping.

Pruning is necessary, in order to strengthen the bearers, and keep the frame from getting too full of vine, i.e. let all very strong, and all weak shoots be taken out, as also the tendrils; but take care that too many male blossoms are not thus cut off, for the weak shoots (if not abundant) do no great harm: As in other plants, so in melons, it is the middling shoots that bear fruit the best.

Train the branches all regular, (in time) with neat pegs, for it hurts melon plants to lie rude, and to have their
their leaves disturbed or damaged, to put them in order. A piece of tile, or a small earthen plate, under each fruit, is proper, to keep it from the damp mould, and to assist its ripening by reflected heat. Three (at the most four) melons are as many as should be left to grow upon one plant; and those are best which are situated nearest the stem, as remote ones are not so well nourished. Do not let a great deal of vine grow below them, lest they be too much robbed, and let them be ftopped as before directed, for when there is a great length of vine above, nature pushes towards the extremity, and passing by the fruit below, forms more above, sometimes to the total loss of the first set fruit.

Keep mould round the sides of the frame, to earth up the plants to the very leaves, and round the hills, (a little at a time) as the plants increase, and do not earth all over the bed before it is necessary; for full earthing at first is apt to occasion burning, and afterwards to damp the heat of the bed too much, diminishing also the warmth of the air about the plants. When the bed is earthed all over, press the mould all round the sides of the frame, about six inches wide, to make it firm, that the roots may not get too soon to the wood, and mat too much against it, which occasions sickliness.

Do not think of cultivating early melons, without plenty of dung both for beds and linings. The particulars of management, concerning covering, shading, air, lining, ftopping the young plants, setting the fruit, &c. and to guard against burning and steaming, may be seen in the directions already given for cucumbers; only less air, and much less watering, will do for melons. Keep them close shut down on nights, when the heat of the bed is become moderate, and cover well. As melons, therefore, are kept rather dry, they should be shaded a little in very funny weather by a single mat, for two or three hours in the middle of the day; i. e. when the season is forward, especially, if the bed itself be in a hot state.

Melons
Melons may be watered moderately once a week, in fair weather, or twice if sultry, especially if the mould is light. Early in the season, water a little before noon, and in high summer a little before evening. When the fruit is setting, and when getting towards ripening, very little water must be given: be sure to water the extremities of the roots, but avoid the shanks, particularly while the plants are young. A little sprinkling all over the leaves, when the plants get big, (but let not a hot sun shine upon them at the time) will greatly refresh them, when it is not thought proper to water the roots thoroughly, on account of the bed being cool. Because much wet is certainly injurious; some gardeners keep their melons exceeding dry; but their leaves should not shew too much sign of 'drought', left the fruit shrivel for want of moisture. Take care that the heat is kept up at the setting of the fruit, or it will become yellow, and fall off. Preserve a good bottom heat till about Mid-June.

Melons should not be turned so much about, as is the practice of some gardeners, in order to ripen the fruit all over; for it hurts the foot-stalk, distorting its vessels that feed the melons, and so preventing a proper digestion of the juices, and some increase of size.

The flavour of a melon being preferable to the size, is the reason why water is to be withheld (as much as can be) when they are ripening: with it they will become bigger, and so appear finer; but what is quantity without quality?

The young fruit need not be fully exposed to the sun; it had better be a little covered with leaves, for much hot sun hardens the skin, and prevents its proper growth. When a melon has nearly attained its size, then, however, a full sun is necessary to ripen it.

As to cutting the fruit, if it is to be some days before a melon is eat, (as when carried to a distance) it should not be quite ripe. Its ripeness is known by the high colour, and strong odour, and the cracking of the foot-stalk;
talk; and if they give not a full and pleasant scent, they will not prove good. Always cut melons in the morning, and if fully ripe, they should not be kept more than two or three days. If a melon is cut before it is ripe, (tis said) it may be ripened, by wrapping it close up in cloth, and placing it in a heap of warm horse dung for twenty-four hours. But the better way would probably be, to treat them as unripe medlars, which article see, in Sect. 17.

A second crop of melons is to be had, by sowing (in any other hot-bed, or one made on purpose) from Mid-March to the beginning of April, according to situation, as in a favourable one the sowing may be ventured on the later. These must be brought up as before, till flopped, and then ridged out; i. e. when about a month or five weeks old. The method of which ridging is, to make a trench in the ground four feet wide, and deep according to the soil: If the ground is dry, it may be from a foot to two feet deep, or otherwise but a few inches. Lay in hot dung full two feet and a half thick, being well shook and beat together with the fork. This trench must be of length according to the number of plants designed to be put out. For each hole (which should be full four feet asunder) put on good melon earth, laid up in a round hill, to fifteen or eighteen inches high; and then lay the earth, thrown out of the trench, to the sides and top of the bed, about three or four inches thick, breaking it fine, and cover all over with mats to draw up the heat: But never expect ridged out melons (particularly) to do well in a light foil. When the earth is warm, put in the plants, two in a hole (or only one) giving a little warm water, and cover with large hand or bell glasses, or oiled paper lights, and proceed to manage according to that description which the directions already given about melons and cucumbers have inculcated.

As
As the bed sinks, and the roots spread, take care to add a good thickness of mould around the hill, for the plants to strike into, and to keep them up: This may be put in a week or ten days, and it will keep out cold air and wet from the dung: but it is best not done at first. When the plants spread to the extent of the bed, the ground about it should be dug over, and rotten dung buried to raise it to the level of the bed; but, perhaps, this work has been superseded by the necessity of a lining to throw in heat.

If the plants are forward enough to ridge out in April, or beginning of May, it may be proper to make these beds on the level surface, or nearly so, for the sake of lining; but if later, they may be sunk as directed above, or deeper still, in a dry soil. Remember, it will be necessary to line, if there appears any likelihood of a want of heat, before the fruit is set, and got a little forward. Do it in time.

If two ridges of melon plants, let there be four feet (or more) of alley between them, and then a lining may be applied of that width to heat both beds; and this middle heat may be made use of to raise plants for the third crop of cucumbers, or tender annual flowers, purslane, &c. Give ridged out plants air on the south side. They will need more water when in the ridges than in frames, and give it wide, but little about the stem, or hardly there at all; nor let it be applied cold, though a small degree of warmth from the sun, or otherwise will do. This crop need never be shaded but when the leaves hang. When the plants cannot be contained under the glasses, let them be carefully trained out, and covered with mats all over on nights, and on days, in bad weather, till July, particularly if much rain falls.

With large oiled paper frames this work of the second crop of melons may be very well managed. The plants should be kept under hand glasses till too big for them, and then the paper lights may be put on, which containing the runners till high summer, they will be safe.
Yet these covers, being set upon bricks, may be kept always on; but let the fruit, that happens to be without side, be covered with a hand glass, which will help to ripen it. Let the lights be protected in heavy rains, by laying some cloth, or mat, over; and towards the close of summer, guard the plants well against much cold on nights.

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A third crop of melons may be sown (in favourable situations) towards the end of April, or beginning of May, if the former crop was sown about Mid-March, and this is to be proceeded with in the same manner as the second. When September comes, (as was observed) late melons must be preserved, as much as possible, from cold and wet, that they may ripen. To this end, glazed frames may be used over all, or at least hand glasses put over each fruit, covering warmly up with mats on nights. Those melons that do not ripen may be used for mangoes, and make good ones.

SECTION XV.

OF ESCULENTS.

THE USEFULNESS of esculent plants, as serving for the food, health, and pleasure of man, is pretty generally acknowledged; and that they may not fail to answer these ends in the best way, let them have every attention; and that, not only in their cultivation, but in their preparation for the table. Let there be no slight put upon the bounty of PROVIDENCE, in ordaining
ing them to our use, by an unnecessary preference to other foods. "There was a time, when bread and herbs (with a little fruit) were the only dainties wherewith the tables of the greatest voluptuaries were spread."

"Vegetables and fruits were our innocent, primitive, and natural food; but men's depraved appetites have substituted the shambles; yet, after all, the inventions of the most luxurious and voluptuous epicure, the most Cæsarian tables would want of their magnificence, noble gust, and grateful relish, without fruit and the productions of the garden, which gives the true condiment, and most agreeable closure to all the rest."

"Their use is, all our life long, of that universal importance and concern, that we can neither live nor subsist in any plenty, with decency or convenience, or be said to live at all without them: whatsoever contributes to delight or refresh us, are supplied and brought forth out of this plentiful and delightful store of the garden."

Let it be a rule to gather vegetables of all kinds (designed for the table) in the morning, before much fun has shined on them, and lay them by in a cool place till wanted.

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Alexander is a culinary plant, formerly much used, but has given way to celery; like which it is blanched (about a foot high) for use in soups and salads. The seeds are best sown in drills two feet asunder, and thinned to six or eight inches distance, though they may be sown at broad cast and transplanted. Spring sown plants come in for autumn, and autumn ones for the use of spring.

Artichoke, there are two kinds of, the globe and the conical. The latter is the hardiest, but the former is generally preferred, both for size and flavour. Artichokes are propagated from rooted slips, or offsets in April,
April, taken from the mother plant, by drawing the
mould aside. As they require a rich soil, and are
stationary plants, dig a good quantity of dung in com-
pletely below the roots for them to strike into, breaking
the soil well with it.

The head of the artichoke is valuable according to
its size and substance, and therefore to a good soil, add
good room: for though they may be planted nearer,
yet they would do much better in rows six feet asunder,
and three feet apart in the rows. Between these rows
may be propagated several sorts of spring or early
summer crops. They will reward the trouble of
being regularly watered in dry weather; suffer them to
bear only one principal head. Fresh plantations should
be made every third or fourth year, to have them in
perfection. Every year that they stand after planting
they should be dug deeply round, and some well con-
fumed manure applied. Cut the heads when the leaves
begin to expand, and before the center opens for
flowering; and let them have about a foot of stalk,
breaking the remaining part of the stem down to the
bottom, that it may not rob the root by a waste of sap.
At the spring dressing, all the suckers are to be taken
off, leaving three only of the strongest shoots to fruit.
Those without roots will grow by planting deep, and
keeping moist.

Let the plants be protected from hard frosts; at the
prospect of which, cut down the stalks and outside
leaves to the inner ones, dig between, and earth the
plants to near the tops; and if severe weather follows,
y they should be covered thick with straw, which must
be removed when the frost goes. The earthing-up
need not be levelled down till March, or may be let
alone till the time of their dressing, which is best done
at the beginning of April. If uncovered early, let
the litter lay by ready in case of frost to cover again.

To have a long succession of artichokes, some slips
should be planted at two different times every spring.
as they bear the same year, only come in later, and with smaller heads than the old plants. If being planted late, they do not produce in the present season, they come forwarder the next summer than old stools do; but remember, a good soil and open situation are absolutely necessary for the artichoke. 'Tis of service to lay grass mowings, or some litter, about the roots, to keep them cool; for though artichokes should not be planted in a moist soil, on account of frost, yet they thrive best in a cool one. Artichokes that come late, may be cut with their full stalks, and being laid up to the head in moist sand, in a cellar, will keep a month, so that they may sometimes be had at Christmas.

Asparagus, there is (in fact) but one sort of, as an esculent; but some difference occurs as to size, colour, and flavour, arising from cultivation. In order to obtain large heads, and to have the beds continue to produce the longer, much dung is used; but the less of it, the sweeter will this vegetable be, so that in a soil naturally prolific, no dung need be used.

Asparagus beds are commonly made from plants, but the preferable way is from seed, the best of which is the Gravesend sort. The time for both is March, rather early in the month than late, though the beginning of April may do. The plants should be only a year old, and set in rows a foot distance, and the roots the same, or a little less in the rows.

Making the beds four feet and a half wide, there will be four rows of plants, and nine inches left between the outside rows and the alleys, which should be two feet wide. The beds ought to be trenched full eighteen inches deep, and enriched with dung that is well consumed, burying it below the roots; they will soon strike into the dung, which had best not lay immediately about them. If some mould of rotted vegetables, or wood pile earth, in the stronger soils; and a little pond mud in the lighter, were mixed with the top soil, it would greatly help the plants, or if none

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other
other manure than a mixture of all these were used through the whole work, it were better. As asparagus beds are designed to last many years, (suppose twelve or fifteen) no pains should be spared to do the work well; and if the ground were prepared sometime before hand, or in winter, it would be an advantage, the top soil having trenched for the benefit of frost. The alleys, as well as the beds, should be made good, for the roots of the outer rows will strike into them. A rich sandy loam is the best soil for asparagus, and if the earth is too heavy, or too light, rectify it. The stronger the soil, the higher the beds should lie above the alley, and more rounded; and in very light soils they should lie flat, or rather sinking, to catch the rain.

To plant beds of asparagus set the line nine inches from the edge of the bed, and cut the trench upright, close to it, so deep that the crowns of the roots lie full two inches below the surface. If the mould of the bed lies light, and is likely to settle much, the crowns of the plants may come very near the top, and two inches of mould put on afterwards, which is indeed the best method of planting; but if the ground is not expected to settle, two inches of the top mould must (in this method) be first drawn aside to cover with. The roots must be neatly spread against the trench, and cut as little as possible; i. e. only the damaged parts off. This should be with a sharp knife, and it would be better if done the day before they are used, that the ends may dry and heal. It is of consequence to have the plants dug up carefully, with a three pronged fork, that the roots may not be injured.

To sow beds of asparagus, make little holes an inch deep, at the distance directed for plants, and having laid three fine fees in each, near an inch asunder, cover them three-fourths of an inch, which will leave little hollows, to shew their places, and give occasional watering in a dry time, to fetch them up. If the beds were covered with a little haulm or straw, till the plants
plants appeared, it would help them to germinate, as in
a sunny season they are apt to lie long, especially if
the work be not done till April. And the plants are
above ground fill up the holes. Refresh the plants
occasionally with water through the summer, and when
they are two inches high, thin the holes to one plant
in each, and cover the beds with an inch of mould,
and they will then be two inches deep, as was directed
for plants. The drawn plants may be pricked out at
four or five inches distance, to make good any defici-
encies next spring, or otherwise; but if the plants are
not wanted, it will be best to cut the spare ones off,
which does not disturb the roots of those left. In
October, when the haulm is decayed, cover the bed
with about half an inch of rotten dung, to make them
strong and keep out frost; and, in severe weather, put
some long litter over all. In spring, take the litter
off, and gently stir (with a proper fork) the rotten
dung in: do so again the next year. Watering aspara-
gagus beds with the draining of a dunghill (a rich ma-
nure too often lost) in autumn, or spring, will wash
down to the roots, and greatly benefit the lower soil to
the increase of the produce: It is worth while to make
a rank dunged water for this purpose, to recover weak
or old beds. See p. 53.

Asparagus is cut from planted beds in three years,
and from town ones in four; but this loss of a year,
will be amply repaid by the superior size and abundance
of the heads. If the buds come very fine, a little may
be cut the year before. A thin crop of onions, or of
lettuce to prick out, is commonly had on planted beds
the first, and on seed beds the two first years, taking
care that none grow just about the plants. The best
method of doing this business, is by an intermediate
drill between each row, and again across them: It were
better however to have no crop at all.

The management of asparagus beds is, to cut down
the haulm, within an inch of the ground, when it
turns
turns yellow in autumn, clearing of weeds, stirring the ground, and covering the whole over with about an inch of rotten dung before every winter, which is to be forked in at spring, not to hurt the plants, and covered with some parings of the mould from the alleys, which should afterwards be dug over, if no crop is in them to prevent it. It may seem, that an addition every year to the beds might sink the crowns of the plants too low; but it is their nature to rise as they grow. Besides the rotten dung, as above, there may be laid some long litter over the beds, before severe weather sets in; but the covering of asparagus beds is not simply to keep out frost, (which will not hurt them without much wet) but to keep them warm, that the buds may be forward at spring. A stump ought to be kept at each corner of the beds, to shew their bounds, and as marks to pare the alleys up by, which (generally) should lay three or four inches lower.

The cutting heads of asparagus should be carefully performed, not to injure adjoining buds that are starting up. Move the mould a little aside to see, and then close by the head, and with a little slope, cut it off about three inches below the ground. The knife should have a long narrow blade, and a proper one is indented with teeth as a saw. It may be cut, when from two to four inches high; and let it be regularly done as soon as ready: If it is lain by in a cool place, as in a dairy or cellar, it will keep very well three or four days.

Six rods of well planted ground will produce, in the full season, about a hundred a day, and this, as a rule, will help to determine how much room a private family should allot for this vegetable.

Beans we have several sorts of, differing in size, colour, flower, flavour, hardiness, and time of coming in. Of the forward beans, the Mazagan is generally preferred, as the earliest, hardiest, most productive, and pleasant. The Portugal ranks next to it. Of the later
later sorts, the Windsor stands first, as to general estimation, for eating; but it is in most soils rather an idle bearer. The longpod and Sandwich, however, are preferred by some, chiefly as more fruitful. Trials must determine taste; but it may be observed, that the white blossom bean is a very good one, if eat young.

Close under a warm wall (to which they should be kept by packthread) some mazaganos may be put in the ground early in October; but at the latter end, and the beginning of November, is surest, when they commonly succeed at some distance from the wall, earthing them up regularly as they proceed in growth. Crop the tops off as soon as the lower blossoms are full out, or begin to fade. This forwards them.

Put the small sorts of beans in three inches deep, and four asunder, in single rows; or six inches asunder every way, in double rows; and let the rows, in the first case, be two and a half, and in the latter, three feet asunder.

There is a dwarf bean (by some called the fan-cluster) that grows but a few inches high, which is very convenient to put in, close under a south wall, in October, and they will thus be but a few days (if any) later than the mazagan sown in November.

'Tis a good way to sow patches of beans in a warm corner to stand the winter, placing them about an inch from one another, and transplanting them at the above distances, the first mild weather after Mid-February or in March, to any sheltered part of the garden, and if under a south wall (not too near) it will forward them, especially if watered in a dry time. Beans, sown in patches, may be easily covered in severe weather, by a frame, &c. Make trenches to lay them in when transplanted; pull not off the bean adhering to the roots, shorten them a little, and put them in rather highly covered over the shanks. If planted as last, they will soon get erect; but this is only per-
mitted in case of a shallow soil, or long shanks and roots. If dry, give water.

In severe weather, a light covering of peas haulm, or any straw, may be lain over winter beans to protect them, but must be taken off as soon as the weather alters; for too much covering of any thing is as likely to destroy (eventually) as being wholly exposed.

Though the mazagan is mostly the bean put in to stand the winter, some gardeners sow other sorts for the purpose, (even Windjors) which may succeed; but they certainly will not come in so early by near a fortnight, and must have a dry sheltered situation. The larger beans must be sown a little deeper, and two or three inches farther asunder than the mazagan, allowing a foot more between the rows, especially if double ones, which are best.

If early crops of beans fail, through severity of the winter, be sure to take the first opportunity of open weather in the new year, to sow some of the early sorts; and if they be covered over with some straw, they will come up the sooner; but remove the covering as soon as the beans appear, if not frosty at the time. Or if a hole be dug near a south wall for two or three barrows full of hot dung, covered with six inches of mould, beans may be set very near one another, for planting out, cover the work with straw as before, and thus time will be gained, especially if the beans be soaked a day and night in a warm room.

Succession crops of beans are to be sown every three weeks, or a month, from November to July; preferring the larger sorts in February, and so on to June, when the smaller (or early) kinds will be the propereft.

Beet, there are four kinds of, red, green, yellow, and white, which are used several ways, as pot and sallad herbs. The large leaves of the white and yellow are sometimes blanched, when full grown, for the sake of their thick ribs, being peeled for stewing, and eat as asparagus, and called chards; some say the yellow
yellow is best, though the white is most commonly the sort used. Sow beets in February or March, thinly, either in drills or broad cast, and hoe them to a foot asunder: They run to feed the second year. A little also may be sown, early in autumn, for late spring use; but they will be small. The red sort is cultivated for its root, and is preserved in winter, in dry sand, as carrots are; and of this there is a turnip shaped sort, that suits best in heavy shallow soils, and a long rooted sort proper for light and deep ones: Beets, but principally the red, require a rich soil.

Boorcule, or kale, is a hardy green, of which we have two principal sorts, green and brown, and a little variety is in the leaf, as plain, curled, variegated: The latter is a pretty vegetable when growing, but not so hardy, or so pleasant, at table as the other sorts.

Some sow two crops of this green at the end of March and of April, but one sowing may suffice; and the first day of April, or at least in the first week, is the best time. Sow in an open situation, and in cool ground, and thin the plants in time, that they may be robust, and able to support themselves.

This green should be planted out in rows a yard asunder, and two feet apart in the rows, having been previously pricked out from the seed bed, at six inches for five or six weeks, to obtain strength for final planting in June or July.

Let boorcule, and all summer planted things, have a good watering at the time, and again in a few days, if the weather proves dry; and before winter let them be well earthed up to support the plants from the wind and snow, that are apt to break them down, or at least, to set them awry; which, when it happens, should be attended to, to fix them upright again; observe this of all other winter greens.

The heads of boorcule may be cut in winter, and the sprouts come full in spring; but the heads should be frost bitten first. The sprouts should only be topped
topped when gathered, and they will shoot out again below.

Broccoli is of two distinct kinds, the purple, and the white; for the green, &c. are only varieties from them; of each, there are large and dwarf sorts, the latter of which is mostly cultivated. All the sorts, except the white, generally produce side shoots, as well as a head. The white is called cauliflower broccoli, because it resembles a cauliflower much, but is not so white. This is not so hardy as the purple, nor is it thought so good; perhaps the green may be esteemed the best. Of the purple there is an early and a late sort; the former is sowed to come in at autumn, and the latter in spring.

The first day of April is a good general time to sow for the autumn crop, (though some do it sooner) and the last day of April for the spring crop. A little white may be sown with the early autumn purple. But it will be very proper to sow again a fortnight after each; and at the end of May, for late spring use; which, though they produce small heads, will be very acceptable. Some gardeners sow in June, or even the beginning of July. Do it in open ground, and see that the young plants are thinned, when quite small, that they may not be drawn up weak; and prick them out when they have got six leaves, to six inches distance, where having grown to a proper robust size, (as about July) let them be planted out at two feet, or a little more, asunder. The autumn sort should be planted towards a warm wall, lest it come not in at the time. Broccoli requires a rich and dry soil; yet watering, in a dry time, is necessary to help their heads to swell, and forward them. Stir the ground about the plants occasionally, and keep them well earthed up. The best broccoli feed comes immediately from Italy, whence we first had it; but it degenerates.

Brussels sprouts are winter greens, growing much like broccoli, and by some preferred as more delicate
licate eating; but they are not so hardy or productive. Their culture is the same as boorcole, only they may be planted out at rather less distance.

Cabbage, there is a considerable variety of, as to flavour, size, time of coming in, and hardiness. Some are for the use of the table, and others for cattle, though the latter are very sweet before they get solid. The early dwarf, or Russian, and early Yorkshire, are the chief sorts for spring use, and the early and late sugar-leaf as excellent for summer and autumn.

In April, the forwardest cabbages may be tied up, (as lettuces are) to assist them to head and whiten; a practice seldom seen done, but which will certainly be helpful: Use new wetted bafs.

Sow for early spring cabbages about Mid-August; soon after they are up, thin them: in a month, draw the strongest, and prick them out four or five inches apart, where having grown about the same time, they will be fit to plant for spring use; or they may be put out any time after, even in winter; for should frost come directly, it will hardly affect them injuriously. Yet it is a good practice to let some remain in the seed-bed, at proper distances, where being well earthed up, (or in very severe weather covered a little) they will survive when those set out are cut off. Plants that are thought too rampant towards winter, may be pulled up, and planted in the same place again, (November) and will thus stand the frost better, and not be so likely to run.

Plant cabbages, if in a middling soil, two feet asunder, allowing six inches more for a rich one: There should, however, always be some dung dug into the ground; which not only increases their growth, but prepares the soil for future cropping. If they are planted at half the above distances in the rows, taking care to draw every other plant in time for early greens (or coleworts) it is a very good method, as the ground is better occupied, and the plants protect one another. See Coleworts.
The late cabbages, or those of summer and autumn, should be sown early and late in the spring. For early summer uses, sow after Mid-February on a little heat, or under hand-glasses, on a warm border; the later crops in March, to the end of it; and for the latest at the end of April; when the small Russian sort will answer best, and be delicate.

Sow red cabbage feed either about the middle of August or beginning of March; but as there is much more bad feed than good of this vegetable, be as careful of the sort as possible; i.e. such as will be solid, and of a deep colour.

Carrot, there is a little variety of, in colour, size, and time of coming in, though not much in taste. We have orange, red, and yellow, but the former is generally preferred. The sort sown for the first crop, whether in cold ground, or on a hot-bed, is the early horn-carrot. Both this and the late horn-carrot grow short and thick, and are therefore proper for heavy, or shallow soils, as the other sorts are for light and deep ones.

Sow carrots always in good time, as the feed lies long in the ground, and they are, by many persons, coveted early. A few should be sown in a favourable situation, the first tolerable weather in February, digging the ground well and deep for the purpose; for if it is lumpy, the carrots will grow forked, as they will also if the ground is fresh dunged.

Carrot feed should be mixed with dry sand, or earth, rubbing them well together, in order the better to spread it equally in sowing. Use about twice as much sand as feed, and if earth, it were better to be of a different colour from that on which the feed is distributed, that it may be seen.

If early in the month, the new sown beds may be covered with a little haulm, or straw, which will help the feed to germinate, and preserve them from being thrown out of the ground by frost; and this covering should be continued on nights, and taken off by day, when
when the plants are up; which practice being continued for some time, will greatly forward, as well as preserve, the crop. Some people sow in December and January, if the weather is mild; but for this, (and other circumstances in gardening) situation must, in a measure, govern, and discretion determine: In this case, cover the ground with straw, as for radishes; which see.

If a hot bed be made for carrots, let it be about two feet and a half thick of dung, and covered with eight inches of sifted mould, as soon as the violent heat is gone off. Sow the seed directly, a full quarter of an inch deep, and if covered with lights, give air sufficient to keep the earth only just warm. A hooped bed to be covered with mats may do for this purpose, but in this case, two feet of dung may answer better than more; for if the seed is hurried up, they will be too tender for the protection of such a covering, and the plants will run to top, and not bottom well.

Thin the plants soon to an inch asunder, and in a little time again to three inches, in order to grow to a small size for use; and if not so wanted, at any rate draw some equally, that those which remain may swell properly: Carrots must have a great share of air, if covered with glass.

The principal crop of carrots should be sown early in the month of March, or before the end of it, and be soon hoed, or thinned by hand, to a small distance, and a while after to a greater; so that together with hoeing and drawing for use, they should at last stand at from eight to ten inches distance, according to the soil. This may seem too much, but certainly carrots have, in common, too little room allowed them for attaining their proper size. Let the first hoe be of the breadth of three inches, and the second of six. No consideration should prevail to let carrots stand too long before they are properly thinned.
A few late carrots may be sown in April and May, to draw young in the summer; and some in August, to stand the winter, for early spring use; but carrots that stand the winter grow hard, and are of very little worth, and that chiefly for soups.

In autumn, let carrots be taken up as soon as their leaves begin to change; for when they continue too long in the ground, they are apt to get worm-eaten, especially in rich soils. Cut the tops off at an inch, and lay them up dry and free from mould, in dry sand, a layer of sand, and a layer of carrots. All those that are broken, or cut, should be thrown aside for present spending, as they would decay in the heap, and spread infection to the rest. Those who grow large quantities for cattle, stack them in hovels, &c. with a thick coat of straw, bottom and sides, and particularly on the top. In a foil that suits them, carrots turn to good account, and are excellent food for all sorts of cattle, but particularly pigs and horses.

Cauliflower is sometimes distinguished into an early and late sort; though, in fact, there is no difference, only as the seed of that called early is sowed from the forwardest plants.

The time for sowing cauliflowers is rather a nice business, but it is generally settled for the 20th of August, a day under or over. It will be prudent, however, to sow again a few days after, but not earlier, as then they would be apt to form only very little heads, and run up for feed. Let the young plants be timely thinned, that they may be strong. Prick them out when the first leaves are about an inch broad. And as cauliflowers are tender, they will require to be pricked out in the warmest and driest part of the garden. Some of them should be protected under hand-glassies, frames, or hoops and mats, shutting up close, and covering the glassies with mats or straw in severe weather; not doing this, however, before the weather makes it necessary; and
and always allowing what air they will bear, especially towards spring, otherwise they may be disposed to run, or will be weak and sickly. Keep them free from dead leaves, and stir the surface of the earth about them. As the season advances, let them be wholly uncovered on fair days, and when they are got forward in March, draw the spare ones to plant out, leaving only a single plant under a small hand-glass, and two under a large one; or a few may be drawn out at the end of February, if the glasses are crowded. Continue the glasses on as long as they will contain the plants, raising them upon bricks. The number generally put under hand-glasses for the winter, is from three to five; and if the glasses are on close for a few days, it will help them to strike. Those drawn from these, make a good succession crop: But do not prick out, or plant, those that have blackRhanks, for they will come to nothing: Cauliflowers are liable to this defect chiefly in wet seasons. Slugs are apt to harbour about them, for feeding on the leaves, which see to, especially those in frames, and now and then stir the mould about them. The distance which they should be planted is from two and a half to three feet, according to the richness of the soil.

If the autumn sown plants are cut off, the earliest opportunity must be taken in the new year to sow some seed on a gentle heat, as in February, covering with glasses, or only with hoops and mats. From this bed, when it is cold, they should be pricked upon another, where let them grow till planted out to bear. And if those weak ones, that have stood all the winter, were pricked out early in the spring upon a little heat, covered with good mould, it would strengthen and forward them much. In default of dung, sow under hand-glasses in a warm border.

To have a succession of cauliflowers till winter, sow on a slight heat, or under glasses, in March, for plants to follow the first crop; and again in open ground, about
the end of April. If winter should overtake some of
the latest plants, they may be taken up, when in flower,
with a ball of earth, and planted or laid in a conservatory,
or a cellar, where they will swell their heads, and be
safe for a month, or more. All the succession crops,
except the last, should be planted in a cool part of the
garden, not shaded.

Cauliflowers require a rich soil, and to be kept moist
during summer, especially when flowering, watering
them well twice a week. If the water were impregnated
with sheep or other dung, to the strength of about
an ounce of salt to a gallon of water, it would help
them in size, for cauliflowers are greedy feeders. The
ground in which they grow can hardly be too full of
dung; nor need there be any fear as to making them
rank: a little salt thrown in the water, is, however,
cleaner, and does away the idea of rankness. When
they are watered, the earth may be drawn from the
stems, and put to again. As soon as the head appears,
bring down one or two of the middle leaves over them
to protect from the weather: It preserves them white
and cool, and encreases the size. This should be par-
ticularly practiced with Autumn heads, left wet or frost
spoil the flower.

Celery we have three or four sorts of, as the com-
mon Italian upright, both hollow and solid, with the
Giant hollow, and turnip rooted, or celeriac.
For early celery, sow in the last week of February,
or first in March, on a gentle hot bed, or in a warm
rich border, under a hand-glass, or not. When culti-
vated so early, it is apt to run, but if only a few plants
stand tolerably, it is worth while to try, and even when
in a pipu state it does for soups. Sow thin, cover so,
and keep the earth moist; for the seed is slow in coming
up if dry weather.
For the principal crop, sow at Mid-March, and a late
one again at Mid-April; or for a few late plants.
For
A little feed may be sown at the beginning or even latter end of May; and if the ground is covered with a mat, it will help the feed to germinate, by keeping the earth cool, and from a drying air; but it must be taken off and the ground lightly watered, as soon as the plants appear. If the weather should be very sunny, shade the young plants a little for a few days, by raising the mat, or laying some brush wood over.

Prick out the plants in moist weather (if possible) when two or three inches high, at three or four asunder. Water them every other day for a week if dry weather succeed.

Plant celery when six inches high, in trenches a yard distant, and six inches from one another. In a light soil, the trenches may be somewhat deeper; but generally near a spade’s depth is proper, and a spade’s width, keeping the walls firm and upright. Shorten long roots and high tops, and push off small side shoots.

If the soil is not very good, dig in a little well-rotted dung at bottom; but the celery will be foundier and sweeter without dung; and though the plants will not come up so large, they will be hardier to resist frost. The later that celery is planted out, the shallower the trenches should be; and when late, be the more careful to displace the small side shoots.

Water celery at planting as at prick ing out, and occasion ally afterwards in very dry weather, for it likes a moist soil, and will not grow large and tender in a dry, or light one.

Earth up the plants frequently (as suppose every week or ten days, in a growing season) a little at a time, in order to blanch them, by which they become crisp, sweet, and tender: The celery gets tough and rank, when this business is let alone too long. In earth ing up, it is a good way to gather the plants close (but carefully) with the left hand, using a trowel, or small spade, for the purpose.

In severe frost, lay some long, dry, litter over the tops, which remove when the frost goes. In prospect
of such weather, take up some, and lay it by in dry earth under shelter for use.

*Celleria* requires a rich soil, and should have frequent watering to have fine tender roots. Plant in trenches about three inches deep, and earth up, (only once) when the plants are about three parts grown, to four inches height. This species is harder than the others, and holds longer in spring; therefore, those who like the solid root should cultivate it.

The *seed* of *celery*, (in default of plants) if bruised, answers very well to give soup a flavour of it. *Parsley* *seed*, &c. may be used in the same way.

*Charbon* is a gigantic vegetable of the *artichoke* kind, (now seldom cultivated) used sometimes in *salads*, but chiefly in *soups*, or *stewed*, &c. Sow about the middle of March, and end of April, in trenches, four feet, or more, asunder, a foot wide, and six inches deep. Drop the *seed* (which will be near a month coming up) a few inches asunder, and thin them at last to the distance of from three to four feet. They must be watered in a dry time. Those plants that are drawn may be taken up with balls of earth about them, and planted in trenches as *celery*, at the above distance, and the rows five feet from one another. The *leaves* only of this plant are used, after they are *blanched*; which is done by earthing two thirds of their length up, when about three or four feet high, tying neat hay-bands first close round them, to within a foot of the top; i.e., *blanch* when they are full grown, in *August* and September, and in about six weeks they will be fit for use. In these months it will be well to water them regularly in dry weather, to prevent their feeding. In frost cover the tops with *straw*: It will assist the *blanching* to lay *straw*, or offal *hay*, *close* round them when tied. This plant is biennial here, but perennial in its native climate, *Spain*, &c.

*Chou de Milan* is of the *boorcole* kind, and propagated like it, but the plants should be put out at a yard asunder. This is a very good winter green, and stays longer
longer than any other at spring before it shows for
feed, and is then in its highest perfection.

Colewort is a very hardy, small, open headed
green, sown in July, or early in August, for winter and
spring use. But instead of the true colewort, (a coarse
vegetable) it is common to sow the early sort of cabbage
as an agreeable substitute, to be eat in their open
state. The sweetest, however, is the large sugar-loaf
fort, sown about Midsummer, which frequently stands
the winter.

These plants should be put out for use at from eight
to twelve inches asunder, according to the sort as to
size, though some gardeners plant closer.

Coleworts are seldom cultivated otherwise than for
winter and early spring use; but all the year it were well
for the garden to supply them, as they are choice greens.
With this view, sow cabbage seed of some sort every
month, and rather the early dwarf.

Cucumber has several shades of difference in it,
arising from culture and accident; but the common and
more distinct green sorts of it, are the short and the long
prickly, the cluster, the early African, and the Turkey.
There are also a white short prickly, and a white
Turkey sort; but both are idle bearers.

The early nature of a cucumber is the principal
object with gardeners, for as much skill and care is
exercised to produce forward ones, it is a great draw-
back to have sown seed not of the forwardest kind.
Of the seed called early, there is no doubt much differ-
ence: How material a thing it is to improve the breed,
and to be ascertained of the quality of seed for early
crops, is therefore evident.

The principal crop of cucumbers should be the long
prickly, which is preferable, on the whole, to any other.
The Turkey grows flat, long and large; but quality
is certainly before quantity, and the cucumber that eats
crispest is the best. In this respect the Dutch, or white
short prickly, (little as it is cultivated) is, perhaps, even

before
before the justly admired long prickly, and has fewer seeds: It has an evident difference in taste, and is mostly liked. The early *African* is a very favourite cucumber with some gardeners.

*Seed* should never be sowed, except from spiny, handsome cucumbers. See, *Of raising Cucumbers* in the last section.

**Endive** is a *salad* and *culinary* vegetable, of which there are three sorts, the curled *green* and *white*, and the *plain*, or broad leaved. The plain, or *Batavian* endive, is but little used in salads, as the curled is so much preferable, though cooks prefer it for stewing: The *green* is the hardiest, and therefore the late sowings should be all of this sort.

Sow endive at three several times, between the middle of *May*, and the middle of *July*, at equal intervals. Some of the first may, perhaps, run for seed; but yet a little should be then sown; as also at the beginning of *August* for late use. Scatter the seeds *thin*, and do not suffer them to grow in clusters to become weak. When the plants are about three inches high, plant them out in an open situation a foot asunder, watering them at the time and twice or thrice after, till they have taken root. The same sowing will make several crops, drawing the strongest first, and in a week after more. The best heads are produced from robust plants never moved, and which have been well watered in a dry time. Endive should have a rich soil.

Those planted out after *Michaelmas* should be on warm borders; but if long after, (as towards winter) the method of planting is thus, which *blanches* at the same time: Draw earth to an *high* ridge, under a sunny wall, and taking up carefully some full grown endive in a *dry* state, gather the leaves up close, without breaking, tie them neatly with basts, and put them close together, sideways; i.e. horizontally, in the ridge, almost to the top of the leaves. If any suspicion of wet in them, hang the plants up by the roots, in some covered,
covered, shady, airy place, for a day or so. In severe weather lay straw over all.

Endive in open ground should be protected from sharp frost by pease haulm, or other dry litter. Some may be planted in frames, or under hand glasses, giving plenty of air, or in a shed, or hovel, open towards the sun, either in the upright, or ridged way.

The blanching of endive in open ground is thus:—Gather up the leaves (being dry,) when nearly of a full grown size, and tie them regularly, and carefully round, from the middle upwards, moderately close, with Hayes, and earth them up to the middle, if the soil is light and dry; but not otherwise. In two or three weeks, the blanching is effected, after which the endive must soon be used, or it will rot, especially if much wet comes. The object of blanching is to take away the bitter taste of the endive, and to make it crisp and tender. Blanch a little at a time, once a week, that it may come in proper succession. See Succory (or wild endive) next section.

Garlic is used for both culinary and medicinal purposes. The cloves should be planted in autumn, or early in spring, in rows six or eight inches asunder, three deep, and six from one another in the rows, preferring a light dry soil. If the leaves are tied up in knots in June, it will prevent their spindling for seed, and help their bulbs to swell. Take them up towards autumn, when their leaves turn yellow; keep them in bags, or hang them up in a dry place.

Gourd, Squash, and Calabash, as of one family; see Pumppion, the culture being the same.

Horse-radish is variously used for culinary purposes; when scraped fine, it is a good addition to sallads, especially in the colder seasons. Propagate crowns, or pieces of the root from one to two inches long, having an eye or two; set them from nine to twelve inches below the surface of the ground, (according to the nature of the soil, as heavy or light) by digging a trench, and

covering
covering them over, or by making holes with a dibble; this should be the work of *February* or *October*, and the soil must not only be deep, but rich, or the roots will be weak.

This root will grow finer, and be more conveniently dug, to have the rows two feet, and the sets one foot asunder in them, though a less distance is the more common practice. Where there is plenty of ground, however, it is not worth while to be cramped, and the first year of planting the ground may be cropped with any early things. The roots will not be fit for use the first year; but the second they come strong and warm. Take them up carefully, regularly moving the earth away, and cut off close to the stool, from whence fresh heads will spring.

New plantations of horseradish should be made about every fifth year; old ones should be cleared from the straggling side shoots, in order to keep the rows open, but take them up deeply.

*Jerusalem artichoke* is cultivated for the root, (which eats like artichoke bottoms) and it is an ornamental plant, very like the perennial sunflower, with which it classed, but taller. Propagate in *March*, by planting cuttings of its root, as *potatoes*. The root is red, and full of indented eyes, every one of which is sure to grow. Where it has been once planted, it must be carefully dug up, or it will not easily be got rid of. Any poor ordinary spot of spare ground will do for it. Preserve the roots in dry sand, when they can be no longer preserved in the ground, immediately dug from which they are much best.

*Kidney bean* we have two kinds of, *dwarfs* and *runners*, each of which has a rather numerous variety. Both sorts have their admirers, but the dwarf sorts are more generally esteemed, and more conveniently cultivated.

Of the *variety* in the dwarf beans, some come earlier than others; but there is difference in opinions, which
which is the best, as to earliness and quality. The yellow and the black are, perhaps, as forward as any. The early white is not long behind, and is of superior flavour, but not so hardy as the yellow and black, and some others. The white may therefore be the second crop. The dwarf sorts come in quicker than the runners. For the principal crop, the Battersea and Canterbury beans are mostly used by the market gardeners, being good and prolific.

Of the runners, or climbing sort, the common scarlet and the white Dutch, are generally preferred, and when mixed together, their blossoms make an agreeable show, and bear a long time, if the beans are gathered constantly as they get fit for use.

The dwarf sorts of this vegetable may be had most months in the year, by the united means of open culture, hot-beds, and hot-houses. In cold ground they are sometimes sown, close under a south wall, towards the end of a dry March; but April is soon enough; for if they get above ground without rotting, (as the seed is apt to do, when the ground is long wet) a little frost will cut them off. It is a good way to sow again in about a week, left the first should fail to come up.

The latter end of March, however, if some are sown in a warm border, in patches, and covered with hand-glasses, they will do very well. Or an early crop may be produced by raising the beans, at this time, on a gentle hot-bed, and planting them out, when two or three inches high, under glasses, in patches of four or five, and near two feet asunder. If the beans are raised in small pots, three or four in each, they may be turned out whole, with great advantage, as kidney beans do not always bear transplanting well; and they may be covered on nights with hand-glasses, garden pots, &c.

When these forwarded beans are planted in rows singly, let it be under a warm wall, and not (if it can be avoided) till the end of April, or beginning of May; and

L 4
protect them awhile at first, on cold nights, with matting, or otherwise.

As to the hot-bed culture of kidney beans, if any are attempted to be brought to fruit on heat, let them be raised, towards the end of February, upon one gentle bed, (or in pots, at the back of a cucumber frame) and planted out in another, in rows fifteen inches a-part, and at four inches in the rows; for nearer they will not fruit well. The bed may be about two and a half feet thick, and must have on it seven or eight inches of mould, and the plants treated with as much air as can safely be given them. Line the bed before the heat is quite gone, to preserve and forward them. The sort most used for forcing in hot-houses is a reddish speckled one; but the early white is fittest for forcing in hot-beds, as of lower growth: The early yellow and black may do. Support them by ties to little sticks.

The common culture of the dwarf bean, in the proper season, and open ground, is to sow them an inch or an inch and a half deep, three asunder, and two feet, or a little more, to a yard between the rows, according to the size of the seed, for some sorts require more room than others. Let them be earthed up as they proceed in growth; and to have a succession, sow every three weeks; remembering that a crop produces more, and lasts longer, the oftener the beans are gathered: It is proper, therefore, to do it constantly whilst young and good, even if not wanted.

The last crop should be under a warm wall, and may be sown as late as the middle, or end of July; and if very dry weather, let the beans for this, and the June crop, be soaked about twelve hours in milk and water, and the drills watered, in order to forward their germination, and bring them more certainly and regularly up. It is a good way to prepare the seed for high summer, by laying it in damp mould till it begins to chit, and then planting it in watered drills. In a course of dry warm
warm weather, kidney beans should be watered, especially while young.

The culture of runners is to sow them near two inches deep, four or five asunder, and the rows four or five feet apart. They will require tall brushy sticks to climb upon; but they may be sown in patches of about fifteen inches diameter, placing the beans five or six inches asunder, in the circumference, and fixing a pole in the middle for them to run upon. The end of April, or beginning of May, is soon enough to put the climbing forts into the ground; and two more sowings, at a month between each, will go through the season; i.e. till frost comes.

If seed is saved, let it be only from some of the first beans of the principal crop, for all late formed seeds, and particularly of the kidney bean, are not near so good as the early ones, often failing or producing weak plants, and late ill-tasted fruit.

Leek we have a narrow and a broad leaved sort of, the latter of which is the one generally cultivated. The leek requires a good foil, and open situation. There is a sort with variegated leaves.

Sow in February, if the weather is tolerable, or at the beginning of March. Thin in April to three inches asunder, and plant them out the first moist weather after Midsummer, in rows near a foot apart, and at six inches in the rows; though if the ground be very rich, and the leeks forward, a little more may be allowed to advantage. Trim the tops, and ends of the roots: and it is a good way (if the foil is not heavy) to plant with a dibble, two or three inches in the ground, in order to whiten the heads; but to this end some have planted leeks in trenches, and earthed them up high, with a light soil, or coarse sand; at any rate, however, if the rows are wide, earth them up a little.

Towards winter, or in prospect of frost, leeks may be taken up, and laid with their roots in sand, or earth, in some conservatory, or cellar. A few may be sown.
towards the end of April, or even in May, to stand over the winter for late spring use.

Lettuce is a vegetable, of which there is a great variety. The brown Dutch, and the green cabbage lettuces come earliest, and are mostly to be depended upon to stand the winter; though some other sorts will, except the silver cofs and white cofs. The brown and the green Egyptian cofs are excellent, being hardy and large, forming close heads; but the latter is earliest. The cabbage lettuce eats moderately well, but is chiefly used in soups, &c. The Silesia lettuce is much admired by some, though at present but little cultivated: There is a brown and green sort of it.

For winter and spring use, the hardier sorts are sown in July, August, and September, but chiefly in August, when if three sowings are made, the beginning, middle, and end of the mouth, it will generally be found sufficient. They may be sown, however, all September, or even at the beginning of October, and it may be sown when older plants are cut off.

For summer use, the white cofs, and any of the others, may be sown on warm borders, either in open ground, or under hand-glailles, or other cover, in February, and a little constantly every fortnight, or three weeks after, chafing cooler ground for them when summer advances. Plant them from ten to fourteen inches asunder, according to the size they attain; it being an error to put lettuces out so neat as many do, for it forces them to run for seed, and prevents their growing large: The sorts called the Egyptian, and the admirable, should be allowed eighteen inches. Lettuces may be pricked out very young; and when three or four inches high is the best time for planting them.

It is not a common way, but spring sown lettuces will be forwarder and larger if sown thin, and only thinned out to their proper distance: Those that are drawn may serve for a second crop. The brown Dutch, green capuchin, the tennis-ball, and button lettuces, do not run
run up so soon for feed as the other forts, and are therefore proper for late summer use. To forward early spring sown ones, a flight hot-bed may be made, and by all means ought to be some time in February, if those that were to have stood the winter are cut off. When these plants are an inch high, they should be pricked out, four inches asunder, upon another gentle hot-bed; and when they meet, or are four or five inches high, draw every other to plant out in open ground, and let the rest remain to cabbage.

Winter lettuces, that are forward, are more likely to be destroyed than the smaller, as the wet hangs in them; let them be covered with frames, hand-glasses, or hoops and masts; but covered plants must have a great deal of air at all opportunities. Winter lettuces require a dry foil and situation, and a wet one is helped by planting them on hillocks, which is a method that frequently saves them from rotting: Those in the open ground are often destroyed by grubs lurking about the roots, which evil should be seen to, if suspected.

To have fine winter lettuces, some of the forwardest may be taken up with balls of earth about them in November, and planted at nine or ten inches distance, on a somewhat strong hot-bed, which, as soon as the great heat is certainly over, should be covered with six or seven inches of dry mould for the purpose, but give a little water just about the roots: Line the bed when it gets cool. Lettuces must be well attended to; to give them plenty of air, pick off dead leaves, cover on nights, &c. Frequently stir the surface of the mould, and give water as occasion may dictate. The cabbage lettuce succeeds best in hot-beds.

Tying lettuces with bafs, from the middle upwards, when about three parts grown, will somewhat help them to whiten and cabbage; but let this business be done carefully. Some gardeners do not think it worthwhile to practice it; and indeed, right good forts (as to feed) will cabbage themselves, and open ones it is of
of little use to; yet this assistance should be adopted for
the first crop, which it may whiten.

Lettuces are sometimes sown thick, to draw young
for small salading; for which purpose, the lap and cab-
bage lettuces are the properest, as they eat tenderer and
sweeter in their infant state: the lap feed is very cheap,
and chiefly the fort used.

Melon there is a variety of, in size, shape, coat, and
colour of the flesh. The sorts we best succeed with are
the musk, (or common oblong ribbed melon) the Roman,
the Portugal, and the Cantaleupes in variety, as the
common rock, the black, the orange, and the silver.
The Roman and Portugal are small, but early. The
Cantaleupes are justly the most admired fruit, but are
not so good bearers as the others.

The seed brought from the continent (where the
melons are much finer than in England) seldom succeeds
here. Whoever sows it, must not begin too early,
must use more heat, and give less water than is neces-
fary for Denizens. See, Of raising Melons, p. 192.

Onion, we have several sorts, but the Strasburgh
(oval shaped) is that mostly cultivated, as it keeps the
best. The silver-skinned and Spanish (flat shaped) are
milder, and therefore by some preferred. The Welch
sort does not bulb, and it is rank; but for its being
very hardy, is sown thick in August, and suffered to
stand so for winter and spring use, as a green substitute
for others. At this time, also, some of the Strasburgh
may be sown, and perhaps stand the winter in a good
situation. The Welch onion is not only hardy, but
perennial. They are apt to die down in winter, but
the roots shoot again; which, when they begin to do,
if earthed over an inch, or so, they will blanch, come
forwarder, and eat the milder.

The small silver-skinned onion is the sort fittest for
summer salading and pickling: Sow first at the end of
March, and to have them young once every three weeks
after. Chuse poor ground for the picklers.

The
The true *scallion* is got quite out of cultivation, having given way to the *Welch* onion; as also to the other sorts, that are made milder *scallions* of, by planting early in spring, those that sprout in the house, which quickly grow. Set them in drills six inches asunder, and two inches apart in the drills.

For the *principal* crop of onions, sow the Strasburgh or any other, towards the end of February, or soon after, though any time in March may do, for it is desirable to shun frost: Let the soil be rich. The earliest crops (of course) produce the largest bulbs. As soon as they will bear it, (perhaps in five or six weeks,) let them be thinned either by hoe or hand, to an inch or two apart, and twice afterwards, till each root has full four inches square of ground to grow in.

Onions will *transplant* when five or six inches high, taking care to give water immediately, which repeat; but the soil to which they are removed should be rich and well broke. In this way, those whose crops have failed may be supplied from other gardens. If any onion seed is sown, that comes directly from Portugal or Spain, it will be very large the first year, and should have six inches room allowed them to bulb finely.

Crops of onions should be kept very clean from weeds, and it would be of advantage to water them once or twice a week in dry weather. In July or August, when the leaves begin to dry at the ends, shrink and turn yellow, let them be bent down close to the ground, with the foot, rake, or back of a spade rather hard. In about ten days after, let them be drawn in dry weather, and laid to harden by the sun, turning them every two or three days for a fortnight. *House* them clean and dry, into neither a warm, nor damp, but close room; laying them thin, frequently looking them over in the winter to pick decayed ones out, which would damage the rest; But onions are best kept in *brung* and hung up.

Parsley,
Parsley, broad leaved, as an esculent root, is commonly called Hamburgh parsley, and is eat as carrots. Sow it early in March or April, either at broad cast or in drills, and leave the plants six inches asunder. The roots may be preserved in sand; but it is the practice of some to sow at Midsummer, to draw them young in winter, being best when fresh dug. It is chiefly medicinal. See parsley, next section.

Parsnip is a sweet and valuable root, less cultivated than it deserves, being accounted very nourishing. As carrots require a light soil, so the parsnip does a strong one. Sow about the end of February, or early in March, digging the ground well and deep. If the soil is light, tread the seed in twice over to fasten it in the ground; it comes up in about three weeks. Thin when about two inches high, with a small hoe, and afterwards with a large one, so as to leave the roots in a good rich soil, a foot asunder, though eight or ten inches will do in light, or indifferent land. Any thing that is to go off quick, may be sown with parsnips, as carrots to draw young, radishes, lettuces, &c. Parsnips are not good till arrived to maturity. These roots are to be taken up, and preserved as carrots; but they may remain longer in the ground, and are seldom hurt by frost, so that some of the roots are commonly left undug till spring; take them then up for use just as they begin to shoot, if they are not wanted for seed; when they will keep good in sand till mid-April.

Pea, we have a considerable garden variety of, arising from the size, time of coming in, colour of flower and fruit, and somewhat in taste. The principal distinction is made, as to early and late peas, so that if the earliest pea is sown at the same time with one of the latest, there will be three weeks difference in their bearing, and a fortnight is usually reckoned between the common harpurer and marrowfat.
The *early frame pea* (which is that forced in hot beds, &c.) may be sown under a warm wall at the middle, or rather at the latter end of October, or beginning of November, and being kept regularly earthed up, will commonly survive the winter, and produce peas by the end of May: Do it in short rows, a yard asunder, at right angles with the wall, or rather inclining a point to the east, to catch the first sun.

The *frame pea* is not a good bearer, either in the size, or number of its pods, and therefore the *hops* being hardier and more prolific, are sown by many gardeners for their earliest crop, and the difference of coming in is often but a few days. The *frame pea*, however, takes up less room than the *hops*, and in this respect best suits a fruit border, which should not be encumbered with tall crops. Fancy will rule in the choice of peas, but the established sorts of the Reading, or Charlton *hops*, and dwarf *marrowfats*, are excellent for the summer crops.

The *frame pea* may be sown a quarter of an inch asunder, and the *hops* half; it is common indeed to sow thicker, but it is not advisable, if the soil is good.

Earthing up peas, and particularly the *early* crops, should be done frequently, a little at a time, in dry weather, beginning when only half an inch high. The early peas should have some haulm, or dry straw laid lightly against, or over them, in hard frosts: but let the covering be immediately moved aside when the weather becomes mild.

*Sticking* peas to take place as soon as they begin to vine, (put forth tendrils,) or appear too weak to support themselves against wind. Let the sticks be set straight, neat, and full; and by all means high enough for the sorts; allowing sticks of three feet above ground for the *frame pea*; near five for the *hops*, near six for the *dwarf marrowfat*, and seven or eight for the larger sorts. If short of wood, sticking only the S. or W. side of the rows may do, if the wind does not
not set very contrary. Some people sow double rows of peas at ten inches or a foot asunder, and set sticks only in the middle, earthing the peas towards them. Peas that are to grow without sticks, may be sown, the smaller sorts are two, and the larger at three feet asunder. But use sticks if possible.

The beginning of December, more peas may be sown, and towards the end of January, or the beginning of February, in order to have a full supply at the first of the season: The earliest opportunity in the new year should be taken, if those sown before have been cut off, or greatly injured. Peas sown at the beginning of February are often not a week behind those of November. Peas sown in the winter months in cold wet soils, may have some coarse sand dug in the drills, to preserve them from rotting, and otherwise help them; some also may be strewed over them.

To have a full succession, peas should be sown every three weeks in spring, and every fortnight in summer; which may be continued till the middle of July, when if some hotspurs are sown in a sheltered and sunny situation, they may answer.

The late, and large sorts of peas, as the marrowfat, Moratto, American, &c. should be first sown towards the end of February, and not sooner, lest they rot.

The dwarf marrowfats may be laid in the drills half an inch asunder, the large marrowfats three quarters, the Moratto an inch, and the American two inches; and each sort covered two inches. The Leadman’s dwarf pea, for it’s small size, is admired at genteel tables, and is sweet and fruitful; but rather longer in coming in than the usual late sorts: It escapes the mildew better than other peas, and therefore is proper for the latest crops in open ground. It requires sticks only from two to three feet high; and may be sown thicker than any other pea; and till Midsummer. On the same day that hotspurs are sown, put in a crop of
any of these late peas, and they will come in proper succession; i.e. ten days, a fortnight or more after.

To save seed-peas, let none be gathered for eating, except late formed ones; which had better not be left among the rest, for the reason given in the article kidney bean.

Peas will transplant, and therefore broken rows may be made up, only choose, (if possible) mild and moist weather for the work in March, and shade them with a little straw, until they have taken root. If the autumn sown crops were cut off, peas may be sown under hand-glasses in January or February, and thus forwarded, planting them out when they have been two or three weeks above ground.

Watering peas in a dry time answers well, and especially when in flower and fruiting. To receive the water there should be ridges drawn towards the earthing up, forming a gutter on each side.

If flies, or other insects attack young peas, strew some lime fresh flacked, or foot along the sides of the rows, so as not to touch the plants, after which give them a watering, and repeat it a day or two. If the peas are still infested, make another application.

Mice must be guarded against as to autumn and winter sown peas, by immediately setting traps for them, of which a number of the common block ones will be found to answer best, setting one at about every two yards, with fresh baits every two or three days.

Peas do not like dung, and will be more fruitful in a moderate foil than a rich one, except the runcivals, of which we have a white, green, grey, and blue sort.

Stopping peas (i.e. cropping the leading shoot) is practised by some gardeners, to promote fruitfulness and maturity: This is a reasonable practice, but only relates to the early crop.

Potatoe is found to be the most useful root that is cultivated; as a substitute for bread, it is most profitably eat without mixture of corn flour.
The potatoe raised from seed, changes the sorts. Some are denominated mealy, others waxy; i.e. are either of a loofe, or a firm contexture. They are distinguished again as to shape, into round, oval, and clustered.

Potatoes will grow in any soil, but best in one that is light, yet cool and good, especially a fresh one. Season, as well as soil; makes a difference in their goodness, as does the way of boiling them in eating, on which the quality of the water has some effect, as indeed it has on all vegetables, and that is the best water in which they are boiled quickest. The white potatoes are generally preferred, but some of the red kinds are very good; and the old rough red from Lancaster, was one of the best ever cultivated. The kidney (oval) shaped sorts are most generally approved, as boiling or roasting more equally through; and among these, the red nosed kidney (a white potatoe with a tinged eye) is a great favourite; but many good sorts there are.

The coarse kinds of potatoes are given to hogs; but whether even for them, quality ought not to be preferred to quantity, may be considered. The clustered American potatoe is reckoned most profitable for cattle, yielding great increase; but the goodness of a potatoe as food, is to be estimated by the quantity of flour it produces. The early potatoes are small, and by common culture are produced in June, when soon after their tops change yellow, which betokens maturity: They will keep better in the ground (it being summer) than if taken up.

The cultivation of potatoes is various, as experiment and opinions have led: It would be too much here to take particular notice of each method; and to say every thing that might be advanced on this subject.

For sets, or cuttings, prefer middle sized, well shaped potatoes, and let each piece have one good eye in its middle, or at the most two. They should be set in rows,
rows, eighteen inches afunder in a poor foil, twenty-one in a middling, and two feet in a rich one. In the former, the sets may be six or seven inches apart, and in the latter eight or nine: The American potatoe should however have more room each way. In a light foil, plant them five or six inches deep, and in a heavy one only three or four. When planted deep, they will not need earthing up above once, but when shallow, two or three times. In a light foil, they may be put in with a blunt dibble, but in a heavy one should be laid in trenches; and if the trenches were dug deep, and first filled with long dung, old thatch, or short straw, it would be a great advantage; covering them up in ridges, and drawing mould to them as they settle. Cold, moist ground should be divided into beds of two or three rows each, with sunk alleys between; and as in such a foil the sets should not be above three inches deep, the saking of the alleys may be made by earthing the rows up from time to time. In a heavy foil make the rows rather wider than in a light one, that there be a due quantity of surface mould for earthing.

Early potatoes are procured several ways. On a hot-bed, some may be planted in February, or under hand-glasses, in a warm border, or without. There are early sorts on purpose for this culture, called mules, as they do not bear feed. As these potatoes are small, they may be planted whole, or rather cut in halves, paring off the eyes at the crown where they are thick, as it never answers to have many shoots come from a set; whole ones should be planted a foot afunder, and halves at eight inches.

Look over the flock of early potatoes, and plant those first carefully in trenches that have rooted shoots, for they will produce the first fruit, especially if short and bushy. Do not expose them so long to the air as to get withered. When up in hot-beds, or under hand-glasses, let them have plenty of air; and in open ground be protected from frost by timely earthing up, and occasional
casional covering with haulm, or straw, which must not be kept on, but upon necessity. As these early potatoes are on a warm border, a little water in a dry time will forward them, and increase their size. In default of the true early potatoe, sets with good forward shoots of any other sort may be treated as above; but they will not be so good.

From Mid-March to Mid-April is the properest time, (earlier or later as the soil is dry or moist) to plant for the principal crop, though May, or even June, generally produce an increase worth the cultivation. The roots from late crops should not be used for planting, as they are more liable to the curl: Those potatoes growing sickly in a wet soil, are also subject to this defect. Potatoes, being of superficial growth, should be regularly weeded, as long as they can be walked among without treading on the tops.

Ground, designed for a field crop, should be twice ploughed, and the first time it should be some weeks before the setting.

In the potatoe counties, they change their sorts every third or fourth year; procuring fresh kinds from places farther North, as a means to avoid the curl, which seems to arise chiefly from the tender nature of the potatoe, and admonishes not to be too early in planting.

Seedling potatoes are procured by saving the first thorough ripe pods, (called apples) and either preserving them in very dry sand till spring, or immediately separating them from the pulp, put the seed up quite dry in papers, and occasionally look it over to keep it so. In March, or April, sow the seed half an inch deep, in a light soil, in drills fifteen inches asunder; and thin the plants to six inches. Earth them up as they grow. Dig them as soon as the haulm dies, and carefully preserving them from frost, they will be fit to plant the next spring for table use.

That potatoes are very susceptible of frost, is well known; but it is often not sufficiently guarded against in
in time. Let them be brought in clean and dry. If not kept in a warm cellar, they may be laid in a room, having some straw at bottom, and when in prospect of frost entering the house, they should be covered with straw, a foot thick.

Pying (as it is called in some places) is a good method of preserving potatoes in winter. They are piled on the surface of the ground, in a ridged form, of a width and length at pleasure, according to the quantity, but commonly about six feet wide. This is done by digging a spit of earth, and laying it round the edge, a foot wide (if turf the better) filling the space up with straw, and then laying on a course of potatoes, dig earth from the outside, and lay upon the first earth. Put straw a few inches along the inside edge, then put in more potatoes, and so on, keeping a good coat of straw all the way up between the potatoes and the mould, which should be about six inches thick all over; beat it close together, and the form it lies in, with the trench all round, will preserve the potatoes dry; and the sharpest frost will hardly affect them; in a severe time of which, the whole may be covered with straw. In the spring, look over the stock, and break off the shoots of those designed for the table, and repeat this business to preserve the potatoes longer good.

Pumpions being tender, are raised on a moderate hot-bed, in April, or May, according to the time desired to have fruit at. After the feed has been up a few days, prick the plants out at four or five inches, or rather put them in small pots, one in each. When a month old, they may be planted out about four yards asunder, one of the large sorts, or two of the small ones, on a hole of two or three barrows full of hot dung, and about ten inches thick of mould. Cover with hand-glasses, or garden-pots, or hoops and mats, on nights, till Mid-June. On such a hole of hot dung they may be sown in May, under a hand-glass, and the
there remain to fruit. Pumpions will do very well sometimes (in favourable seasons and situations) sown in May, on cold ground. The seed should be covered near an inch, and the plants kept earthing up as they grow. When they have shot five or six feet, peg down the runners a little way in the ground, and earth over, they will strike root. Water well in dry and warm weather. The orange gourd looks very pretty when trained up a strong pole, spirally, or to a wall.

Radish is of two kinds, the spindle rooted, and the round, of each of which there is a variety. Of the former we have the early purple, and the early pink short topped, and late large topped ones of both sorts. Of the round there are the white, black, and red turnep radishes. The white (of which there is a small and large sort) is mostly cultivated, but the others are good; the black grows large, and the red small. The purple sorts, and the small white and red eat the coolest. The order of coming in from the time of sowing is, the purple, and the pink spindle sorts, and the turnep, red, white, and black: The latter is very hardy for winter use; but the coarsest.

For the first crop, the early purple short top may be sown the latter ends of October, November, and December, (chiefly the last month) in a warm border, and have a chance of surviving the winter, if a little protected in frosts by stout sticks, about two inches high, stuck sloping in the ground, to support mats; or by laying peas haulm, or wheat straw, lightly over them, which may be an inch or two thick, as the frost is; but no longer than it last should the covering be on. The first open weather in January and February sow again, and in these months, and the preceding one, cover the sowing over with some straw, and it will help to fetch the seeds up, and preserve them from being thrown out of the ground by frost, as also from birds. As soon as they begin to appear, let them be uncovered, to harden them to the air, if the weather
is not too severe. Thin these radishes to an inch and a half, or two inches asunder, though some gardeners let them grow thicker. Radishes sown in any of the cold mouths (being on borders) lay the ground a little foping to the sun.

A hot-bed is frequently used for radishes about Christmas, or in January and February, which must not be too warm a one, as it would hurry the seed up, and make them grow all top, and come to nothing. Two feet thick of dung is sufficient, on which six or seven inches of light well broke or sifted mould should be put on, and the seed immediately sown on the surface, (rather thick) and covered half an inch, giving the whole a gentle pressure; for seeds will grow better when the earth is somewhat firm about them. Thin the plants to an inch asunder, before they begin to draw one another up weak; if wider it were better, but room in a hot-bed is precious. Hot-bed radishes, under glass, must have plenty of air; for though covered, are not to be shut down close on nights, except severity of frost demand it. In lieu of frames, a hot-bed of radishes may, in February, or after, be hooped, and covered with mats on nights, and in bad weather; and in this way, indeed, they generally succeed best. Line forward beds, when the heat declines, that they may proceed in growth, without check or interruption.

Repeat sowing of radishes every three weeks in spring, and fortnight in summer; in cooler ground as the season advances. In dry weather water. Allow three inches distance to those sown after February, or rather more for the large topped sorts. The turnep kind may now be sown; yet their best season is to come in after Michaelmas; the small white and red for summer, and the large white and black for autumn and winter, which will often continue good till spring: In prospect of severe weather, some of these may be taken up, and preserved in sand, having first cut the tops off short.
Thin the small turnep sorts to four inches distance, and the large to six or eight: Sow the two last sorts in June, July, and August. In August, or September, sow also some of the other sorts of radishes, for winter use. Turnep radishes are rarely sown on hot-beds; but the small red sort will be found an agreeable early crop, and may stand as thick as the spindle rooted kinds.

The ground should be well dug for radishes, especially the long-rooted sorts, and the seed carefully covered a full half inch, leaving none on the top (if possible) to lure birds, which frequently do much mischief to the crop. It is a troublesome mode, but radishes when drilled are safer, and being thinned in the rows by hand they come fine. Make the drills for the tap rooted sorts, from two to three inches asunder, but for the round wider. It is also a good method to sow radishes on beds four feet wide, and the mould being made fine on the top, beat the seeds in with the teeth of a wooden rake till none appear, and then lightly draw the back of the rake over, to fill up the holes; or, having sown the bed, cover with mould from the alleys, or earth previously drawn aside.

A sprinkle of radish seed may be frequently sown among other crops, as broad-cast spinach; and the ground at spring that is designed for cauliflowers, may very properly be sown with them, just before the plants are to be set out, or between rows of beans.

Draw the roots for use in a regular thinning way, and those that are left will become the larger for it.

Radishes are sometimes sown thick for eating while very young in the seed leaf, with other small fallading.

Salads, though but little cultivated, is a useful vegetable. Its young shoots are eat as asparagus in spring, and its long white roots in autumn and winter as carrots, some of which are taken up, and preserved in sand for winter use. Those left in the ground may be dug up occasionally, or left to produce shoots for spring, or may stand for seed. Sow them early in March,
March, in drills ten inches asunder, and thin the plants to fix. Let the soil be cool and good, and two feet if possible. Water in very dry time.

Savoy is a cabbage, peculiarly adapted for late autumn, winter, and spring use, as frost improves it, making it tenderer and sweeter than before. The farts are green and yellow; the former mostly cultivated, as it looks best at table.

If favoys are desired forward, sow a little in a warm border in February, or under a hand-glass; but a sowing in March, and another in April, in an open situation is sufficient. Thin the seed bed in time, that the plants may be straight and robust; and when about three inches high, prick them out at five or six inches distance, where let them grow to a proper size, (as in June or July) to plant out at two feet apart, or a little more, if in a rich soil. Choose moist weather for this work, if possible, and give some water. Earth them up as they grow.

Sprouts of favoys are delicate eating spring greens, and therefore if the ground is wanted where the stalks grow, they may be taken up, and laid deep in a trench for the purpose.

Scorzonera is a carrot-rooted esculent, and therefore requires a deep, and should have a cool soil. Cultivate it as falfafy, only let the drills be two or three inches wider, and the plants an inch or two more asunder.

Sea-Cale, or cabbage, is a vegetable not generally known, except in Essex, Suffex, and the West of England, but it is much liked by many, and as an early spring production is valuable.

Its natural place of growth being the sea-beach, it is evident that a sandy soil will suit it best. Some people cultivate it in almost all sand, which, if it is the natural soil of the place, is proper, as such surface sand is endowed with good vegetable principles; but when a soil is made, it should be one half sharp, or drift sand.
and the other half any light rich mould, which may be a little gravelly, or mixed with sea-coal ashes. Sow, or plant, either in autumn, or spring.

It is a root that lasts many years, and therefore should be properly planted and managed; either in beds of it, like those of asparagus, (the which it precedes for use) of four feet and a half wide, and two feet alleys between; or in single rows of long trenches, which is the better way. They are best raised from seed, though often from offsets, or pieces of the roots, having two or three eyes.

The beds must be trenched, and of a dry loose earth, (as said) to two, or two and a half feet deep; and if there is any suspicion of wet ever hanging at bottom, lay a good course of rough gravel or stones there. The plants should be near a foot asunder, kept five or six inches below the surface, that they may grow through a body of earth to blanch the sprouts; and they are to be cut up four or five inches deep, soon after they appear above ground. In summer, the ribs of the large leaves may be peeled, and eat as asparagus. They will want earthing up from the alleys every year, to keep them at the above depth; for which purpose, there should be proper earth in them. It is evidently best to sow, or plant, low enough at first, to be prepared for future earthing up; not to grow too low, however, if there is a clay bottom. Sets may be planted at first only three inches deep from their crowns, and earthed up to five or six as they rise in order to blanch them: Some do this with fine sifted coal ashes, and the effect may also be attained with the leaves of trees laid close round. Little should be cut the first year, but the second do it freely.

The seed should be dropped three or four in a hole, half an inch deep, and thinned to one plant, earthing up a little as they proceed in growth. When the leaves decay in autumn, earth the plants over an inch or two, with mould from the alleys. In the spring, loosen the earth carefully with the asparagus fork, and at autumn, earth
earth up as before. The following spring, fork again in time, and about April there will be plenty to cut; which, if suffered to grow large first, will eat tough and strong. For seed, reserve a stool that has not been cut: The *flower* is so pretty (white heads) as to be shown sometimes merely for ornament.

**Shalot** is a perennial sort of onion, for which it is often substituted, and in some cases preferred, as being more agreeable to the palate and stomach by its rich and yet mild nature.

The shalot is *propagated* by planting its offsets late in autumn, in a dry soil, or in spring, if a moist one. The latter time is generally adopted as safest; but autumn sets produce the finest bulbs. Plant two or three inches deep, and four or five asunder, in rows, six inches distance from one another. When the leaves wither, dig them up, lest they decay in the ground, as they are apt to do when much wet falls.

**Skirret** (now little known) is a very wholesome root, propagated by seed, as _scorzonera_, and sometimes by offsets of the old roots in spring, planted an inch deep over their crowns.

**Spinach** is of two kinds, denominated from the seed, as prickly and smooth; the former is sown in autumn, i.e. at the end of July, and about Mid-August, to gather in winter, and the beginning of spring, being very hardy; and the latter is sown early in the new year for after use, though the prickly sort does very well also for the same purpose. The smooth is rather tender, but it grows larger, with thicker leaves, and is therefore seldom sown otherwise than at broad cast; but the prickly is frequently drilled, as between rows of _peas, beans, &c_. Spinach may be sown on pieces of ground, where it is intended to plant cauliflowers, _cabbage_, or beans, or horse-raddish, by dibble.

At _broad cast_ trample the seed in with the feet, rather wide, that there may be a sufficient quantity of mould to rake down over the seed. Hoe the prickly sort.
to four inches apart, and the smooth to six or more, in a rich soil. If in drills sow also thin, and cover an inch deep. Some people thin the plants in drills to three inches distance, and draw every other for use, when those left will grow large, and this may be proper with the smooth spinach; but it is more common not to thin the rows, and to gather, by cutting, the leaves down low, when more will spring up again. It is a good way to sow spinach in beds of four feet, with alleys, that it may be the more conveniently attended and gathered, without trampling the ground;—Gardening in this way of narrow beds will, in many cases, be found very agreeable.

To have a full succession of spinach, sow in January and February, and afterwards again in three weeks, and then every fortnight, or even oftener, for it presently runs to seed in summer, especially if the plants grow close. Some people are fond of drilled spinach, as it is quickly gathered, and fancied to eat better; but broad cast is commonly reckoned the best way, and gathering the outside leaves, the plant shoots again, repeatedly: In spring, however, when the ground is wanted, and the plants are disposed to run, they should be drawn. Spinach will transpant in autumn, and thus bear the best feed.

Turnep we have a variety of sorts of, for table use, differing in colour and shape, earliness and flavour. The most common are the white sorts; but the yellow and red are worthy of trial, particularly the former. The small early white Dutch is that mostly cultivated in gardens, at least for the first crops, though the early stone sort is a very good root.

Turneps are sown from March to September, but in June and July for the principal crops. Late crops may be sown till Mid-August, but they will produce but little bottoms. Those sown in March will be apt to run for feed before they have formed much bottom, and must be watched to draw them in time. The turnep
turnep is so favourite a vegetable, that hot-beds are sometimes made in February and March to forward it, though thus cultivated, it can attain but to a very small size. A bed of this sort must be light, and have a great deal of air from the very fowing. A moderately light soil, with little dung, suits turnips best, and they should always have open ground that is well broke. Mix the seed with a little fine earth, sow thin, trample close, and rake lightly: It is a way with some, to sow one third old seed with the new, for the greater certainty of a crop, the former sometimes succeeding when the latter misfies. Do not neglect to hoe the crops in time, the early ones to five or six inches, and the late ones to eight or nine, though some large sorts should have more distance allowed them.

When the fly is observed to attack young turneps, it will be proper to stir the ground, and sow again immediately, or to choose another spot for the purpose.

The Navew (which is much admired by some, and said to be the most nourishing sort of turnep) should be repeatedly sown from March to August, in a moist ground; but being a small slender root, need not stand wider than five or six inches.

The Cabbage Turnep is of two kinds: one apples above ground, and the other in it. This vegetable is sometimes used young for the table; but it is chiefly cultivated for cattle. Sow it in May, or June, for autumn use, or in June, or July, for the spring: They are very hardy. If sown in a garden, and pricked out, they may be transplanted in fields, the first moist weather after a crop of oats, or barley, at half a yard in a poor, or near two feet in a rich soil; and if the ground is foul, this culture gives a fine opportunity to clean it, by repeated hoeing.
SECTION XVI.

OF HERBS, &c.

ANGELICA is cultivated for the large ribs of its leaves, cut in May, or June, to make a candied preserve; and it is also a medicinal plant, in stalk, leaf, root and seed. Sow as soon as the seed is ripe, for in spring it does not come well. Put the plants out when a few inches high, at two feet asunder. It is biennial; but if seed is not wanted, cut the stems down in May, and the plant will put out side shoots; and by this practice every year, it may be continued long in the same place. A moist situation suits it best, so that some plant it by ditches, or ponds.

BALSAM is either plain or variegated; but the former only is cultivated as a medicinal herb. It is propagated by parting the root, either in autumn, or spring, but rather the latter. Slip off short pieces with roots, and plant them a foot, or fifteen inches asunder, giving a little water. The variegated is for the flower garden.

The balm that is gathered for drying ought to be cut just as it gets into flower; as for this purpose all herbs should, being then in the highest perfection; and it should be done as soon as the dew is off, for if left till afternoon, in a full sun, the plant is exhausted of its juices: Pick off all decayed leaves. Dry it in an airy shady place till fit to tie in small bundles, which must be stored by hanging up in a dry airy room, about six inches from one another, till perfectly dry, when lay them in a drawer in a dry room, pressed close, and cover with paper.

Balm,
Balm, and most perennial herbs, should be fresh planted in beds every third or fourth year; and each year, in autumn or spring, have the ground plurred about them, and dressed with some fresh earth, or a little well confumed manure, the plants being previously cut down, and ground weeded.

**Basil** is a pretty annual, of which we have two sorts, the large and the bush: (each having a variety) both are used as pot-herbs, but chiefly the former. Sometimes also this herb (a few of the young leaves) is used in salades, and occasionally in medicine. The large grows about a foot high, and the bush but a few inches. They are both sweet, but the bush basil most so. It has a delicate round form, and so is cultivated as ornamental, though its flower is nothing. Both sorts are usually sown on a gentle hot-bed, in March or April, and may be pricked out in small pots, but will hardly endure the open air till June. The large is the hardiest, and will come up on cold ground, but be backward. They like a rich soil, and the bush does best in one full half dung.

**Borage** is a cordial herb, that has its varieties, blue, red, and white flowered, and one with variegated leaves; but the former is that commonly cultivated as a pot-herb, and its flowers for salades, and cool-tankards. To have it young all the year, let it be sown in spring, summer, and autumn, either in drills, or broad cast. Thin the plants to nine inches asunder. It sows itself in autumn, and likes a dry soil.

**Buckwheat** possesses the like cordial virtues with borage, so that the one may be substituted for the other. Culture is the same.

**Burnet** is a warm perennial salad herb, used also in cool tankards, propagated in spring, or autumn, either by seed, or parting its roots, and planting them a foot asunder. Keep it frequently cut down, that it may constantly furnish young shoots for use.
Camomile is a useful medicinal herb, of which we have single and double flowering kinds; and of the latter, a sort with very full flowers. It is propagated by parting its roots, or by its runners, in March, or April, setting them nine or ten inches asunder. Gather the flowers in their prime, (as those of all plants should be) before they begin to fade; dry them thinly in the shade for a few days, and preserve them from damp in paper bags. The single sort is the strongest flavours, though for quantity, the double is mostly cultivated. Camomile likes a poor soil.

Capsicum is sometimes cultivated for its young pods to pickle; being raised on a gentle hot-bed, or two, to bring them forward till June, when (rather about the middle) they may be planted in open ground, about half a yard asunder. See Lists of annuals.

Caraway seeds are chiefly medicinal; but being used in cakes, a few plants may have place in the garden. Sow in spring, in a moist rich soil, and let them have six inches square to grow in.

Carduus Benedictus, is simply medicinal, and is of good repute. Sow it in autumn, either in drills, or broad call, and thin the plants to nine inches distance. It is annual, and must be cut down to the root for drying, just as it gets into flower.

Chervil is used in ballads, and is also a pot-herb that was formerly in much estimation for its warm nature. Sow it thick in autumn for winter and spring use. When down in spring, or summer, it runs quickly to flower. The seed must be slightly covered, and the leaves gathered for use young, cutting it down like pattley, (which it resembles) it springs again.

Cives are small bulbs, and a sort of mild perennial onion, the leaves of which are cut for ballads, and culinary purposes, at the spring, before onions come in. As the bulbs increase fast, some of them may be slipped from the rooted clutters, and used as onions. They
are propagated in autumn, or early in the spring, by planting five or six of the little bulbs in a hole, an inch deep, and eight asunder. A bed of them lasts three or four years.

Clary (the common garden) ranks as a medicinal herb, but it is used also in soups, and is very odorous. Sow it in spring, and when two or three inches high, prick the plants out fifteen or eighteen inches asunder, or thin them to this distance. It is biennial, and therefore must be sown every year as parsley is. There are sorts of this plant cultivated for ornament, bearing pretty flowers. See List of biennials.

Coriander is occasionally used in soups and salads, for its peculiar high flavour; but mostly for medicinal purposes, which its seeds are used in. For culinary uses, sow it in April, and once a month, or oftener, afterwards, in drills six inches asunder, to have a succession of young plants; and make a principal sowing in August, or September, on a warm border. Cover some of it with a frame, or it will die in hard weather. If wanted early in the year, sow one hot-bed, in February or March; or in this last month under handglasses.

Corn Sallad (or lamb's lettuce) is a small, warm, wholesome, hardy herb, and for winter and spring use should be sown in August and September, and again in February and March, and once a month all summer, for it is to be eaten quite young. The plants should grow about three inches distance: This rustic vegetable used to be much in request, though now rarely cultivated.

Cress, there are three sorts of, plain, curled, and broad leaved; the former of which is much used as a salad herb, with mustard, rape, radish, &c. The curled and broad leaved sorts should be thinned to half an inch asunder; but the plain is to be sown thick. The curled makes a pretty garnish. In the cold months, this salad herb (as others) is sown on gentle hot-beds, giving plenty of air; and as the spring gets up, on warm borders, or under hand-glasses. The London market
market gardeners sow it just within the glasses which cover their cauliflower plants, &c. In summer it should be sown in shady cool ground, and daily watered; or it may be sown in the most sunny situation, if hooped over, and shaded with a mat. Break the mould fine, and draw level shallow drills, and cover only a quarter of an inch. It may, however, be sown at broad cast, the ground being first raked very smooth, and the seed just covered with fine sifted mould. Let it be sown (on an average) once a week, and cut young. If that which is sown in open ground, at an early season, be covered with a mat, it will forward the germination. The American cress is much like water cress, only more bitter. It answers well as a winter- and early spring fallad, being sown in August, at broad cast, or rather thin in drills. The plants being cut, or the outside leaves pulled off, shoot again.

Dill is a very stomachic herb, whose leaves and seed vessels are put among vegetable pickles, particularly cucumbers, to heighten their relish. The stem, leaves, and seed, are also used in medicine; leaves sometimes in soups and sauces. Sow it either in autumn, or early in the spring, at broad cast, or in drills, a foot asunder, thinning the plants to about eight inches. It sheds seed freely, and comes up at spring.

Fennel (the common fort) is an hardy perennial herb, of the same family as dill, the uses of which are well known. It may be sown either in spring, or autumn, and the plants ought to be kept near half a yard asunder; or it may be propagated by slips from the roots of old plants. It should be constantly cut down to prevent feeding, which would cover the ground in a troublesome degree. Sweet fennel is an annual, cultivated for its seeds in medicine.

Finocchio is a sort of dwarf fennel, very aromatic; the bottom of the thick stalks of which, being earthed up about three weeks, when nearly full grown, five or six inches to blanch, are used in soups and fallads, or sliced,
flaked, and eat alone with oil, vinegar, &c. Sow it thick in March, in drills, about two feet asunder, and repeat the sowing every month till Mid-July, as it presently runs for seed. Thin the plants to seven or eight inches. It likes a dry soil. In a warm situation some may be sown in February; the last crop in June must be in a like situation, and will not be ready before winter; at the approach of which, protect it from frost with dry litter.

Hyssop is used sometimes in a culinary, but more in a medicinal way. There are white, blue, and red flowered sorts of it: but the blue spiked is that commonly cultivated. The parts for culinary purposes are the leaves, and young shoots; and the flower spikes are cut, dried, and preserved for medical uses, for which it is an excellent herb. As hyssop is a woody evergreen perennial, growing about a foot high, it may be planted for an edging of the kitchen garden. It is propagated by seed, and rooted slips, in March, by cuttings in April, or young slips in June, or July. A poor dry, or sandy soil, best suits it. The plants may be nine inches, or a foot asunder, as an edging, but should be near two feet from one another in a bed, as they soon get large.

Lavender (the common) is, for its pleasant aromatic scent, found in most gardens, and makes a neat perennial edging in large ones. It is propagated by cuttings, or young slips, in April and May, set a few inches asunder, in a shady situation, and good soil; and when rooted, planted out where they are to grow. The slips should be occasionally watered, and as a mat would cover a great many, might be shaded when the sun is hot upon them, for a fortnight or three weeks, to forward their rooting. But though raised in a good soil lavender likes a poor and dry one best to abide in. Set the plants at a foot distance from one another. In a rich moist soil, they are apt to die in the winter; but in a dry, hungry one, they rarely do. All plants the
more luxuriantly they grow, the more likely they are to be cut off by severe weather.

Marigold has its varieties, and some sorts bear very fine double flowers; but the common single kind is best as a pot-herb, being most aromatic. All single flowers are preferable to the double of the same kind for medicinal, or other uses, as possessing a stronger essence. Sow marigolds in spring, and let plants of the single sort stand a foot asunder, but the large double wider. They will grow in any soil, and are in flower most part of the year. The time of gathering them for drying is towards autumn, when they are most plentiful. Take care that they are not put up in their paper bags raw, or damp, and keep them in a very dry place. This flower is a valuable ingredient in broths and soups, however it may have got into disuse. It sows itself abundantly, and will bear transplanting about May, so that there will seldom be occasion to sow.

Marjoram is distinguished into pot, winter, and knotted sorts; the two former perennial, and the last annual. They are all occasionally used for culinary purposes, but the knotted is chiefly cultivated as a sweet companion of our flowers. The propagation of it is by parting the roots of the perennial sorts in autumn, or spring, and by sowing the annual kind in March, or April, on a warm border, and light dry soil. The annual sort should stand at six inches distance, and the perennial at nine or ten. The knotted sort, if planted in pots, and housed, may be preserved in the winter, cutting down the flower stems. This kind is sometimes used for medicinal purposes, and should be drawn up by the roots, for drying in the shade; or at least with but little fun.

Mint is a salutary herb, of which we have two sorts, the spear and the pepper; the former for culinary, and the latter for medicinal purposes. There is a little variety in the spear, as broader and narrower leaved,
leaved, and also variegated sorts, white and yellow, but these are considered only as ornamental.

Mint is propagated by pieces of its roots, or rooted slips, in the spring, set an inch or two deep, and eight afunder, on beds four feet wide. Cuttings will quickly strike root in any of the summer months. It delights in a moist soil, and new plantations of it (particularly cuttings) should be well watered in a dry time. Mint is to be had young all winter, and early in spring, by means of a gentle hot-bed, on which it should be set pretty close; and for a succession, make a new plantation every three weeks, as the roots will perish in about that time. Or it may be conveniently planted in pots, and placed in any bed, and so shifted from one to another, if occasion. Do not let this, or any other herb be badly dried, or preserved, as is too common a cafe. For present use, gather only the young leaves and shoots.

Mustard is much used as a salad herb, gathered quite young, and the white is the garden sort, the black being cultivated in fields for its seeds to make flour of. It is managed as cress, which see, p. 249.

Nasturtium, there is a greater and less sort of, both cultivated for their unripe berries to pickle, their flowers for salads and garnish, and as a garden ornament; but the large is that chiefly cultivated for culinary purposes. Being climbers, they should have something to lay hold of, as an arbour, or brush wood, or nailed up with shreds to a wall. They are of free growth, and flower abundantly for a long time, even till the frost comes. Sow an inch deep, in drills, in a light soil, and warm situation, in April or sooner, if on a gentle heat, to forward them. It is best to sow in a few small pots, holding each two plants, from which they may be turned out whole (before they get too big) in May; though sometimes they transplant without earth, about the roots, very well. Give them plenty of air while under cover, or they will be drawn up weak.
weak. A fresh, but poor, soil, is better than a rich one, which makes them too rampant, and less fruitful. See Lift 8, Sect. 19, and Observation.

The double nasturtium is considered merely as a fine flower, but they are a beautiful garnish. It grows from cuttings: Plant these in pots, in June, and place them on a little heat, and they will soon take root. Or if the pots are plunged in a warm border, and covered close with a handglass, it may be sufficient. Gently water them when the mould gets quite dry. This plant is tender, in winter requiring a stove; yet it flourishes all summer in open ground, flowering most in a poor soil.

Parsley we have a plain and a curled kind of; and though the former is mostly used, yet the latter is equally proper as a pot-herb, and it makes a good garnish: hemlock cannot be mistaken for it, as for the plain sometimes it has been. There is, however, more of essence in an equal quantity of the plain, than of the curled; but it is only using rather more of the latter, which, if not suffered to feed, will stand three years. To produce the curled fort very fine, (s for garnish) the plants should be thinned to three or four inches asunder; and it may be down either at broad cast, or in drills about nine inches asunder, as the common fort is. Parsley is sometimes down early in autumn, to have it young for the winter and spring; but the usual time is early in spring, and one sowing may be sufficient for the year. Cut it down often to get rid of the old, and young will spring up. Cutting down parsley should never be omitted about the end of September, that it may be had good through the winter and spring. This herb will bear transplanting. For Hamburg parsley, see parsley in the last section, p. 230.

Penny-royal is a pot and medical herb of the mint spices. There is an upright and a trailing sort of it; but the latter is that chiefly used: This is propagated by rooted branches, of which it affords plenty,
as it spreads fast; and it will grow in the summer months from slips, or cuttings. Set them a foot asunder in spring, or autumn, and in a strong moist soil it will most flourish. If, however, it is suffered to mat thick, it is apt to rot. As this herb is often wanted in winter, let it have a somewhat sheltered situation. If cut for preserving in winter, the time of flowering must be observed, and it must be very carefully dried and kept as it is apt to mould.

Purslane is a low growing succulent herb, of a cold and tender nature, used chiefly in summer salad, but sometimes for culinary purposes. The sorts are the green and golden, but the former is preferred, and is hardiest. This plant will not succeed in the open ground till towards the end of May, and then it must have a warm border. In March or April, it is sown on a gentle heat; for which purpose the lining of a hot-bed may do. Sow in drills four inches apart, cover a quarter of an inch, and let the soil be light and rich. In dry weather, water it twice or thrice a week. The end of the young shoots only are used, and when cut down it springs again. It is usual to sow it three or four times in the summer, in cooler places, as the weather gets hot.

Rape, or coleseed, is sown for a salad herb, to be eaten while in the seed leaf, with mustard and cress; and is to be treated as they are: it is stomachic, and some persons are fond of it when boiled.

Rampion is a salad and culinary root, in but little request. Sow it thin in April and May, and leave the plants at four or five inches distance, for autumn and winter use: Draw it young.

Rocombole is a root much like garlic, producing small bulbs at head, as well as root: is chiefly medicinal. The cloves may be planted in autumn or spring, two inches deep, and four asunder. Treat it as garlic, which see. It is sometimes used as a mild substitute for
for garlick. The seeds are eatable as well as the
cloves.
Rosemary we have the varieties, plain, silver, and
gold striped. The plain is a useful medicinal herb,
which should be found in every garden. It is propa-
gated by suckers, layers, slips, or cuttings, in the
spring, letting the two last where they have not much
fun; and when rooted, towards autumn, or in the fol-
lowing spring, allot the young plants a situation rather
warm, and sheltered, as rosemary is apt to suffer, or die,
in severe winters, especially the variegated.
Rue is a medical plant, propagated in spring, by
seed, slips, or cuttings. It stands many years, but
should be prevented feeding, and pruned down occa-
sionally, to keep it in a neat bushy trim, of moderate
height, and strong growth.
Sage, there are several sorts of, but the common red
is that used chiefly for culinary purposes, and the green
both for these, and medically for tea, &c. There is a
narrow leaved green sort, called tea sage, or sage of
virtue; but the broad leaved green is reckoned by some
better, not being so heating, and unpleasant to the
taste. The variegated sorts of sage are only considered
as ornaments in the flower garden, or shrubbery. Sage
is propagated by slips or cuttings of the last year's
shoots, in April or May, choosing those that are short and
strong; or of the young shoots in the early part of sum-
mer, set in to an inch from the top, and about four
inches distance, in some shady place. These, if they
spindle tall in the summer, should be pinched down
(in time) to about three inches, in order to form bushy
heads. They will be well rooted in August, when they
should be planted a foot asunder, in a sunny and shel-
tered situation, from the N. and E. that they may stand
severe winters, which they will the better do, if the soil
is rather poor.
Samphire is by some greatly esteemed for a pickle,
using its leaves, which are sometimes added to jellies,
and occasionally used medicinally. It is perennial, and propagated by parting its roots, or by seed sown in April. It is somewhat tender, likes a cool situation, but yet prefers a sandy, or a gravelly soil: Let it have plenty of water. Some have found it to do best in pots, set for the morning sun only.

Savory we have a summer and a winter kind of; the former is annual, and the latter perennial; and both are used as medicinal and culinary herbs, but the summer sort is that mostly cultivated for medicine. The annual is propagated from seed in March or April, sown thin and shallow, in drills, eight or nine inches asunder. The perennial is sometimes propagated from seed, but more usually from rooted slips, or cuttings from the top, in spring, as also from side slips. The annual sort should grow at six inches' distance in the drills, and the perennial be allowed a foot. Summer savory, gathered for drying, is best drawn up by the roots.

Smallage is a sort of wild parsley, found in moist places, and was formerly much cultivated in gardens, and used in soups and salads, and medicine, as a warm herb. Sow it in spring as parsley.

Scurvy Grass (the Dutch, or round leaved) is sometimes cultivated in gardens for its excellent medicinal properties. Sow it in autumn, or spring, but best early in the former. Though it will grow in any soil, it should have a moist one.

Sorrel is an acid, perennial plant, much relished by some as a salad, often used as a pot-herb, and sometimes as a medicinal one: Though found common enough in the fields, it is much improved by garden culture. The round leaved sort, commonly called the Roman, is reckoned the more grateful acid, and increases in the ground apace.

Sorrel is generally propagated by parting its roots, either in spring or autumn, and if propagated from seed, (which produces the finest plants) it should be sown in March. The plants of the common sorrel should be six or eight inches asunder,
and the other a foot, or fifteen inches. Common sorrel likes a cool moist soil, but the Roman a dry one. Cut it down at the latter end of the year, and cover it over with a little mould, first stirring the soil.

Succory is a fallad, pot, and medicinal herb, but not much cultivated. To be good, it must be well blanched as endive, of which it is a wild sort. Sow it in March for autumn and winter use.

Tansey is a culinary and medicinal herb, of which, besides the common, there are curled leaved, and variegated sorts; but the former only is proper to be used medicinally. It is perennial, and propagated by rooted slips, in spring or autumn, set at eighteen inches distance, in beds, four feet and a half wide; and will grow in any soil or situation.

Tarragon is a perennial pot and fallad herb, which is much admired by some, for its peculiar high warm flavour. It is propagated sometimes from seed, but mostly by rooted, or other slips, set in spring, or autumn, at six or eight inches distance, and may be by cuttings in the summer months. The shoots die down towards winter, but the roots are hardy, and increase apace. If wanted in winter, it may be dried as other herbs are, or forced as mint, in order to have its green. When the stems begin to run, cut them down, in order to produce young shoots, for the tender tops only are to be used; and that not too freely, as it is an herb that heats much.

Thyme is a pot-herb, of which there are commonly cultivated a broad and a narrow leaved sort, but the former mostly. There is a sort called lemon thyme, that is admired for its flavour, and another called silver thyme, which, with the striped, are considered rather as merely ornamental. It is best to raise the common sorts from seed; though root branches, on account of their trailing nature, may be usually had from old plants. Slips will grow, if set in a light rich soil, in a shady situation, or kept moist by watering. Loosening the earth

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earth under, and drawing it up about old plants one year, will produce plenty of rooted branches the next. The plants should grow at six or eight inches distance. If propagated from seed, let it be sown thin in March, and covered lightly. Slips are best made in April. This herb makes a neat edging when planted close, but it is a great impoverisher of the ground. Keep it low.

**Tomatum** or love apples, we have red, white, and yellow fruited; and of the red and yellow, a cherry-shaped sort. The first, or large red, is that commonly cultivated, and it serves for an ornament in the garden, as well as of use for the table, in a pickle made of the green fruit, and when red in soups, &c. It is also sometimes pickled when red, (i.e. ripe.) At the end of March, or beginning of April, it must be sown in a moderate hot-bed; and being soon thinned, let the plants grow two or three inches high, and be pricked in small pots, to turn into the cold ground towards the end of May; or if not long and weak, keep them under cover a little longer. Give them a sunny situation against a wall, for regular and timely training, or support them by sticks. They take up much room, and in rows should be three yards asunder. If planted out upon holes of hot dung, it would help their speedy rooting, and forward them much for ripening their fruit, which in bad seasons they sometimes fail in. They require much water in dry weather.

**Wormwood** is a useful medicinal herb; and common as it is in many places, in others it is not to be met with wild. Besides the common, there is a Roman wormwood—both are efficacious; some preferring the one, some the other. They are commonly raised from slips and cuttings, in any of the summer months, or from seed sown in spring.
SECTION XVII.

OF FRUITS.

There is a variety (and of some a great one) of each kind of fruit, and the difference of tales makes it impossible to pronounce upon their particular merits. With respect to fruit, there are provincial prejudices in favour of some, and of apples in particular; so that in one county, a sort shall be generally known and admired, and in another, not be heard of.

In assisting the young gardener in his choice of the principal fruits, only a few sorts will be named; such as have obtained almost an universal credit. It would be well if the number of some kinds (as in peaches) were reduced; for their multiplicity occasions a great uncertainty, and their shades of distinction are hardly discovered by the best judges. Nurserymen's catalogues furnish large lists.

Of the same sort of fruit there is often a perceptible difference, owing either jointly or separately to the stock, state of the tree, soil, situation, management, and season. Bad planting, by cramping the roots, &c. will often induce sickness, and of course a good plant made to produce small, ill-flavoured fruit, and thus it will appear to be not itself. So that when the best method is taken to procure good fruit, (or such that please us) which is by grafting, or inoculating from the very tree we have admired the fruit of, our expectations may, in a measure, be disappointed by a variety of circumstances.

Nurse-
NURSERYMEN, it is often said, are not to be depended upon, for if they have not the sort you want, they will send you one they have; and this may sometimes be the case, as they may think it of little consequence if you have one that is good. But the case is, there is a great confusion in the names of fruit, by accident, ignorance, carelessness, &c. New titles have been arbitrarily imposed on old fruits that have happened to vary a little; and distinctions made without a difference, of which circumstance Mr. Evelyn complained in his day, saying, "The discriminating the several kinds of fruit, by their characteristic notes, from the leaf, taste, colour, and other distinguishing properties, is much wanting." But as Mr. E. observes, the ability for this is only attained by long and critical observation. Dr. Hill (in his *Eden* folio) professes to have given great assistance in this matter. "Under the section of fruits, (says he) we shall give their proper names and descriptions, by which every one will know by what names to call those he sees." I doubt it; and that an intimate acquaintance only can do it.

Disappointment frequently originates with the purchaser, who having met with a fruit to his mind, inquires the name, and is told a wrong one, and that, perhaps, of a bad sort; the nurserymen then complying with his order, is blamed. A reduction of the number of sorts, to those in which there is an evident difference, with more care on the part of those who raise, and those who buy trees, in all respects; and particularly that of preserving the true name, seems necessary, therefore, in the affair of fruit trees.

The choice of fruit trees should be somewhat governed by soil and situation; (which has been observed) for that fruit which succeeds in one, will not in another. Later fruit may be planted in light soils than in strong ones. Some sorts grow finest in a cool, others in a warm soil, and some situations are too bleak, either for early or late fruit, though the aspect, and all other cir-
cumstances, may be good. In planting fruit trees, particularly those of the wall, much discretion is necessary to avoid disappointment.

As fruit trees are so readily purchased, few people care to raise them; but those who may be disposed this way, will find instructions in the sections nursery and grafting. The purchaser must attend carefully to the planting, for which work directions have been given in the sections of the formation of a garden, and that on planting. For the training and pruning of fruit trees, ample rules are laid down in the section, On pruning, so that nothing need be said of their cultivation here, making proper references.

Apples, as the most useful fruit, it will be proper to provide as many trees of as there may be found due room and occasion for; taking all care to procure good sorts of the two kinds; i.e. for eating raw, and dressed; and to have a proper assortment of the summer, autumn, and winter fruits.

For the first season, jenneting, common codlin, margaret apple, and summer pearmain. Second, golden pippin, Holland pippin, golden remnet, white calville, and Kentish codlin. Third, nonpareil, golden russet, Wheeler's russet, winter pearmain, Kentish pippin, ribston pippin, margille, Norfolk beefing, and the John apple. There are, no doubt, other apples very good; but, perhaps, these have as much merit as any. With respect to raising, planting, pruning, &c. see pages 30, 35, &c. 68, &c. 79, &c. 97, &c. 156, 160.

The gathering of apples, and other fruit, from standards, is often badly performed, damaging the branches, and breaking the spurs off; let this busines, therefore, be properly attended to, particularly in young trees of good sorts. Do not pinch, or bruise, fruit in gathering, for even the hardy apple may suffer.

As to the keeping of apples, those which continue long for use should be suffered to hang late, even to November, if the frost will permit, for they must be well
well ripened, or they will shrink. Lay them on heaps till they have sweated a few days, when they must be wiped dry. Let them then lay thinly, or at least thinly, for about a fortnight, and be again wiped, and immediately packed in boxes and hampers, lined with double or treble sheets of paper. Place them gently in, and cover close, so as to keep air out as much as possible. Preserve them from frost through the winter. Never use hay for the purpose.

Some of the choicest table sorts of apples may be treated as directed for the best pears.

The baking apples need not be packed, but either kept singly on the floor, or shelves, or in heaps covered over, when they have sweated a few days longer than the others, and have been wiped dry; yet these, if packed, will certainly stand a better chance of keeping the longer. Remove all decaying fruit as soon as discovered, and suffer no damp or musty straw to remain in the room: Use that of wheat or rye.

Apricot is a fruit something between a plum and a peach, partaking of a middle nature, both in growth and taste.

The early masculine, Brussel's, orange, Turkey, Breda, and Moor-park, or Anson, are the common and best wall sorts; but the Turkey, and the Moor-park, though excellent fruits, are idle uncertain bearers. The Dunmore Breda (excellent) is ripe in September.

Gather apricots a little before ripe, or they will lose that smartness which recommends them. With respect to thinning the trees of young fruit, when too full, see page 146. Particulars as to raising, planting, &c. see pages 30, 37, 71, 90, 103, 105, 129, &c.

Berberry (sometimes called piperidge) is a pretty fruit, useful as a preserve and garnish; a handsome shrub, which makes a profitable, and also useful hedge, for by reason of its thorns it is almost impregnable.

Besides the common red fruited, there is a stoneless red, preferred for preserves. See List 8, sect. 19. Of raising this shrub, &c. see pages 76, 165.
CORNEIL; i. e. Cornelian cherry. The fruit used to be by many preserved to make tarts, and a medicinal preparation was also made of it, called rob de cornis. See cherry, Lift 2, sect. 19.

CHERRY: The sorts may be the early May, May- duke, (ripe in June) white, red, and black hearts, bleeding heart, bigeroon, Turkey, trade/cants, and morella; to which may be added, the yellow Spanish, and white Swifs, ripe in August.

In gathering cherries, take care not to pull the fruit spur off, which is a very common thing. If they are properly ripe, they will part easy from the tree. See pages 31, 37, 85, 90, 103, 157, 160, 163.

CHESNUT is not a garden fruit, but the manured, or Spanish fruit, in an open situation, produces good nuts about Michaelmas, and may be kept all winter, if covered close from the air, See page 75.

CURRANT, we have a small red and white, with a larger of each, called Dutch currants, the Champaign, or pale red sort, and the black. There are currant trees with variegated leaves, and a sort with a gooseberry leaf. See pages 31, 38, 76, 106, 159, 163.

FIG is a fruit, the sorts of which are mostly planted without doors in England, are the common large blue, early dwarf blue, early dwarf white, and large white. The first kind is the hardiest; but yet do not always ripen well with us abroad. See pages 29, 30, 74, 103, 105, 151, &c.

FILBERD, we have a white and red sort of, and the latter judged most agreeable in flavour. Other nuts are the Spanish, cob, and hazel in variety. The first is a large nut with a thin shell, and the second is a large one with a thick shell, but both are good. There is a nut near two inches long, but it does not kernel well. See pages 37, 71, 76, 158.

GOOSEBERRY, there are many sorts of, arising from their propagation by seed, differing in their time of coming in, size, colour, &c. The large sorts of gooseberries (weighing from ten to fifteen penny-weights)
weights) have been much run upon, yet there are small ones better tasted. The names at least of the sorts are numerous, (above 200) but those that have been long commonly cultivated are, the early black, small early red, smooth green, hairy green, common and large white, hairy and smooth red, ironmonger, Champagne, yellow, amber, and tawney. See pages 31, 38, 76, 106, 159, 163.

Grape. The only sorts likely to fruit well in open culture, are the black July, white and black sweet water, black muscadine, and black cluster. See pages 29, 31, 75, 103, 105, 147, &c.

Medlar, we have an apple and pear shaped sort of; but this fruit is little cultivated, and not good till rotten ripe. The sorts are, the German, the Italian, and the English; or Nottingham medlar. Gather at the beginning of November, lay some on straw, and cover with straw; and others (to forward their ripening) put in a box, on a two inch layer of fresh bran, moistened well with soft warm water; then strew bran between them, and cover two inches thick, which moisten also, but not so wet as before: Proceed thus, layer upon layer; and a week, ten days, or a fortnight, will do the business. See pages 37, 75.

The chief value of the medlar (as also of the service) is its late coming in for table use, when there is little other fruit to be had; Few like it.

Mulberry, there is a black, a white, and a red sort of; but the former is the one generally cultivated for fruit, being as such the best. The white sort of mulberry is that cultivated for feeding silk worms. The red sort is the common mulberry of Virginia, hardy, and succeeds here.

The mulberry tree should have a grass plat under it for the fruit to fall on: for those thus picked up will be superior to what may be gathered. See pages 32, 37, 75, 157.

N NECTA-
Ne\text{ctarine} is much like the peach in all respects, only that it is smaller, has a smooth skin, and of firmer flesh. The Newington, red Roman, temple, and murray, are good sorts, to which the curious, in a good situation, may add the early nutmeg, the late green, or Peterborough, and the white Italian.

In gathering nectarines and peaches, never pinch them to try whether they are ripe; for when so, the touch will discover it, and when thorough ripe (as they should be) they will come from the tree with great ease. See pages 29, 30, 71, 90, 103, 105, 129, &c.

Nut, see Filberd.

Peach (in general) succeeds better than the nectarine, as to bearing and ripening. There is a great variety of peaches under cultivation in England, but on the Continent the number is much greater. The following may be recommended: The early Ann, early Newington, early purple, the red and white Magdalens, the two mignons, noblesse, admirable, old, or late Newington and Catherine.

Peaches cannot be too ripe, (see nectarine) so that those which drop are by many reckoned the best; and those whose flesh adheres to the stone (called paves) are by some thought the more delicious. The nobleffe and admirable part from the stone. See pages 29, 30, 71, 90, 103, 105, 129, &c.

Pear, there is a great variety of, classed into summer, autumn, and winter fruits. The summer sorts may be the green chiffel, Catharine, Jargonelle, and summer Bonchretian. The autumn, brown buerre, bergamots, swan's egg, and dean pear, or St. Michael. The winter St. Germain, crefan, winter bonchretian, colmar, and chaumontelle. These all come in for eating regularly, the first in July, and the last continues on to June. Baking pears, Parkinson's warden, the union, or Uvedales St. German, cadillac and black pear of Worcester, good to Midsummer.

Gather
Gather pears of the summer forts rather before they are ripe, as when thoroughly so they eat meally, and will not keep well above a day or two; even when gathered as they ought to be, in a week, or less, they will go at the core: They should not, however, be gathered, while they require much force to pull them off. Autumn pears must also not be full ripe at the time of gathering, though they will keep longer than those of the summer. Winter pears, on the contrary, should hang as long on the trees as they may, so as to escape frok, which would make them flat in flavour, and not keep well. Generally they may hang to the middle of October on full standards, a week longer on dwarfs, and to the end of the month on walls; but yet not after they are ripe.

The art of gathering, is to give them a lift, so as to press away the stalk, and if ripe they readily part from the tree. Those that will not come off easy, should hang a little longer; for when they come hardly off, they will not be so fit to store, and the violence done at the footstalk may injure the bud there formed for the next year’s fruit.

Let the pears be quite dry when pulled, and in handling avoid pinching the fruit, or in any way (in the least) bruising it, as those which are hurt not only decay themselves, but presently spread infection to those near them: When suspected to be bruised, let them be carefully kept from others, and used first. Gather in shallow baskets, and lay them in gently.

House pears in a dry airy room, at first thinly for a few days, and then put them in heaps to sweat; in order to which, a blanket thrown over them will help. The fermentation must be watched, and when it seems to have passed the height of sweating, wipe the fruit quite dry with fine flannel, or clean soft linen, and store them.

The storing is thus: Those to be used first, lay by singly on shelves, or on the floor, in a dry southern room.
room, on clean dry moss, or sweet dry straw, so as not to touch one another. Some, or all the rest, may be stored as directed for apples: for they will thus keep very well, having first laid a fortnight singly, and then nicely culled. But the most superior way is, to pack in large earthen, or China jars, with very dry long moss at the bottom, sides, and also between them, if it might be. Press a coat of moss on the top, and then stop the mouth close with cork, or otherwise, which should be refined over, with about a twentieth part of bees-wax in it. As the object is effectually to keep out air, (the cause of putrefaction) the jars, if earthen, may be set on dry sand, which put also between, round, and over them, to a foot thick on the top. In all close storing, observe, there should be no doubt of the soundness of the fruit. Guard in time from frost those that lie open. Jars of fruit must be soon used after unsealing. See pages 31, 37, 44, 71, 74, 82, 89, 90, 95, &c. 103, 153, 160.

Plum, of the many sorts the following are good:
Green and blue gage, Fotheringham, white and blue perdrigon, drop d'or, la roche Corbon, la royal, and St. Catharine. The imperial, or red magnum bonum, and white magnum bonum, are chiefly used in tarts, and for sweetmeats, as is the Wentworth. The early white primordian (not a choice fruit) is valuable for its coming in the beginning of July; and the imperatrice for not coming in till October. Damson and bullace plum, black and white, very late in the season, for tarts, and a fine acid preserve. See pages 31, 37, 71, 74, 82, 90, 103, 158, and 160.

Quince, we have the common apple, and pear shaped; and Portugal pear shaped. This fruit cannot be eat raw, but for marmelade, and baked in pies, &c. the housewife finds it useful. The Portugal is mostly esteemed. Quinces may hang till November. The ripe ones only are of value, which after sweating a few days,
days, must be laid singly (at some distance from one another) on a shelf. See pages 37, 74, 108.

Raspberry, the kinds are red and white, and of each a twice bearing sort, i. e. producing fruit in summer and autumn. Of the red there is a prickly wooded sort, and a smooth one, called the cane, and sometimes the reed raspberry; and the large Antwerp, of a yellow white, sometimes called the Middleton Rasb.

Gather this fruit carefully, and not long before wanted; lay no great quantity together. Raspberries presently lose their flavour, and tend to decay. See pages 38, 55, 77, 106, 164.

Service, (sweet) or hark apple, is rarely cultivated for fruit, as it requires a warmer climate than England to ripen it. In fact, it never ripens on the tree. It is gathered late in autumn, in a very austere slate, and laid by on straw to decay, when in about a month it becomes agreeable to eat. The trees are hardy, and the curious often plant them, merely for the singularity of their leaves and fruit. This tree is sometimes trained, on a wall, or espalier, as pears. There is a variety, as the apple, the pear, shaped, &c. See lists of trees, 1, 2, Sect. 19.

Strawberry: Of this fine flavoured fruit, beautiful and fragrant, we have the following sorts: Red, white, and green wood; red and white Alpine; scarlet; Carolina; hauboy; red and green pine-apple; Chili, of sorts; with some seminal varieties, as several of the hauboy, and one in particular of the Carolina, called the pink fleshed strawberry. There is also a strawberry with one leaf, a variety of the wood and prolific.

Gather strawberries regularly as they ripen, with a bit of their stalk, and never lay many together to press upon one another. The frether they are, the finer eating; for this fruit, as the raspberry, is quite naugh when stale. See pages 38, 51, 55, 77, 111, 165.

Walnut, there are several sorts of, as early and late, small and large, thick and thin shelled, &c. Two only
only need be named, the *early oval thin shelled*, and the *common round*, or *royal walnut*. All the others seem to be only feminal variations from the last, which is justly reckoned the best fruit. Procure trees from seven to ten years old, as they seldom bear till about twenty years of age. See pages 76, 103.

**SECTION XVIII.**

**OF FLOWERS.**

*Flowers*, the sole luxury which Nature knew,
In Eden's pure and guiltless garden grew;
Gay without toil, and lovely without art,
They sprang to cheer the sense, and glad the heart.

*Barbauld.*

*FLOWERS*, as to their cultivation, are classed into *annuals, biennials, and perennials*. *Annuals* are those that are sown and flower, and generally die within a year. *Biennials* are those that are sown one year, and flower and generally die the next; though some of these, by sowing early, and forwarding by a little heat, will blow the same year. *Perennials* are those that do not flower the year they are sown, but the next, and continue to live years afterwards, some fewer, some more. Of this class there is a great variety, (perhaps fifty to one of the last) mostly fibrous rooted, some fleshy, some bulbous, and some tuberous, &c. Most of the *perennials* are annual in their stalks, which die down to
to the ground in winter, and fresh shoots rise in the spring. But, strictly speaking, all of each class are not annual, biennial, and perennial; for some of the annuals come (though more weakly) a second, or a third year, as Chinese hollyhock and Indian pink, and a few others, (which die abroad) would live through the winter if housed. Of the biennials, the same may be said of the flock July-flower, sweet William, and wallflower; only the former of these plants does not always live through the winter. All are to be sown, or propagated, as they are classed, in order to have a certain and fine blow. Of the perennials, some do not flower well above three or four years, as the hollyhock, &c. For which a sowing should of course take place the year before they are wanted: A few may also go off the second year, having perfected only one blow. See pages 41, 42, 55, 56, 59, 64, 65, 69, 110.

What sweets are these which gratefully diffuse
Their fragrance round?

'Tis the flowers,
The incense of the garden's breath, that sheds
This balmy sweetness.

To the smell
How grateful, not less pleasing to the eye
The bloom of opening flowers.—Kind Nature here
In nice proportion all her favours deals;
Those gales around the blissful garden pours,
Neither too strong the organs to oppress,
Nor yet so faint the senses to elude.

See in what various tints the flowery tribes
Their several beauties shew, and court the eye
With new delight, distinguish'd each from each
By different hues—how wise the bounteous hand
Of that indulgent power! tho' perfect all
His works, who yet on all the charms bestows
Of novelty to shew 'em still more fair.
Annual flowers are usually divided into three classes, i.e. tender, less tender, and hardy.

In the last section 19th, the tender annuals are marked 1, the less tender 2, and the unmarked are hardy.

To this list of flowers might be added others, and some possibly that are pretty; but many of the annuals introduced for variety's sake in large gardens, plantations, &c. are weed-like, dull, and rambling, and perhaps a few among those here mentioned may not be sufficiently ornamental (as, for instance, the whites, where there are other colours of the same flower) to give general satisfaction; for a gay appearance is certainly the first object in the cultivation of flowers to adorn our walks. There are rare plants, and others admirable in their structure and properties, which make no show; but these are rather subjects for the curious botanist, and he will deservedly think them worthy of a place in his garden.

Some flowers are both beautiful and fragrant; but many have only one of these properties to recommend them. Some are cultivated chiefly for the beauty or elegance of their leaf, as the tricolor, ice plant, palma christi, and the curled mallow; and some that bear pretty and sweet flowers, are meanly furnished with leaves, as the yellow sultan. Others obtain a place in the garden, neither for fragrance, or flower, or leaf; but merely for the singularity of the fruit, or seed vessel, as the egg plant, snails, caterpillars, hedges, horns, and others.

In the given list, some of the tender annuals may occasionally be considered as less tender; as Amaranthus, coccocumb, and tricolor, balsams, double, as well as single, and faramonium; only they will not be so forward and fine. Some of those also among the less tender may be
be sown as hardy, for a late blow, as China-aster, Indian pink, love lies bleeding, French and African marigold, princes feather, ten week stocks, and sweet sultan. Some among the hardy annuals may advantageously be treated as the less tender, to ensure their germination, or to bring them forward, as belvidere, Indian corn, (the large sort of which must be forwarded upon heat) mignonette, nasturtium, and persicaria.

The Culture of each Class follows.

1. OF ANNUALS.

About Mid-March is a general good time to sow the tender (and in short all) sorts, though the curious and skilful being well furnished with proper frames, &c. may begin a month sooner; the end of March, or beginning of April, is, however, not too late, and will (perhaps) better suit a young gardener than if he sowed earlier. In order to succeed in this business, there should be provided fine dry and rich earth, good stable dung, frames and lights, or roomy hand-glasses, and mats to cover.

A moderately strong hot-bed, for a one light frame, may be prepared, and the violent heat being certainly over, the seeds either sown thinly in drills, two or three inches asunder, on five or six inches of mould, or less on a weak bed. May sow also in pots, plunged to the rims. Cover the seeds from a quarter to half an inch, or more, according to their size. Some of them will appear in a few days, and others will lie a fortnight or more, according to the circumstances of their particular nature, age, and the heat or moisture they meet with in the bed.

Thin the plants a little in time, and soon after to an inch, and then again to two, asunder. By no means let them be crowded, which would draw them up weak.
and occasion a crooked growth; whereas a robust and erect stature is the beauty of any plant.

Water, just warm, must be gently given them, (not to beat them down) as they may appear to need it, and air (particularly in a full sun) as much as they can be thought to bear, a little at first, and by degrees more, for this is essential to their health and strength.

The seeds may also be sown in pots, and plunged at the back part of a cucumber or melon bed. A bed may be got ready to prick them into when grown a little, or into pots placed in the like manner; and where only a few are cultivated, this method is adviseable, (to save trouble) not beginning too early.

Provide another bed by one month from the sowing, to set the plants out in; and having six inches depth of mould, place them five or six inches asunder, allotting those to the warmest part of the bed which were longest coming up, and which are of course the weakest, as globes, &c. or they may be put out in small pots of five inches diameter: Place the tallest behind. Let the mould be warmed through before planting. There had better be too little, than too much heat; but if the bed gets over cool, line it, or cover round with straw, as directed in the management of hot-beds, page 174.

If not sown till the beginning of April, this second bed may possibly go through the business, with proper management to keep up its heat, and covering well on nights; but a third bed is commonly necessary, in order to succeed well, and bring the plants on forward and fine. In this bed, it being covered over with four or five inches of mould, the plants should be in small pots, one in each, and plunged an inch deep, close to one another. As the bed gets cooler, the pots are to be earthed higher, till up to the rims in mould; but if planted without pots, the distance should be eight or nine inches asunder.

More water and air is necessary as the plants increase in size, and every time they are shifted, let it be carefully
fully, with some earth about their roots; though a warm bed will soon make them strike, if without mould. Let them be shaded from sun a few days; i.e. till rooted in their new habitation. As these tender annuals do not rightly bear the full open air till Midsummer, give them resolutely as much of it as possible in the frames, (by degrees) even to taking off the glasses in the middle part of fine mild days. Keep up a heat in the third bed as long as can be, that the plants may continue in a growing state, and not get hunted by cold at bottom. To this end, a fourth bed, for some of the sorts, as globes, coxcombs, &c. would be a greater advantage as to size, especially if the weather is unkind.

It is hardly necessary to hint that the beds must be larger, and frames deeper, every time the plants are shifted. As the first frame was a one light, let the second be a two light, and the third a three light, which may be raised upon bricks, or boarded round the bottom, as occasion may require. From the small pots, let them be transplanted into bigger in time, or (as soon as they can safely be) into warm borders, where, if covered with hand-glasses, set on bricks for a while, it would secure them from unkind weather, till got a little hardened. In this changeable climate of England, there is hardly any knowing when tender plants may be exposed safely; yet too much housing and covering is to be avoided as much as possible. Many flowers will need support. See page 55. For the method of shifting plants from pots, as into bigger, or to the open ground, see page 184.

Some of the tender flowers in pots may be plunged to the rims in the ground, to keep their roots cool, and for the sake of being conveniently covered; in which case, it is proper to put a bit of tile underneath the pot to keep out worms, which otherwise would get in.

Good seed from tender annuals will not be well had, but from February sown plants. Skilful gardeners, sowing early, and having plenty of dung and drawing frames
frames, produce surprising plants of the tender annual clafs; fo that the globe amaranthus has been raised to three, and the giant coxcomb, and tricolor, from three to five or six feet high. Tender flowers designed to gather seed from, should begin to have some protection of glafs about Mid-Augulf, at least on nights, till they are fully ripened in September.

Scoop trowels, of two or three sizes, will be found very useful in the shifting of flowers in general, but particularly of the hot bed fort; and as they should be clean from dirt when used, fo also should they be free from rust, by which they will work much pleasanter, and more successfully: In short all garden tools were better kept bright, as well for use as neatnesss. Before a trowel is used, in the removal of a plant, it is a safe way to cut fiart down round the root, and to the bottom, with a large, clean, and not very blunt knife; fo will the trowel take all up whole, and the fibres will not be lacerated, or barked: But attempt not to take up more earth in a ball than is likely to hang together, left all drop by its weight. Transplant (if possible) always in moif, or cloudy weath er.

A small watering pot, (i.e. from two to three quarts) with a finely pierced rose, is also necessary, to give refreshment without bending down the plants, or hardening the surface of the earth. The form of many a good flower is spoiled in its infancy by rough watering, and particularly capsicums; to avoid which evil, whatever pot is used, let it be only half full.

The potting of plants is often carelessly, but ought to be most carefully performed, that as little check as possible may be felt by the roots. Fill the pot one third, half, or more, full, (as the case may require) and then make a hole in the middle, adapted in form to receive the plant, with its ball of earth; and be sure do it right at fiart, fo as not to be too high, or too low, for once put in, it will not be safe to take it out again, left the mould drop from the roots. Do not press the ball of
of earth, (as some do) but only just fasten the loose mould that is put round it. If the soil is light, press that a little which is first put in at the bottom. If a plant that is to be potted be without mould about its roots, raise a hillock (at a proper height) in the middle of the pot, to lay the roots on and round: It must always be avoided planting in the pots too deep, because so much of the pot is lost as is above, except the pot is apt to strike root above, as balsams. In all transplantations, it is proper to shorten some of the roots, and those fraggling are to be chosen for the purpose; so that when it is done with a ball of earth, some of the external fibres must be cut off, if it was not done by taking up, which it generally is when the plants are any thing large.

Annuals in pots will require water every day, in very hot weather, and in moderately so, every other; but those in the open ground will do twice as long (or more) without water being given them. Some sorts will need more water than others, as egg plants and balsams, than coxcombs and tricolors. This matter, and a variety of others, will be learned by observation, without a talent for which, no one can possibly become a good gardener. The most exact directions will not take in every case, and rules will be of little avail, where the mind is not in diligent exercise.

In general, potted plants require water according to the weather, their situation as to the sun, the size of the pots, the fulness of the roots, the quantity of leaves, and the particular nature of their substance, as succulent or not. The smaller pots must have it the more frequently. The earth also in which plants grow makes a great difference, as some sorts of soil retain moisture much longer than others. It may be a question whether pots of annual flowers standing in pans, should have water constantly kept in them, or only watered (in due time) on the top, till it runs through: Both practices are followed by good gardeners; but the latter I think best;
of flowers. sect. xviii.

best; as keeping the young fibres at the bottom always sodden can hardly be right: With respect to perennials, (except of an aquatic nature) it must be wrong. Let pots of flowers in the summer be placed pretty much in the shade and shelter but not by any means be under trees, or a roof. A situation where they have only the morning sun till eleven or twelve o’clock is the best; and some persons are so curious in this respect as to have awnings for the purpose, and temporary reed fences to keep off the wind, to which flowers (particularly of the tender kind) should not be wholly exposed. Annuals, or even a few perennials, may be put in covered places, when nearly in full blow, for the sake of their ornament; but the latter should not be continued longer than while the prime show lasts, for it will make them weak and crooked.

It is advisable not to pot more hardy plants than necessary, as they occasion much trouble, if properly managed; and after all, will not be so fine as those growing in the open ground. Some things are too tender for open culture, and by potting they are conveniently protected by frames; or by housing, and sometimes simply plunging them in the ground, close against a warm wall, in winter, where a little protection may be easily given them. Others it may be desirable to pot, for the sake of moving them into particular places, when in blow, and to have some ready to put into the ground, where others are gone off, so as to keep certain favourite borders and walks always well furnished; but do not have too much to do in this way.

A second sowing of tender annuals should take place three or four weeks after the first, according as that was made, late or early; for their beauties are certainly desirable, as long as the season will permit us to behold them, and they are the florist’s chief dependence in the autumn; when, if he is emulous to do well, he may make a noble creditable show. See life 7, in next section, with the observations.
The less-tender annuals should have a flight bed (about two feet thick) made for them at Mid-March, or a little after, being sown and managed as directed for the tender sorts. When they are one or two inches high, (according to their nature) they must be taken up with a scoop trowel, so as to keep a ball of earth about their roots, and either transplanted on another bed, about one and a half foot thick of dung, or into the cold ground; the small kinds at four or five, and the larger at six or eight inches asunder, in a good well broke foil. Let them be immediately watered and kept moist, and shaded from sun till well settled. Here they may grow till their leaves begin to meet, when they should be cut between their roots with a good knife, and lifted up neatly with a scoop trowel, to be potted or planted where they are to flower: If this business is done well, they will receive but little check in their transplantation. Spindle rooted plants (as stocks) should be moved where they are to blow, as young as may be; but fibrous rooted ones may be shifted much older.

Plants will flag a little even when removed with a large ball of earth; because some of the fibres of the roots are either broke or cut, and a plant is chiefly fed by the youngest and most extreme parts of the root. If possible, let all summer transplanted flowers be shaded from sun, by garden pots, (raised a little) or otherwise, till they have struck fresh roots, which they will soon do; but uncover on nights. This will occasion some trouble; yet the advantage attending it makes it very advisable, if not absolutely necessary, and especially when the plants are moved with none, or very little mould about their roots.

A hot-bed for these, as it is moderate, may be covered with hoops and mats, and do very well, or rather better than frames and glass; for it often happens, that annuals
are kept too close, by which they become weak, and get stunted when planted out in the free air, which, by over-nursing, is made as it were unnatural to them. Towards the end of April, almost any of them will come up under hand-glasses, or even without, on a warm border, in a light and rich soil; but they will blow late, and be not near so strong. The Chinese hollyhock, though it will certainly come up well at this late sowing, will be hardly able to make a show before winter. Those flowers of this class, however, that have been mentioned to be occasionally considered as hardy, may be thus treated for a second blow.

Other modes of cultivation are, that a few of the less tender sorts may be sown in pots, and placed (not plunged) in any hot bed that is in work for other things; but they must not be kept close, or hot, which would draw them up weak: This plan may do for them a little while, and a slight heat may be got ready to prick them out upon, when air may be given them freely, and by no means keep them close.

Again, both this class of annuals, and the former, if not very early sown, do exceeding well, (or rather best) when on hot beds, under hand-glasses, or paper lights, particularly balsams.

What was laid of tender annuals apply here, as to air, water, and cover, but more freedom in the present case is to be taken. If any are under mats, the cover must be removed on days, except the weather be bad: or it may be only turned back, and half off, to let the sun and light in from the south. Never let either the seeds or plants of annuals really want water when the weather is dry. See page 55. See Life 8 in the next Section, with the observations.

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The hardy annuals have some little difference in their temperature. Though all may be sown from the middle
middle to the end of March, as the best average season, some may generally, with success, be sown at Mid-February, as candy tufts, cornbottles, larkspurs, hawkweed, lavatera, label’s catchfly, lupines, dwarf lycnis, nigella, sweet peas, poppies, mulberry-blight, oriental mallow, persicaria, sunflower, annual snapdragon, Venus’s looking-glass, and navel-wort, virginian, or annual flock, and winged peas, with some others. But nature seems evidently to direct an autumn sowing, for many sorts which are then shed (some always, and others often) come up at spring, and these make the finest blow, and produce the best seed for propagation. A number, (all the above sorts) therefore, might be scattered on the surface of the ground at random, not immediately as soon as ripe, but kept a little while to harden: This however is not a common practice, as gardeners like to have their borders at liberty to spring dress before they sow their annuals.

For the spring sowing, (about Mid-March) the ground being deep dug, and well broke, make hollows (by drawing the mould aside) of from six to twelve inches diameter; or more, according to the size of the garden, as large ones should have the biggest patches. Sow thin, and cover according to the size of the seed, from a quarter to an inch deep. Take out mould enough to leave the patches somewhat hollow, which will serve to show where they are sown, and to receive the rain, or occasional watering. It may be proper also to put a bit of stick in the center of each, as a mark, that the seed may not be disturbed. If the plants come up crowding, be sure to thin them soon, and leave only a number suitable to their usual size of growth; as one of the belvidere, cornbottle, persicaria, and sun-flower; two of the lavatera, oriental mallow, mulberry-blight, &c. three larkspurs; and four of less plants. Annuals are very often sown too thick, and suffered to stand too close for flowering, and that altogether not by neglect, but choice; yet a few short strong plants with fine
fine full flowers, are surely better than many tall dangling weak ones.

A second, or even a third, sowing of hardy annuals may be made, at two or three weeks between, to continue the blow, especially of those that come early, and are soon off: *Mid-May is not too late.* The *larkspur,* for instance, will make a long show with us, by autumn, and early and late spring plants; in short, of every flower that blows in *summer,* there may be three sowings, and two of those that come early in autumn, in order to a *full succession.*

Hardy annuals do not in general *transplant* well, so should be sown where they are to remain, and they must have a good soil in order to succeed. Take care to sow the tallest growing sorts behind, and the lowest in front, and to form the patches at a sufficient distance from one another, that the ground may be stirred and raked between them. A garden may be too full of flowers, which it certainly is, if the earth is not seen distinctly round about them: for when that is clean and fresh, all things growing in it appear more lively: *It is, as it were, the back-ground of a picture.* A few hardy annuals may be sown in *pots,* letting them where they have only the morning sun, and when in flower, they will serve to put into any particular place, for ornament, or be turned out into the open ground, where something may be wanting.

* * * * * *

2. OF BIENNIALS.

There are but a few of these, and the principal sorts will be found in the *list* of them, *next section,* where observations will be made on particular plants.

These are to be *sown* in drills, or in beds, at broadcast, the latter end of *March,* or beginning of *April,* where they have only the morning sun, and the ground should
should be cool, or kept so by occasional watering: The beginning of May, however, is not too late.

Thin the young plants on the feed beds a little, soon after they appear, to about an inch, and again to three or four inches asunder, and keep them well weeded. They may either thus remain till autumn, to be planted out where they are to blow: or if they grow too strong and crowding, let every other be drawn in summer, (choosing a moist time, if possible) and planted out wider into nursery beds for use in autumn, or the following spring: The latter season will do for final planting, though the former is best, as the roots get established in the ground; when if moved in the spring they meet with a check. It is best, if possible, to transplant with earth about the roots; but shorten all straggling fibres, and cut off dead and rambling leaves.

In severe winters, those moved in autumn (if not very early) are sometimes killed, and therefore a few may be reserved to spring, in case of such an accident; when being moved with good balls of earth, they will not be much checked. If planted late (as November) let them have fine well broke earth about the roots, and lay moss, old bark, or small stones round them for protection from frost. Some of the Perennials might form another class, and be called Biennial-Perennial, &c, from their uncertain continuance.

* * * * *

3. OF PERENNIALS.

This class (as has been observed) is very numerous; and the plants are propagated, many of them by their roots, according to their nature, as fibrous, bulbous, &c. some by layers, suckers, offsets, slips, cuttings, and a few by seed only. All sorts (bearing seed) are occasionally propagated this way, for new varieties, or to produce finer plants, as those from seed generally prove, with respect to strength, symmetry, and flowers. It happens,
happens, however, when propagated from seed, that though sometimes a better, more frequently a less beautiful flower is produced of many sorts; and this is the reason why the other modes of propagation are so much adopted, by offsets, &c. as thus they come identically the same with the mother plant. Another obstacle against some sorts being sown is, that they are several years before they come to bear, as all bulbous, and tuberous rooted flowers.

The Dutch have made themselves famous by their patience and perseverance in raising bulbs and tubers, and sow every year some of each kind, which pays them well, when they meet with an eminently good flower. A new sort of anemone, auricula, carnation, ranunculus, and even a polyanthus, will frequently fetch a guinea, and a tulip, or a hyacinth, sometimes ten.

To raise bulbous and tuberous rooted flowers, they should be sown in boxes (suppose three feet long, two wide, and six inches deep) of light rich earth, about the middle of August, or September, and setting them in a sunny sheltered place not under cover. Sow anemones and ranunculusa a quarter of an inch deep; irises, colchicums, and cyclamen; half an inch; and tulips, fritillaries, and hyacinths, near an inch deep, giving water in a dry time, so as to keep the mould somewhat moist, but not wet. A little hay may be kept over the seeds till the plants appear, which perhaps will be spring with some. Sowings may take place also in March, or April, removing the boxes in May, to where they may have only the morning sun. Thin them a little, if they come up thick, and when the stalks die, put on half an inch of fine mould; and after the decay of the leaf next summer, they must be planted out in nursery beds, (latter end of August) two, or three inches aunder, (according to their nature) and some will blow the following year, as the anemone and ranunculus, &c. though the hyacinth will be four, or five, and the tulip seven or eight first. These must be removed from the
the first nursery bed to another, (as soon as their tops are decayed) and planted at six inches distance; and ever after treated as blowing plants. Keep them very clear of weeds, particularly the seedings; which protect in severe weather from frost, or heavy rain, by mats and hoops. A reed hurdle, or something else, put up at the N. E. end, to break off the wind when it is harsh, will be proper.

**Fibrous rooted, &c. perennials**, if propagated from seed, are to be treated as biennials; but they are mostly increased (as observed) other ways, with less trouble, and chiefly by parting the roots in autumn and spring, or by rooted slips or offsets, shortening their straggling fibres. Many of them have creeping roots, and increase so fast, that it is necessary to take them up every three or four years; and a removal of this sort is proper for most perennials, in order to greater neatness, and a superior cultivation; for though large tufts look handsome, they may be too bulky, and some kinds are apt to rot (as bachelor's buttons) when thick, the stalks and flowers come weak, and the leaves, toward the bottom, turn yellow.

In the next section, is a list of the most common, ornamental, or curious perennial flowers, (easy of cultivation) having fibrous and fleshy roots, of which not all the sorts are named, but those only which seemed most worthy for selection.

The general culture of bulbous and tuberous roots is, to take them up annually, soon after they have flowered; when their leaves and stalks turn yellow and decay, then the root is at rest, and its fibres die. When first taken up, lay them covered in dry ground for a few days, and then clean and harden them in the sun, (if not exceeding hot) when they must be stored in a dry place, till wanted: damp is apt to rot them. Never put many together, or into earthen vessels for keeping them, lest they mould and sicken.

It
It is not absolutely necessary to take bulbs and tubers up every year, as every second or third may do; but it is the common practice of gardeners to do so, because it gives an opportunity to remove the offsets for propagation, and the mother bulbs are thus strengthened, as also from the renewed soil they meet with by a fresh plantation. Some people suffer bulbous roots to remain many years without taking up; but then they cramp and starve one another, and are apt to go off from their original beauty.

Bulbs and tubers may be either replanted immediately on being taken up, or kept out of ground during their natural periods of rest; or for some sorts even longer, as Anemone and Ranunculus, for several months. Autumn flowering bulbs are to be taken up in May, if their leaves are decayed.

Spring flowering bulbs should be replanted in September or October; those of the summer in October, or November; and those of autumn in July or August. A little before, or after, is not very material; only when they are put in too soon, the Spring ones come so forward as to be liable to be damaged in severe winters, and springs; and when kept out of the ground too long, the bulbs spend themselves first in making roots. The scaly bulbs (as lilies) should not be kept out of the ground above a month or six weeks. Those that flower in summer, may be put in the ground at different times, as early and late in autumn, and early in the new year; (not later than February) to obtain a succession of blow. If any are put in at the end of February or beginning of March, they should remain two years for increase. This is a common practice with the anemone and ranunculus; but when planted in winter, the soil should be a dry one, or made so, by digging in a good quantity of fine sea-coal ashes, and coarse, or drift land; else they are apt to rot, if much wet falls, before they have started fibres, especially when followed by sharp
sharp frost. They may be protected from wet by mats, and from frost by peas haulm, or wheat straw.

Offsets of bulbs, and weak tubers, must be planted a month before the full-sized roots; and as they are not expected to flower the first year, should be disposed of in nursery beds, (rather close) where they may grow a year, or two, according to their strength, as some will be this time, or longer, before they flower. Those taken from scaly bulbs, will not endure to be out of ground, and must therefore be planted almost immediately. Bulbs taken up out of season, i. e. when they have remained so long in the ground as to have struck out fresh roots, should be removed with balls of earth; for though they may live without this care, they will be exceeding weak; it is therefore necessary exactly to observe the proper season for removal.

The soil that best suits bulbous and tuberous roots in general, is a sandy loam; but most of the sorts are not very nice. The ground for them should however be well dug, even two spades deep, that their fibres may shoot freely, and wet be completely drained from them, when much of it falls. This work should be done a week before planting, that the ground may settle. In a light soil, roots of the ranunculus have been found to strike a yard deep, which may admonish, that in a clay bottom, it is proper to lay a body of stones there, (suppose at eighteen inches) that too much moisture may not be detained to ficken the roots.

The depth at which bulbs should be planted, must be according to their size, three or four inches deep, from their top. Tubers also according to their size; anemones and ranunculuses at two, or two and a half inches, &c. Some bulbs will come up even when a foot below the ground, as crown imperials, and crocuses, at six inches, or more; some persons, therefore, plant them deeper than the above rule, in order to be able to stir the surface of the ground without damaging them, but it is not advisable.
The proper disposition of bulbous and tuberous roots, is either in beds (a trifle rounded) of from three to four feet and a half wide, for the curious sorts; or in patches, to form clusters of three, four, or five, agreeable to the room they require. There should be only one in a place (generally) of the white, or orange lily, crown imperial, and such like large bulbs.

In beds, the fancy sorts of bulbs, and tubers, may be set in rows, eight or nine inches asunder, and from five to seven inches in the rows, according to their size. The distance of four inches apart is, however, by some florists, thought sufficient for anemones and ranunculuses; but certainly more were better, where a strong blow is a first object. Hyacinths should be planted at seven, or eight, though they are more commonly set at six inches. Tulips should be at eight, or nine, though six is often all that is allowed them.

When planted, if rain does not come in about four days, beds of bulbs and tubers should be watered, to set them growing, that they may not mould and rot.

Though bulbs may be planted by a dibble, (taking care that the earth does not lay hollow about the roots) a better way is, to draw drills, and place them in, giving them a gentle pressure into the ground, and covering neatly up. A little free sand may be strewn along the bottom of the drills, under hyacinths, anemones, and ranunculuses, if the soil is not a dry and light one. The best way of planting bulbs is, however, to draw the mould off the bed to a sufficient depth; then lay the surface perfectly level; give a watering; and when the top is a little dry, mark it out into proper sized squares; then place a bulb in the middle of each, and carefully cover up, so as not to throw them on their sides: Give the whole a little pressure with the back of a spade to fasten the mould.

Bulbs and tubers in beds, may conveniently be protected, when in flower, from rain and sun, by an awning, which will continue them in perfection of blow...
It. OF FLOWERS.

blow much longer than if always exposed. When these flowers, in beds, first break ground, if the weather is severe, they may then have an awning of mats, or cloth, occasionally over them; or a little peas haulm, or wheat straw, laid thinly on, just to protect them in their tender state a little; this regards particularly nights, for on days a cover should not remain on in tolerable weather. But before the shoots appear above ground, valuable beds of these flowers should be sheltered from having much wet, (even all through winter) as moisture gives frost so great power. If a body of snow lies on, it should not be suffered to melt there when it thaws.

Spring flowering bulbs may be brought forward by planting them in pots, or in water-glasses, and setting them in warm rooms, or hot-beds; and thus, even in winter, we may have ornaments and sweets that court our admiration. The great variety of hyacinths and polyanthus narcissus, furnish us amply in this way; but other early bulbs may also be thus forwarded. Pots, placed in a light warm kitchen window, may be brought forward to make their blow in the parlour; or if placed in any window, open to the south, it will forward them. These should be potted in October, and have a light dry soil, occasionally giving water. Bulbs may be put in glasses at this time, and once a month after, to February, for a succession. Let the bulb just touch the water, which should be soft, and replenished so often as to keep it up to the bottom of the bulbs. Let it be completely changed about once a week; and if a bit of nitre, the size of a pea, be put in each time, it will strengthen the blow.

Though bulbous flowers are propagated plentifully by root offsets, yet some are increased from little bulbs formed on the sides or tops of the stalks, as the moly tribe, and the bulbiferous lily. These should be taken off in August, dried a little in the sun, and then planted in nursery beds as offsets.
Bulbs, propagated from offsets, produce a flower exactly like the parent; and varieties are only to be obtained from seed, which never produces flowers quite like the original the seed came from.

Let seed be sowed only from choice flowers, be thorough ripe, and being hardened a little in the sun, may be sowed soon after, in pots, or boxes, of good light earth. See page 284. Persons of leisure and curiosity, would do well to amuse themselves in this way, that we may not be so much indebted to foreigners, for a supply of new flowers.

An observation may be here made, that the same bulb (as is often thought) does not always continue; for some are renewed every year, as the tulip; and others the second, third, &c.; so that when taken up to remove offsets, the principal bulb of the tulip, &c. which is commonly esteemed the old one, is, in fact, a new formed one, though (perhaps) not less in size, and it may be bigger.

As many Shrubs (i.e. woody plants) are propagated in a view principally to their flowers, they will properly enough be considered a little here, as to their propagation. See section 9.

The deciduous shrubs that are most usually cultivated for their ornamental nature, will be found in the lists of the next section; and their modes of propagation are denoted thus:—b. budding—c. cuttings—g. graff—l. layers—r. roots—f. seeds—fl. slips—fu. suckers—by r. roots, includes offsets.

Of the various methods of propagating trees and shrubs, that by seed is the best, where it can be adopted (as has been observed) and the season is autumn or spring. If in autumn, it may be earlier, or later, as the seeds ripen; for soon after they are ripe is the most proper time to commit them to the earth, covering the smaller
smaller seeds from half to a full inch; kernels, nuts, &c.
from two to three inches, according to their size. Any
fort that it is doubted will stand the winter in feed-beds,
may be sown in pots, or boxes, set in a garden frame or
housed in severe frosts. If in spring, (as it is a good
rule to sow a little at both seasons, and some tender forts
require the latter) the seed must be carefully kept from
damp and vermin, and put into the ground towards the
end of February, or early in March. The seeds of some
of the more delicate forts will require to be sown in
this season, on a slight hot-bed; and if a few of most of
the forts were thus treated, it would be a good method,
to insure their germination, and to forward them. Let
spring sown seeds be watered occasionally, according to
the weather, to keep them moist. The earth they are
sown in should be moderately light, dry, and rich,
and formed into beds of four feet wide, either in drills
or at broad-cast, first drawing earth off into the alleys,
to cover with. See p. 69, 71.
American trees and shrubs do very well in this cli-
mate, but the young plants are generally tender, and
should have some protection, one, two, or three years,
till they get woody, and inured to the climate.

For grafting and budding, (as some shrubs are propa-
gated this way) see the section On Grafting; and for
the propagation by suckers, cuttings, layers, &c. see
section 5; about suckers, see pages 64, 111. Those
trees, or shrubs, from which cuttings of the same year's
growth may be had in June, or July, may be greatly
helped to strike root, by covering them close with a
hand-glafs; (as directed for the arbutus, lift 5, sect. 19)
and if a glafs were put over layers, that are difficult to
strike, it would help them.

This mode of propagation is particularly adapted to
some sorts of evergreen shrubs, which emit fibres more
freely from the youngest wood. If year old wood is
treated thus, the cuttings may be set early in spring;
or glases may be put over those put out in autumn.
But spring cuttings, treated as the arbutus, is the surest method to make difficult sorts strike root.

It may prove an observation of some use, that trees and shrubs raised from seed grow the largest, from layers generally less, and from cuttings the least. Where budding can be practised, it is preferable to grafting for the propagation of shrubs.

For planting and managing shrubs, &c. see section 9. For pruning, see page 106.

SECTION XIX.

LISTS OF TREES, SHRUBS AND FLOWERS.

** The names of the choicest sorts of fruit trees, will be found in section 17.

The modes of cultivation are here directed by the letters, as in last section; adding m. for moist, w. for wet, and d. for dry. Those not marked are to be underfoot as (pretty much so) indifferent as to soil, and indeed those marked otherwise may grow in a contrary kind, and often do, though not so flourishingly, or safely as to extremes of heat or cold.

The time of flowering is annexed to those trees and shrubs that are thus at all ornamental, and the more ordinary heights they are found to attain are denoted in the arrangement; a circumstance hitherto much wanted, as useful and necessary to be known, in order to a right disposal of them. Those of a naturally low growth have been, sometimes, planted behind in shrub-beries,
sect. xix. lists of trees, &c. 293

beries, &c. and the taller forward; but yet this unfort-
unate circumstance must be unavoidable to every inex-
perienced planter, who has no other guide, than that
this is a tree, and that is a shrub, which are vague, in-
definite terms as to stature.

The colours of the flowers are generally mentioned,
as agreeable to be known, and of use in the disposal of
trees and shrubs at planting, to diversify the scene with
more propriety. In a few instances the flowers, either
as to time or colour, are not noticed as being too insig-
nificant to be ornamental, though the fruit, or foliage,
or both are.

Such observations, as may be thought most useful
and necessary, will follow each list; but as neither all
the sorts, nor the varieties of each sort, could be enu-
erated in such a work as this, so also the minutiae of
propagation, &c. is more than could be comprehended,
or expected: Folio volumes (so copious is the subject)
have left a variety of plants unnoticed, and much un-
said respecting cultivation. For ordinary use, a greater
enumeration, or more enlarged particulars, would in-
deed have made the book less valuable. If the selec-
tion and information is good, (and pains have been taken
in the business) those for whom this book is designed,
will have no reason to complain.

The names of trees, shrubs and flowers, are in many
cases various, as sometimes a scientific name prevails,
and at other times a trivial; and of neither is there a
perfect agreement, for of both there is often more than
one. The object therefore here has been, to give that
name by which each is supposed best known. Different
plants are sometimes called by the same name, and a
nice discrimination is made by botanists, according to
flower, leaf, &c.; but these are no farther noticed than
necessary. Such descriptions are given of each, as can-
not (it is hoped) fail to identify the sort, when applied
for to any nurseryman.
In the following lists of trees, the larger are marked with an asterisk; and in the lists of shrubs and flowers, discrimination of size is made by figures, each being divided into four sorts, as to height; the lowest are marked No. 1. But it is ever to be understood, that the soil, and other circumstances, will make a difference, as to stature; so that the greater may become the less, and the less the greater.

Where &c. is affixed to sorts, it means that there are others; and where it is added to the time of flowering, it signifies of more than one month's duration. It is the nature of some things to keep in blow nearly all summer; to encourage which, and to strengthen the plants, dead or dying flowers should be speedily taken off, as they occur. See page 56.

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I.

List of deciduous trees, usually called forest, or timber trees, serving both for use and ornament:

Abele, is the white poplar; Aspen the tremulous poplar
* Alder, common, hoary leaved, American, &c. l.s. w.
* Ald, common, and American white, red and black.
* Beech, common, and American purple leaved, f. l. d.
* Birch, com. white, Virginian, and Canadian, &c. l. f. su.
* Chestnut, edible Spanish, and common horse, f. May.
* Cypress, deciduous, or Virginian swamp, l. f. w.
* Elm, small and broad leaved, wych, or Scotch, &c. f. l. f. su.
Hickery Nut, smooth white, and rough barked, f.
Hornbeam, common in variety, as to leaf, f. l.
* Lime, common, red-twiggled, black American, &c. l. c. f.
* Larch, common red, white and black American, &c. f.
* Maple, greater, Norway, and Italian, l. f. f. May.
Sugar, plain tree, mountain, &c. ditto
——— for other sorts, see the lifts 2 and 5.
Medlar com. German, Nottingham and Italian, f. l. May
Mountain ash is sometimes a forest tree, see next lift
* Nettle tree, as next lift, grows large, and is a forest tree
Nut tree, common hazel, or any orchard sort, l. f. f.

* Oak
* Oak English, American, Spanish, Italian, &c. *
* Plane, Eastern, Western, middle or Spanish, f. l. c. May *
* Poplar, white, black, tremulous, and Carolina, c. l. fh. m. *
* Service tree, the wild or maple leaved, f. l. June *
* Sycamore, is the great maple, which see. *
* Walnut, the common, or royal, and black Virginian, f. *
* Willow, white, or silver leaved, purple and sweet, &c. *
** For underwood amongst forest trees, the usual sorts are alders, ash, beech, birch, hazel, hornbeam, fallow, willow, and sometimes the wych-elm, common maple, poplar, and sycamore.

Observations on particular trees.

Alders, cuttings of it grow readily, and may be thick truncheons a yard long, pointed, and thrust into, soft ground half way, or into a hole made with an iron bar. This is the way also to propagate poplars, willows, and fallows; also elders. There is a dwarf alder.

Ash, the American sorts do not grow near so large as the common English. For the ornamental ashes, see the next list.

Birch is reckoned the worst of timber, yet the wood has its uses in several particular businesses. The American sorts grow much larger than the English. The tree is of that accommodating nature, that it will grow in any soil or situation, wet or dry. It is well known, that a wine is made of its sap, by boring holes in full grown trees in spring, before the leaves come out: from a number of trees a great deal may be collected. Without being unpleafant, (if properly made) birch wine is relished by many, and is reckoned very medicinal in scorbatic, and other complaints.* There is

* It has been the wish of the author to speak of the medical properties of many plants that have occurred in this work, but room could not be allowed it. The process, &c. of birch wine, with the properties of most plants, will be found in Meyrick's Family Herbal, 8vo, a good book.
a method of catching the liquor, by putting into the holes (deeply bored) faucets of elder. See next list.

Cheesnut, ornamental. See the next list.

* Elm, the wych is the quickest grower, and will flourish in any soil; but the broad leaved is reckoned the best timber, and the small leaved the most ornamental; it should have a good soil. The wych is easily raised from seed, (towed directly after it is ripe) but the other sorts are propagated from suckers, or layers, or grafting on the wych. In order to obtain suckers, and shoots for layers, stools are to be formed by cutting down some young trees, almost close to the ground. Trees from layers are better than from suckers. Observe, that whatever is to be propagated by layers, or suckers, making stools is the way to procure them.

Hornbeam; the common sort will grow very large in some soils, but the Virginian (flowering yellow) will hardly reach thirty feet, and the hop not above twenty. The hornbeam feathers down lower and thicker than any other tree, and the property of holding its decayed leaves on all winter, adapts the common sort for a screen from winds. See page 111.

Nut tree, as timber, will be best propagated from nuts, either to remain where sown, or planted out while young, keeping the stems trimmed up, free of shoots, to about five or six feet, (according to strength) and then to form a head, topping the leading shoot for the purpose, which will occasion several branches to proceed from the upper eyes; and this is the way to form all sorts of trees to good heads.

Oak, the English produces the best wood, but the American sorts are the fastest growers, though they do not attain to the size of the English. A cool strong soil produces the handiest trees, and toughest timber. Oaks should not be above three or four years old before they are planted, for the older they are, the more check they receive, and it is a tree that does not transplant well. Hence all the care should be taken that can be
in the business. See section 10. But oaks succeed best, without removal, having a tap, or downright root, which is frequently broke in taking up: All trees would probably thus come finer, if it was convenient. The consequence of preserving the tap has been suspected; but it is certainly Nature’s direction, for rather than give up the point, the tap of the oak will make its way downward, in a direct line, through the hardest soils. See page 80.

Poplar to propagate by cuttings, see alder; but younger and smaller cuttings for this tree do better, as those of one or two years old, and half a yard long; The black poplar does not succeed well by truncheons.

Walnut, when planted for timber, should be young, and the tap root, if possible, preserved whole. The black virginian grows more erect, but the other makes the largest tree, and best wood. The white Virginian is the hickery nut. All these make the best trees, when grown from seed without transplanting.

Willow and sallow, to propagate by cuttings, see alder.

** Of all the forest trees here mentioned, the ash, the beech, the elm, and the oak, are the principal; and to plant these, and others, is a work of the most commendable, and eventually of the most profitable kind. See pages 78, 112, 119, &c.

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II.

List of large deciduous trees, considered chiefly as ornamental, for pleasure grounds, &c.

* Acacia, triple thorned, fewer thorned, &c. * f. I. c. su. July
* Alth. Calabrian manna, and large flowering, f. gr. Apr.
  — weeping and variegated, wh. and yel. leaved, b. gr.
  — dwarf flowering (small white bunches) f. gr. May
* Beech, white, and yellow striped, leaved, b. gr. in.
* Birch,
Birch, weeping or pendulous twigged, f. l. fu.
Buckthorn, common purging berried, l. fu. c. May.
* Catalpa (tree bigonia) or trumpet flower. c. l. f. Aug.
Cherry, the bird, common and Cornish, &c. f. b. gr. May
——— Cornelian, male cornus, or cornel, f. c. l. fu. Apr.
* Chestnut, scar. and yellow flow. strip. leaved, f. b. gr. May
Date-plum, or persimmon, is the pishamin below.
* Elm, pendulous twigged and variegated leaved, l. gr.
Frangula, alpine and berry bearing alder, f. c. l. fu. June
Gleditsia is the acacia above, which fee.
Horobeam, variegated, hop, and oriental, gr. f. l.
Laburnbam, com. broad and narrow leaved, f. c. l. May
Larch, or the deciduous pine, fee last. lift.
* Lime (or linden tree) with variegated leaves, l. c. gr.
Magnolia, umbrella, glaucous leaved, &c. f. l. c. June. d.
Maple, scar. flowering, and mountain, l. f. fu. May
——— Cretan or Levant, and Tartarian, ditto.
Mountain asb, or bird’s service, pl. and strip. f. l. May
* Nettle tree, black, and purple fruited, f. l. fu. May
* ——— bloach leaved of both forts, gr. May
* Oak, strip. and red leaved Virginian, b. gr. f.
Pishamin plum, or date, European, l. f. fu. May, d.
Pistachia nut, or com. turpentine tree, &c. f. l. May
* Poplar, with variegated or strip. leaves, c. l. gr.
* Robinia, com. or false acacia, wh. flow. f. c. l. fu. June
——— for other forts, see the following lift
* Service tree, or forb apple, true, and bastard, f. l. May
Tacamahaca, or balsamic poplar tree, c. l. fu.
* Tulip tree, sometimes called lily flowered, f. l. fu. July
Viburnbam, or meally way-faring tree, f. l. c. fu. May
——— American forts, and strip. b. gr. in. May
* Willow, weeping, shining leaved, and yel. twigged, c.

* * These ornamental trees are proper to plant at the back of shrubberies, &c. and here and there one on the skirts and fronts of woods, or plantations of timber, and along the boundaries of grounds. Here they will appear to great advantage; but more so, if planted singly in detached situations: Most of them are good wood for timber, serving one purpose or other.
OBSERVATIONS ON PARTICULAR TREES.

Buckthorn, if raised from seed, sow early in autumn, as soon as the berries can be procured, and perhaps some may come up the following spring, but most of them will lay another year. This is the case with other seeds, as sweet briar, &c. See page 78.

Catalpa should grow singly, that it may have its natural wide spread, and, if possible; let it be on a plat of grdfs, where it will appear to great advantage. It is very hardy; but as it comes out late, it is advisable to give it a favourable aspect.

Maple, of the scarlets, there are the Virginian and sir Charles Wagner's, both very ornamental, but the latter most fo. The Mountain hath shining leaves, and continues late in autumn.

Magnolias are to be considered as rather tender, especially young plants. The glaucous leaved is of the lowest growth, (about ten feet) but all are elegantly ornamental with their white flowers: There is also a blue flowered one. Let them have a dry foil, as all tender plants should, as well as a warm situation.

Mountain ash produces its white flowers in May. Its foliage is pretty, and its fruit of red berries is one of the greatest ornaments of autumn, coming very early, and hanging all winter, if the blackbird, &c. will let them alone. As it deserves the most conspicuous situation, it will be proper to plant some near the house, and most frequented places, where birds may be disturbed from their too frequent visits.

Pishamin, or date plum, is chiefly cultivated here as ornamental for its shining leaves; its fruit is, however, eat by some, like the medlar and sorb, in a state of decay. Houfe young plants in pots the first winter: Allow this tree a dry foil and shelter.

Pislachia, this is the hardiest of three sorts. Treat it as a tender plant, whilst young, for three or four
years, and let it have finally a sheltered situation from wind, and a dry loam.

Tulip tree is tender whilst young, but afterwards very hardy; is uncertain in flowering, but handsome in its leaf and growth, and has been used to be planted singly on lawns, &c. It is a native of Virginia, where it attains to so vast a size, as to be from twenty to thirty feet in girth, though here it keeps pace only with an ordinary elm.

Virburnum, or wayfaring tree, is very pretty, in its hoary leaves, and white flowers, succeeded by fruit in autumn, in bunches of red berries. The American forts grow not so high, but they rarely ripen their berries here. The variegated fort does not grow so large as the plain, which is the case with all striped plants. See next list.

* * * * *

III.

List of smaller deciduous trees, or shrubs of tree growth, ornamental for pleasure grounds.

* Almond tree, sweet and bit. red and wh. flow. $f$. b. April
* oriental silver leaved, $f$. b. April

Amorpha, or bastard indigo, pur. flower, $f$. $f$. June

Andromeda, tree fort, or Carolina forrel tree, $l$. $f$. $f$.

* Apple, Siberian and Virginian crabs, $f$. gr. May
* Tartarian crab, beautiful large fruit, gr. May
* double flow. Chinese (Pyrus spectabilis) gr. May

American, very small or berry crab, $f$. gr. May

Aralia, thorny, or Angelica tree, yel. flow. $f$. r. Aug.

* Azarole thorn, Virginian cockspur, &c. $f$. $f$. b. gr. May

Azederach, com. bead tree, or paternofter nut, $f$. July

Berberry, red, white, and black, see p. 263, c. l$. $f$. $f$. May

Benjamin tree, or benzoin gum, yel. flow. $f$. $f$. April

Bignonia, see trumpet flower in this lift.

* Bladder nut, five and three leaved forss, $f$. $f$. $f$. l. c. May

—- senna, see colutea
SECT. XIX. LISTS OF TREES, &c.

Buckthorn, sea, European and Canadian, $f$. c. l. June
Caragana, or Siberian robinia, yel. flow. $c$. l. $f$. $s$. $u$. May
Gobiobury bush, or bastard cassinia, wh. flow. $f$. l. Aug
* Cherry, com. double white and blush flow. b. gr. May
— weeping or pendulous branched, $f$. b. gr. May
* Mahaleb, or perfumed cherry, $f$. b. gr. May
Chinquapin, dwarf American chestnut, or oak, $f$. in. May
Clematis, (a climber) see virgin’sbower.
Colutea, com. or tree bladder senna, yel. flow. $f$. b. July
* Date plum (pistamia) Virginian, $l$. $s$. $f$. $u$. May, $d$.
* Dogwood, or bloody twig, com. and Virginian, $c$. l. $f$. June
* Elder, bl. wh. gr. and red berried and striped, $c$. l. $f$. June
Gueldre rose, often called snow-ball tree, $c$. $l$. $s$. $u$. May,
* Hawthorn, com. doub. scarl. berried, &c. b. gr. l. May
— Gleoforbury, blows in the winter, $f$. b. gr.
Virginian thorned and thornless, $f$. l. b. gr. May
* Judas tree, com. and Canadian, pur. red, wh. $f$. May
Kidney bean tree, Carolina, (a climber) blue, $f$. July $d$.
* Lilac, com. purple, blue and white flow. $f$. $s$. $u$. l. May
Medlar, woolly leaved, pur. fl. red fruit, $f$. l. b. gr. May
* Nettle tree, eastern vel. flow. and bloached, $f$. l. c. gr. May
* Oleaster, narrow leaved, or wild olive, l. c. June $d$.
Peach, doub. bloff. as a standard, no fruit, b. April
* Pear, doub. bloff. harsh baking fruit, b. gr. May
Plum, doub. bloff. and striped leaved, b. gr. May
Privet, deciduous, plain and striped, $f$. $s$. $u$. l. c. June
Robinia, or rofe acacia, scar. flow. $f$. c. l. $s$. $u$. May
— shrubby quaternate leaved, yel. l. $s$. $u$. June
* Stewurtia, or Malacodendron, white flow. $f$. $s$. l. c. June
Sumach, tanners, wh. fl. and stag’s horn, red, l. $s$. $u$. $f$. June
— Carolina scarlet, and Canada red, &c. ditto
Tamarisk, French, with pale red flowers, c. l. $f$. July
— Venetian, (cotonus) pur. flow. l. $s$. $u$. $f$. July
* Trumpet flower, (bignonia) scarlet and yellow, c. l. $f$. July
Viburnam, American forts, white flow. $f$. l. c. $s$. $u$. July
Virgin’s bower, entire leaved, doub. pur. flow. l. c. Aug.
— single pur. blue, red striped, b. c. July
— see clematis, in the next list
* White beam, or white leaf tree, wh. flow. $f$. l. $s$. $u$. May
OBSERVATIONS ON PARTICULAR TREES, &c.

Andromeda tree is tender, and must therefore have a situation accordingly. It was always a part of the greenhouse furniture, but does sometimes abroad; and it is very well to try what may be done with the hardiest greenhouse plants.

Apple, these crabs produce rather slender wood, and therefore should not be in a crowded, or shady situation, but rather, as much as possible, in detached single plants. The fruit of the three first makes superior tarts, and the latter an excellent preserve; and the fruit of all of them may be introduced in the desert, when full ripe. Allow the double flowering apple a good situation, to preserve its charming crimson blow as long as possible.

Azederach consider as tender; its foliage is beautiful, flowers white, and fruit yellow.

Cashiobury bush must have a sheltered situation, particularly the young plants, which should be protected for two or three winters.

Spindle tree (sometimes called prickwood) is very beautiful with its leaves in autumn, for which (as many other plants) it is chiefly considered as ornamental, its flowers making no show. The seed lies two years before it comes up.

Stewartia, a fine shrub, a little tender whilst young. Layers require two years to strike. Cuttings manage as directed for arbutus. Seeds are imported from Virginia.

Trumpet flower, sometimes called scarlet jasmine, is a trailing plant, and therefore requires training to a wall for support; or having something to climb on it will proceed much in the way of an honeysuckle. It is rather tender, and must have a good situation, but when properly managed is a great beauty. Prune it to a few eyes, precisely upon the principle of a vine. The shoots will strike into cracks of the walls and mount high where there is room. See Catalpa, last list.
IV.

List of the lower deciduous trees and woody plants, called shrubs, cultivated for ornament:

2. Almond, dwarf, sing. and doub. red fl. / . su. b. gr. April
2 —— dwarf, with leaves hoary underneath, ditto
3. Allspice tree, Carolina, or pompadore, l. May d.
1. Althea, prickly and hoary leaved, wh. / . su. c. July d.
3. Amelauchier, dwarf bl. fruitd medlar, / . l. su. b. gr. May
2. Andromeda, shrubby, wh. yel. red and pur. fl. / . l. su. July
3. Aralia, herbaceous Canada and Virginian, r. f. June
4. Asalia, American honeysuckle, wh. red, fear. / . r. July
4. Bladder senna, Pocock’s early deep yellow, / . l. June
4 —— oriental, or the blood red, / . l. July
3 —— shrubby Ethiopian scarlet, f. Aug. d.
4 —— see colutea in the last list, and below
4. Bramble, doub. blossomed, and wh. berried, l. su. f. May
3 —— large Portugal; and upright, Montpelier, / . r. June
2 —— wh. flowered, trailing and upright, / . r. June
2. Buckthorn, dwarf purging berried, / . l. c. May
3 —— long leaved dwarf ditto, / . l. c. May
2. Clematis (virgin’s bower) upright wh. blue, r. f. June
4 —— oriental, climbing, yel. flow. / . c. May, &c.
3 —— —— dw. Carolina, br. leav. c. l. / . su. June m.
3. Cherry, corn. dwarf, and dw. Canada bird, / . b. gr. May
1. Cononilla juncea, or rush-like Spanish, / . June
3. Cotoneaster, (a medlar) dwarf quince, / . l. b. gr. May
2. Cinquefoil shrub, (potentilla) com. yel. flow. / . c. June
1 —— grandiflorus, and silvery, yel. fl. r. / . June
1 —— wh. flow, upright, and trailing, r. f. June
3. Cytisus
LISTS OF TREES, &c.  SECT. XIX.

3 Cytisus, bl. based, and sessile leaved, f. c. l. June, d.
2 Elder, dwarf, wh. flow. and black fruit, f. c. July
3 Gale, the sweet willow, or Dutch myrtle, r. June w.
2 Germander tree, wh. yel. and pur. flow. l. c. f. July, d.
4 Hawthorn, gooseberry leaved, yel. fruited, f. May
3 Hamamelis (witch hazel) Virginian, f. l. flow. in winter
Honeysuckle, climbing Eng. wh. and red, c. l. f. June, &c.
—— climbing Dutch red, early and late, ditto
—— erect Italian, wh. red, and yel. c. l. f. May
—— erect alpine, red flow. and red berry, ditto
—— erect acadian (diervilla) yel. l. c. f. fu. May
—— there are two climbing striped leaved forts
Hydrangea, Virginian white flowering, r. fu. Aug. m.
Hypericum frutex, br. and nar. leaved, l. fu. c. June
John's wort, flaxing, inodorous, and Canary, fu. f. June
—— large flow. somewhat tender, fu. Aug.
Jasmin, wh. fl. plain, and wh. and yel. strip. l. c. June
—— trailing yellow flowered, l. c. fu. June, &c.
1 Ivy, deciduous five leaved, or Virginian creeper, c. l. f.
3 —— three and five lobed shrubby, do. f. c. June
3 Medlar, dwarf alpine, red fruited, f. l. b. gr. May
3 —— Canada, snowy, purple fruit, ditto
—— see amelanchier and cotoneaster
2 Mezereum, wh. purp. reds and crimsons, f. Feb. &c.
2 Orobus, or bitter vetch, purp. and blue, f. r. Apr. &c.
2 Persian lilac, blue and white flowering, f. fu. l. June
2 Poison oak, common, white flowered, r. l. f. July
—— café, or varnish tree, ditto
5 Purslane tree, tea, two sorts, c. Aug.
4 Pomegranate, fing. doubt. and strip. flow. l. b. in July
4 Raspberry, common sweet flowering, purple, fu. July
2 Red barrow, com. shrubby purp. flow. f. May, &c.
2 Rhododendron, alpine, and Mount Baldy, red, &c. Sept.
3 —— ferrugineous leaved, red flow. f. c. r. Aug.
2 Robinia, dw. quaternate leaved, yel. flow. f. c. l. fu. May
Robes: The lowest sorts are, dwarf Scotch single red—
—— dwarf common single white—Dwarf Pennsilvanian single—
and double red.—dwarf burnet leaved single red and striped.—rose de meux.—crimson Burgundy, and dwarf blush Burgundy.

**Middling heights.**—Cinnamon, single and double, red—common red and white, single and double, and semi-double—monthly red, blush, white and striped—maiden's blush double—virgin pale red thornless—most provence double red—rose of the world, semi-double striped—velvet, double and semi-double.

**Taller sorts are,**—Provence red, blush, and white double—damask white, red, and blush semi double—York and Lancaster semi-double variegated—Austrian single, yellow, and another single, red one side, and yellow on the other—double yellow.

**Tallest sorts are,**—Apple bearing, single and double red—royal red—Frankfort, purple red—great burnet leaved, single red—Carolina and Virginia single red—musk, single and double white.

<table>
<thead>
<tr>
<th>No.</th>
<th>Plant Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scorpion senna, com. large, yel. flow.</td>
<td>c. l. j. June, &amp;c.</td>
</tr>
<tr>
<td>2</td>
<td>common dwarf, ditto</td>
<td></td>
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<tr>
<td>3</td>
<td>Snowdrop tree, or fringe tree, white flow.</td>
<td>f. l. June</td>
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<tr>
<td>4</td>
<td>Spiraea frutex, com. willow leaved, pink,</td>
<td>f. u. l. c. June</td>
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<tr>
<td>5</td>
<td>downy leaved red, and wh. flow.</td>
<td>ditto</td>
</tr>
<tr>
<td>6</td>
<td>guelder rose leaved, wh. flow.</td>
<td>f. u. l. c. July</td>
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<tr>
<td>7</td>
<td>Siberian and Spanish, wh. f. u. l. c.</td>
<td>May</td>
</tr>
<tr>
<td>8</td>
<td>Sumach, myrtle leaved, white flowered,</td>
<td>f. u. l. June</td>
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<tr>
<td></td>
<td>Sun-flower, tickseeded, see coreopsis</td>
<td></td>
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<tr>
<td>9</td>
<td>Syringa, large plain and stri. leaved, wh. c. l. f.</td>
<td>May</td>
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<tr>
<td>10</td>
<td>dwarf double-flowered, white ditto</td>
<td></td>
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<tr>
<td>11</td>
<td>Tamarisk, German, very pretty, red f. c. l. j.</td>
<td>July, &amp;c.</td>
</tr>
<tr>
<td>12</td>
<td>for other sorts see last list</td>
<td></td>
</tr>
</tbody>
</table>

Toxicodendron, see poison oak and ctb

Tree refil, black balse, (Cundus clusi) see cytisus

1 Tujan, or park leaves, (like St. John's wort) f. u. f. July
2 Vetch, wood, or sylvan, wh. many flowered. f. r. Aug.
3 Virginian silk, variety, pur. flow. a climber, c. l. July
4 Willow herb, or French willow, pur. &c. r. f. July, m.
5 See leafosiris, lift XI.

* * As it is common to plant low herbaceous perennial flowers in the front of shrubberies, &c. so amongst the shrubs, some of the loftier sorts may properly be, though
annual in stalk, as the tall aconites, or monkshoods, asters, everlasting sun-flower, &c.

OBSERVATIONS ON PARTICULAR SHRUBS.

All-spice-tree must have a warm and dry part of the shrubbery. The whole plant is aromatic.

Aralia, thorny, is propagated by pieces of its large roots, and perhaps many other plants might be so: In this way, the pyramidal campanula succeeds.

Azalea likes cool ground, and rather shady; must be sheltered as to winds, and in this climate should rather have a dry healthy soil, kept cool by occasional watering during summer. It is a very beautiful shrub.

Candleberry myrtle is so called, from the Americans procuring a wax from the berries of this plant to make candles of. It is rather tender, yet likes (as many American plants do) a moist soil; let it be well sheltered from bleak winds.

Clethra is an elegant shrub, flowering all summer and even winter; it prefers a moist soil.

Coronilla is too tender to abide severe winters, but in general will do, with a little attention: Its flowers are very pretty, of a bright yellow. There are other sorts more tender, which must be potted for protection from frosts, by housing them.

Cytisus, deciduous and evergreen, there is a variety of, and all very ornamental, with their yellow flowers. They are rather too tender for the open ground, and the hardier sorts here mentioned, if tried abroad, must have a dry warm situation. Seedlings should be housed, or well protected in frames for the first winter, but not kept too close.

Germander tree treat as tender, for though it will live abroad, it is mostly a green-house plant.

Hydrangea consider as rather tender, and pot some; it can hardly be kept too moist at the roots.

Mallow tree manage as the cytisus, though it is not quite
quite so tender. All seedlings that can be brought up in the open air, make much finer plants. The tender sorts should be put out in nursery-beds, and occasionally protected by covering, and some potted to be occasionally housed.

Pompeian trees, even the touch of the leaves of these plants will affect the skin, but the sap is very (even dangerously) acrimonious.

Pomegranate must have a good south wall, and rich soil. The double sort should be occasionally matted in severe frost. In very favourable situations (however) they have succeeded in espaliers, dwarf, half, and even full standards. The best season for planting the pomegranate is in spring, when just beginning to shoot. It is rather rude of growth, and must therefore have timely training. The principal pruning should always be in autumn, and from time to time all straggling, superfluous growths taken off, that shoots may be encouraged to put out strong blossoms, in the fullness of which the great merit consists. These bearers should be six inches, or rather more, asunder. The mode of flowering is at the ends of the young shoots: nothing equals this plant in fineness of blow. The double sort is more commonly planted; but the single flower is very beautiful, and its fruit, which will ripen in snug favourable situations and seasons, makes a fine show also, especially when burst. Both flowers and fruit are of a very fine scarlet.

Rose claims precedence of other shrubs. In its varieties it should be planted in all situations; but the Provence more particularly. This shrub, in most (if not all its sorts) does best in a cool strong soil.

The order of blooming may be reckoned thus: Cinnamon, (sometimes called the May-rose) monthly damask, burnet, Scotch, Pennsylvanian, apple, &c. Then the latest roses we have, are those of the monthly again, and the musk. Occasionally every sort may bear a few later ones, but chiefly, the Provence. To encourage this shrub
shrubs to treat us in the latter part of the year, pulling off the first roses, as soon as they begin to decay, is a means; but to pull off all the buds, at the usual time of blow, from a few trees, is a more certain method. A more sure way still, is to top the new shoots towards the end of May, or prune down to two or three eyes: These manoeuvres should be particularly exercised on the monthly sorts. Transplanting roses in spring, is a means to effect a middle blow; and if into a North border, and cool ground, this may be done late in April, or even in May, (occasionally watering) pruning at the same time short. Early roses are obtained by being trained against a south wall. The monthly thus planted, and having glass (as the light of a cucumber frame) put before it will sometimes come as early as the end of April, or beginning of May. It is a good way to put moss round the roots of these wall trees in March, to keep the ground warm, and at the same time moist, which helps us to both forward and large roses: In dry and hot situations water often.

To dispose rose trees to bear forward, the not suffering any flowers to blow the present year, and pruning short in July, or August, is a means from which much may be expected, especially if there is any artificial warmth used in the spring to force them. With a view to this some good bruly rooted, low growing plants, may be potted in autumn, not suffered to bear the next summer, and being pruned down (as above) will force well the next spring. Rose trees potted for an ordinary blow, must not be in too small pots, nor placed in a warm situation, except early in spring, and must be kept cool by frequent watering.

As to the propagation of rose trees, many will send forth suckers every, and those that do not, should be layered, by flitting (as carnations) or budded; but may be two years before they root. See page 66. Some will come by cuttings, but uncertainly, as the burgundy &c. The China evergreen, or everblooming rose, takes well
well by cuttings; but seldom will do abroad, except in the summer months, and therefore is not in this list. There are two colours, pale and deep red: It grows low, and rather weak. The burnet, apple, or any other fort producing good feed, may be propagated that way; but it is a slow way, the seed seldom coming up till the second year. The double yellow rose blows indifferently, but when fair, the flowers are very beautiful. Plant it against an east wall, and in dry, but strong ground: I suspect an insect makes it fail.

Snow-drop tree is considerably ornamental. Layers will be two years in rooting. If raised from seed, (imported) sow it as soon as it arrives, in pots, or boxes, and house before frosts come. If they come not up the first year, set them on a gentle heat the following spring, and they will soon appear. Shelter the seedlings in a frame, or a green-house.

Tutsan grows wild in woods, and will therefore do well in the shade, as among trees. Every shrub, or plant, that will flourish in such a situation is valuable; and a gardener's attention will be well employed to discover them, by trials, &c. The St. John's wort, and St. Peter's wort, (allied to tutsan) may be planted in the shade.

Willow herb, as its roots run much, should some of it be put in large pots; and as it loves moisture, may be set in the shade, and kept well watered.

* * * * * *

V.

List of evergreen trees, some of which are considered as forest, or timber trees.

* Arbor vitae, common American and Chinese, f. l. c.

Andromeda, or Carolina forrel tree, f. l. su. July, m.

Arbutus, com. and scar. fl. sing. and doub. f. l. c. in. Nov.

* oriental, broad leaved, d.
Bay tree, common, doubl. fl. and striped leaved, l. f. su. d.
Box tree, broad and narrow leaved, f. l. f. c. See list 6.
* Cedar of Libanus, Carolina, and Virginia, f.
——— Phœnician, Lycian and Bermudian, f.
Cork tree, see the article oak
* Cypress large common upright, and male-spreading, f.
——— Portugal pendulous, or goa cedar, f.
——— the lower upright, or pyramidal shaped, f.
* Fir, Ypruce, Norway, American forts, &c. f. See Pine.
* —— Silver, (i. e. the pitch fir) and balm of gilead, f.
* —— Hemlock, and variegated balm of gilead, f.
Holly, several plain, and many variegated forts, f. l. gr. b.
——— Dahoon, and Yapon, or S. sea tea tree, ditto
Juniper, Swedish, and two Spanish forts, f.
——— see cedar, Virginian, (i. e. the red) &c.
Laurel, com. cherry bay, and striped forts, l. c. f. su.
——— Portugal, reddish wood, bright leaves, ditto
Maple, evergreen cretan, l. c. su.
* Magnolia, or laurel leaved tulip tree, l. f. c. August
* Oak (ilex) common evergreen, br. and nar. leaved, f.
* — Montpelier, or holly leaved oak, f.
* — cork tree, broad and nar. leaved, f.
* — Molucca, or the American live oak, f.
* — scarlet bearing, or the kermes oak, f.
* Pine tree, wild Scotch pine, commonly called fir, f.
* —— pinaster, stone, mountain Siberian, f.
* —— Weymouth, torch, or Virginia swamp, f.
* —— Carolina swamp, or prickly coned, &c. f.
Privet, common evergreen, white flower, f. su. l. June
* Pyracantha, or evergreen thorn, red berry, f. l. c. May
——— Savin, large upright Portugal. See next list, f. l. c.
Spindle tree, American plain and striped evergr. f. l. c.
Strawberry tree, see arbutus in this list.
Yew, short, narrow, broad, and striped leaved, f.

* * Some of these, though they attain, in a course of years, considerable height, may be occasionally considered as large shrubs, instead of trees, and planted accordingly: Skilful pruning will help to keep large shrubs down, and lead others to mount.

OBSER-
SECT. XIX. LISTS OF TREES, &c. 311

OBSERVATIONS ON PARTICULAR TREES.

Andromeda tree should have a dry soil, and sheltered situation: protect first winter after planting.

Arbor vitae, though both sorts are in estimation, yet the Chinese is most ornamental. Naturally they are of large growth, and hardy, yet sometimes the Chinese sort is kept in pots, as an agreeable companion (for several years) of other exotic evergreens.

Arbutus may be propagated from the first young shoots of the summer, planting them in pots, and putting them in a moderate hot-bed, (rather of bark) covering close with a hand-glass that is air tight; and thus most tender shoots of woody plants, which are found difficult to strike, may (most probably) be made to grow, as the bay, celastrus, cypress, &c. They may be tried on a warm border, keeping the earth cool, and the glass close. If the cuttings are planted just within the glass, watering well round the outside will reach them, and thus they need not be uncovered: If the glasses are taken off for watering, it is not (however) material, if they are carefully fixed close again. As soon as the cuttings appear clearly to grow, air must be given them. See next lift.

Bay, the common plain sort is rather tender, and requires a situation sheltered from bleak winds; but the variegated and double flowered sorts are tenderer still; and as they rarely succeed well abroad, they are commonly considered as greenhouse plants.

Cedar, the Bermudian, is tender whilst young, and should have a favourable situation afterwards.

Fir, there is a variety of each species, denominated from the number of leaves, and the shape and colour of the cones. The balm of gilead, and hemlock, sorts, are the lowest growers. To get the seed from the cones, lay them before a good fire, so as not to scorch them; and if they come not out well, after heating
heating this way, bore a hole up the middle, and drive something of iron in to split them open.

Oak, the evergreen sorts are excellent timber, and very ornamental in pleasure grounds: See page 27. The red excrescences upon the kermès oak, are occasioned by insects making insertions in the bark for depositing their eggs, which causing an extravasation of sap, it there condenses, and forms the little granulous substances, used for scarlet dying.

Pine, there are several other sorts of less estimation. The Weymouth and torch pines are the loftiest, and the Carolina swamp the lowest growers. To get out the seed, observe what is said above, as the pine cones are harder to open than the firs.

Pyracantha requires some support of stakes, pales, or wall, though it may be trained as a standard bush, or form an hedge impregnable. It is very pretty when in full fruit; but it so often misses being so, through bad pruning, that it is got much out of repute: See page 169. It does best in a dry poor soil, and an eastern aspect. Young cuttings, in June, will strike, being potted in good earth, and set in the shade till autumn and then plunged in the ground under a warm wall. See observations on the Arbutus above.

* * * * * *

VI.

List of low evergreen trees and shrubs.

3 Adam's needle com. and Virginian, pur. and wh. / r.

4 Alaternus, large, variety in leaf, pl. and str. / l. Feb.

3 lower growing, ditto

1 Arbutus, trailing, or Uva Ursi, c. / l. Nov.

1 Andromeda, box leaved, Canada, / l. c. July m.

4 Box-tree, white and yel. striped, / l. See last list.

1 dwarf, plain, and striped leaved, / l. c. f.

1 Briar, fw. evergr. doub. red and yel. fl. / ju. b. May

1 Bugloss
SECT. XIX. LISTS OF TREES, &c. 313

1 Buglos evergreen trailing br. leaved, blue f. May
2 Butcher's broom, common, knee holm, or holly, f. r.
3 ———— br. leaved, or Alexandrian laurel, f. r.
4 ———— long leaved, or Alexandrian bay, f. r.
5 ———— large, or shining leav. Alexan. bay, f. r.
6 Celastrus, or staif tree (Bastard Euonymus) f. l. July
7 Cistus, poplar leaved, gum, &c. several, wh. f. c. May
8 Clematis, evergreen, or Spanish climber, c. l. f. Nov.
10 ——— Austrian, large and small flow. yel. ditto
11 Furze, com. yel. and white flowered, f. April
12 ——— French, yellow flowered, ditto
13 Groundsel tree, ivy leaved, oleander, &c. wh. fl. f. l. c.
14 Hare's Ear or Ethiopian Hartwort, yel. f. c. July
15 Heath, com. English pur. wh. and yel. flow. l. r. f. July
16 Hippop. com. and striped leaved, (see p. 251) f. fl. c. June
17 Jerusalem sage, yellow and purple flow. r. l. c. June
19 ——— com. dwarf black and yel. berried, ditto
20 Germander tree, yel. wh. and purple flow. f. fl. c. July, d.
21 Horse tail, shrubby, the greater and lesser, f. u. r. July
22 Juniper, common shrubby English, yel. flow. f. April
23 Honeysuckle, evergreen scarlet trumpet, c. l. f. June
24 Kalmia, broad leaved, pale red flow. f. u. l. July
25 ——— narrow leaved, bright red flow. ditto
26 ——— hairy leaved, reddish purple flow. ditto
27 ——— glaucous leaved, pink flower, ditto
28 Lavender cotton, com. and rosemary, (see p. 251) yel. f. r. Ju.
29 ——— sea, com. and shrubby Siberian, bl. r. f. c.
30 ——— French, (stachas) yel. flow. r. f. c. June
31 Laurustinus, com. br. and nar. leaved, l. f. c. Aug. &c.
32 ——— hairy, thining, and striped leaved, ditto
33 Moon-trefoil, (medicago) shrubby, yel. flow. May, &c.
34 Phillyrea, mock privet, or privet leaved, f. l. March
35 ——— striped, box leaved, bay, rosemary, &c. do.
37 ——— doub. fl. and white and yel. striped, ditto
38 Pignut tree, (sea silvery leaves,) com. and Spanish, c.
39 Ragwort, common sea, hoary leaved, f. c. June, &c. d.
40 Rhododendron, large, or laurel leaved, red fl. f. l. Aug.
41 ——— dwarf, or the Pontic rose bay, f. l. Aug.
3. Rue, broad, narrow and striped leaved, c. l. fl. June
3. — Aleppo, broad and narrow leaved, ditto, d.
3. Savin, common plain spreading, and variegated, f. l. c.
4. Smilax, or rough bind-weed, wh. fl. red fr. l. r. f. June
1. Widow's wail, (cneorum) a trailer, pl. fl. c. l. f. May, &c.
1. Wormwood, sea, or lavender leaved, and Roman, fl. r.

* * If the tenderer sorts of these shrubs are judiciously planted, they may succeed abroad, and are worth the trial, as their place may, at any time, be easily supplied by some shrub from the nursery. While young, for a winter or two, in severe weather, a few bushes laid round, and a little peas haulm on the top, would save many a curious exotic, when they are nearly hardy enough to endure our climate.

OBSERVATIONS ON PARTICULAR SHRUBS.

Adam's needle (yucca) is somewhat tender, and should be out of the way of cutting winds.

Andromeda tree is too tender for the open ground in general, but has survived abroad, our ordinary winters, being in a favourable situation. It naturally likes a moist soil: but keep the roots dry in winter.

Cistus, all the sorts are rather tender, but if brought up as hardy from the sowing as may be, and planted in a dry soil, shelter and sun, will stand ordinary winters abroad in the shrubbery, and prove delightful ornaments: Cuttings do not make so fine plants as seedlings, but are harder.

Cistus, Spanish, must have a dry warm situation.

Germander tree, though generally considered as a green-house plant, it is afftered, by some, will endure ordinary winters abroad, with proper management. Risk of experiment in these cases, or the trouble attending, should not be minded, for if a shrub will live abroad, it is surely much better there; and it has been found
found that several things will do so, which have been used to be housed, even in floves.

Groundsel tree, or ploughman's spikenard, must have a snug situation abroad, as hard frosts are apt to cut it; and if it is potted and housed, it must have a great deal of air, as it only needs protection in severe weather. This is an argument for trying all things abroad, of which there is a chance of doing well, for they cannot have the air they require in a green-house, where are so many plants of a tenderer nature.

Hares-ear is a handsome shrub for the south front of a plantation;—somewhat tender.

Honeysuckle, evergreen, allow it a sheltered situation, and let it be as much as possible in sight.

Moon-trefoil is a very beautiful evergreen, flowering from May to October; but as it is tender, must have a dry warm situation, and then a little attention of cover in severe frosts may secure it.

Phil erya in all its varieties, though rather a rambling grower, is considered as one of the standing ornaments of our shrubberies; yet it has beauty in neither flower, nor fruit, as is the case with some other plants, (particularly evergreens) being retained only for their foliage. The striped fort should have a sheltered situation, as indeed is, in a measure, necessary to all variegated plants, as their ornamental nature, in this respect, is the consequence of hereditary weakness.

Periwinkle is a pretty under shrubby evergreen, if properly kept up to the lower part of pales, or a wall, or the larger fort may be trained to a low stake, or even kept as a little bush. It is very well to confine the roots (being apt to run) by flaty flones, or tiles; It succeeds well in shade and moisture.

Purjlane tree, the Spanish is not so hardy as the common fort, but will generally survive our winters, in good sheltered situations.

Ragwort, this fort (as all the others) used to be housed in winter; but will stand abroad in a warm.
sheltered, dry situation, and its hoary leaves are very ornamental, though there is no great beauty in its flowers. When raised from seed, it is apt to get greener in leaf, and therefore it will be best raised from cuttings, which should be taken from the whitest plants. A likeness to original plants is frequently lost from propagation by seed, but is assuredly maintained from cuttings and layers.

Rose, this sort will need support, being rather trailing; train it to a sheltered wall.

Rosemary will not do in all situations. See page 256. Savin variegated leaved is beautiful; grows slow.

Smilax, as it is trailing, or climbing, is commonly planted to run up the trunks of trees, &c. It may be trained to tall stakes, and should be planted in flight, as in the front of plantations. There are several sorts of it, and the bay-leaved Virginian has black fruit.

* * * * *

VII.

The Flowers in the following list of annuals are numbered (as the shrubs were) agreeable to their most usual heights. The time of flowering is not mentioned, because that will vary, according to the time of sowing, management, and season; very few before, or after June and July. Many of the sorts continue longer in flower than a month.

TENDER ANNUALS.

4 Amaranthus tree, tricolor, and bicolor
3 ——— globe, purple, red, white, and striped
4 ——— coxcomb, com. large red, scar. yel. &c.
2 ——— com. dwarf coxcomb colours, as ditto
3 ——— spike flowered coxcombs, a variety
3 Balsams, double, red, scarlet, and purple striped
3 Brunwallia, spreading, and upright, blue flowered
2 Callistaria, or slipper-wort, winged leaved
4 Capsicum,
SECT. XIX. LISTS OF TREES, &c.

4. Capsicums, red, yellow and white podded
3. Cline, prickly stalked, and five leaved
4. Colutea, or scarlet African bladder senna
4. Convolvulus, scarlet, (ipomaea quamoclit) a climber
3. Egg plant, white, yellow, red, and prickly fruited
2. Humble, or spreading branching sensitive plant
1. Ice plant, or diamond ficoides, wh. and yel. flowered
4. Indian fox, or flowering reeds scar. red, yel.
4. Pentapates phoenicia, scarlet flowered
3. Physalis, or winter cherry, angular and downy
4. Sensitive, or Double Memoria;—see humble plant.
4. Sida, or Indian mallow, heart leaved, pink
2. Spigelia Antelonia, or American Worm Grafs, red
4. Stramonium, or thorn apple, double purple, &c.

* * * Some persons cultivate the serpentine cucumber, or melon, as a curiosity of the summer, the fruit being produced from one to two yards long, under good management; but it is to be remembered it will take up much room.

As to the spiriting (or wild) cucumber, though it may be mentioned here, it is very hardy, so as to sow itself in autumn, come up in spring, and will abide as a perennial. Sow in March, and allow it two yards square. This is merely propagated for diversion; for if the fruit is touched when ripe, it bursts and throws its fætid contents to some distance, perhaps (wittily) over the clothes of the adventurer, and perfumes him.

OBSERVATIONS ON PARTICULAR FLOWERS.

Amaranthus, the tree fort, grows larger than the others, and bears purple flowers. The tricolor and bicolor are so called, from the former having the leaves of three colours; i.e. a bright red, yellow and green; and the latter of two, a deep red and purple; and it is for these, and not the flower, that they are cultivated. The flowers of the globe foris have the peculiar property of retaining their form and colour a long time (years) when gathered. Clear the seed of this flower from its downy...
downy covering before sowing, as a means of forwarding the germination.

_Balsam_, when double, and well marked, is a very fine flower. The plain coloured red and white, semi-double and single ones, are not of much account with the curious, but may be put out in ordinary borders to make a show. The seed of this flower should be nicely saved from the fullest blossomed, and distinctly striped sorts, that have not grown near small, or self-coloured ones. The plants selected for seed, should be protected from the wet and cold, after _Mid-August_, by putting them under lights, or in a green-house window, where they may have the full sun.

_Calceolaria_, the flower of, is esteemed only for the curiosity of its slipper shape. The blow may be continued all summer, by planting cuttings.

_Capsicums_ are usually ranked in the least tender class, and though they are in nature so, yet to have them fine, and to fruit in time, they should be brought forward, by being treated as balsams, &c. at least in situations far north of London. They are grown for the beauty and use of their _pods_, which are variously shaped, as long, heart, cherry, &c. See p. 248.

_Cleome_ is a very tender annual, (has been long considered as a _slove_ plant) but may come under the cultivation of the ordinary florists, by continuing it longer in a frame, as suppose to _Mid-July_, or later, if the season is then unkind; and then plunging the pots in a warm border. When autumn approaches, a hand-glass may be set on forked sticks over this, or any tender plant, and thus preserve it longer.

_Colutea_ is a perennial shrub of somewhat tender nature, that hardly succeeds abroad. Though the seed will come up on cold ground in high spring, yet by sowing it as one of this class, it may be brought forward enough to produce its beautiful flowers the same autumn. See _lists_. IV. and X. In this last list it is considered as a _biennial_ as it may be housed the first winter,
winter, and turned out into open ground the following summer, and suffered to die.

_Egg plant_ must have a dry soil, and warm situation, but yet plenty of water in hot weather. The blossom is not striking, but the fruit is often as large as a swan's egg, and with common management will be as big as a hen's. This plant requires, however, to be sown forward and should be brought on by a third hot-bed, if it might be.

_Humble plant_ is one of the _sensitives_, the property of which is to close its leaves, or drop them upon being touched. The common _sensitive_ plant will grow to eight feet in a _hot-house_, (which is its proper place;) but the humble plant is _spreading_, and seldom reaches more than a stature of two feet; for its lower growth it is therefore more proper for our purpose here. It is called _humble_ from its receding and dropping so completely when touched, foot-stalk and all, as if making a bow. The humble plants are distinguished from the common upright growing _sensitives_, as the latter only closes the leaf, without dropping the stalk.

_Ice plant_ trails and spreads wide on the ground, makes no share in its flower, but is beautifully covered with _crystal_ drops, shining like _diamonds_ when the sun is on it; or as the frozen drops of _icicles_. It is not nice in its culture, or weather, though it should not be put out too young. The best way is to plant one in a pot of six or seven inches diameter, without any thing at bottom over the hole; and keeping it in the frame till it gets too big for the pot, plunge it in the ground a little over the rims. Thus the plant will not be _too_ luxuriant, but yet sufficiently nourished, (for it has small roots) and will flower sooner, and ripen the seed better for this treatment.

_Indian shot_ must be sown forward, and brought on by different hot-beds to blow the same year, being rather a tender _hot-house_ perennial.
LISTS OF TREES, &c. SECT. XIX.

LESS TENDER ANNUALS.

3 Alkekengi, or winter cherry, angular and downy
3 Amaranthus, trailing, or pendulous flowered, red
3 ———— bloody leaved, with erect flowers, purple
3 ———— upright, reddish purple flowered
3 After China, doub. wh. red, pur. brown, striped, &c.
2 Balsam yellow, noli me tangere, or touch me not
2 Basil, common sweet red and purple flowered
1 —— dwarf, or bush Basil, a variety in leaf. See p. 247
   Capsciums, see the last list, and pages 248
2 Carthamus, or common bastard saffron, yellow
2 ———— woolly, or dittaf flower, yellow
2 Cerinthe, or honeywort, great and small, pur. and yel.
4 Chrysanthemum, doub. wh. and yel. plain and quilled
4 Convolvulus major, pink, purp. and deep purple
1 Geranium, African trailing, variegated flower
4 Hollybok, Chinese, single and double variegated
2 Jacobea, purple, red, and white flowered
1 India, or Chinese pink, sing. and doub. striped variously
4 Indian corn, dwarf, red, yel. wh. and variegated
   Love-apple, or tomatum, see page 259
   Love lilies bleeding, see amaranthus trailing
1 Mignonette, see observation, next list
4 Marigold, African, pale and deep yel. pl. and quilled
3 ———— French, yellow and crimson striped, velvety
2 ———— dwarf sorts of both African and French
4 Marvel of Peru, white, yel. red, purp. and variegated
   Nasturtium, yel. and orange flow. July, see p. 253
1 Nolana, Peruvian dwarf, a trailer, blue flower
4 Palma Christi, large and small, a variety in italk
   Persicaria, see next list
2 Poppy, Mexican, or prickly poppy, yellow flower
   Princes Feather, see amaranthus upright
   Scabious, sometimes made an annual, see biennials
2 Stock, com. ten week, red, scarlet, purple and white
1 —— dwarf French fine scarlet, and ditto
2 ——— Prussian, or wall-flower leaved, ditto

2 Sweet
2. *Sweet Sultan*, yellow, purple, red and white flowered
4. *Tobacco*, common broad and narrow leaved Virginian
3. *Xeranthemum*, or eternal flower, whit. violet and purpl.
3. *Zinnia*, yellow few flowered, and red many flowered.

**OBSERVATIONS ON PARTICULAR FLOWERS.**

After, to come forward and fine, should have a second flight hot-bed to prick a few out upon, and indeed this would be a great advantage to any of the other sorts. Those not thus forwarded, will make a second blow. The striped sorts are much the prettiest, yet the plain ones make a good shew, and do very well for shrubberies, &c. particularly the *superb* white and red.

It is a good way to plant a few *aflers*, or any flowers designed for seed, in beds by themselves, in a way of nursery, as in the best borders it is much neater to have all decaying flowers pulled off regularly, as soon as their beauty is over: Pull up all bad flowers (as soon as ever they are discovered) from amongst such seedling plants, or they will be contaminated.

*Balsam*, yellow, or touch-me-not, is more frequently sown in cold ground, (as others of this sort, *carminals*, *carythe*, Mexican poppy, prince's feather, and *xeranthemum*) but it is worth while to afford the assistance of a little heat. This flower is sufficiently ornamental to
merit a place in the garden; but is chiefly curious for the elastic property of its seed pods bursting with force, when just pressed between the fingers, throwing the feeds to a distance.

*Chinese hollyhock* should be brought forward (especially northwards) to ensure a timely blow. See p. 280.

*Chrysanthemum*, to preserve some of the finest doubles, plant cuttings, or slips, the beginning of *September*, in pots, and house them before *November*, left the frost come; and they will generally survive the winter, and flower much earlier, though not so strong as those sown in spring.

*Convolvulus major* will need support by a wall, stake, or otherwise, to be trailed, or run up, as a scarlet bean. The deep blue sort is called *convolvulus nil*, or *anil*. The major convolvulus makes a good shew, and may be sown in *April*, in the places designed to flower; but it is the best way to sow three or four seeds in a small pot, which being placed on a gentle heat, will be much forwarder and finer, and may be turned out whole (when about three inches high) into open ground; for this flower (as many other annuals) does not transplant well: *Nil* will not do without heat to bring it up.

*India pink* is now brought to blow much more double and variegated than formerly, and it is a very neat, engaging flower, lasting a long time. Prick the plants out when quite small, (for they readily strike) that they may not be drawn up weak, and let them grow in single detached plants, in a dry light soil, and they will be strong. If cut down as soon as the principal blow is over, they will stand another year.

*Marigold*, the *African*, grows strongly erect. There is a variety in the form of the flower, and the quilled sorts are mostly admired. The *French* sort grows weakly spreading, but there are beautiful varieties of it from seed, which should be carefully saved from the most double flowers, having had no single ones growing near
near them. The smell of those commonly sown is unpleasant; yet there are sweet-scented sorts.

Marvel of Peru is considered as an annual, yet is naturally perennial in root—as our climate makes it annual. If the roots of those growing abroad are taken up in October, and dried a few days, they may be packed in dry sand, and kept in a dry place (from frost) till spring; when potted and placed on a gentle heat, they will shoot, and come forward.

Palma Chriti, the large leaved (often a foot broad) will grow from seven to ten feet high, according to culture, as early sown, &c. As it is valued for its noble stature, and ample foliage, some gardeners bring it forward as a tender annual, in order to produce a giant; but it is not adviseable. The small leaved grows to about four feet high, and is an agreeable plant in the leaf, in other respects than size.

Nasturtium is impatient of frost; hence it has been considered in this class, to have it flower early. Late sown plants, if potted and housed, will blow in winter, and live round to spring. Cuttings of it will grow. The dwarf sort is preferred by some for flower borders, but is not so floriferous as the large. There is a double kind, see page 254.

Stock, ten week, (beautiful and fragrant) is the most important annual flower we have. Everyone admires it, and its absence is always felt. It therefore merits every attention, to raise fine double flowers, to have them early, a continued succession, and as late in the season as possible.

There should be four sowings of this flower in the year. Let the first be early in the spring, (as Mid-February, or beginning of March) on a gentle heat: and being soon thinned a little, they should be pricked out in about a fortnight upon another moderate hotbed, at four inches asunder, where they may grow till this distance is thought too crowding; but the best rule is, to give them their final station as soon as they have acquired six or eight leaves.

P6
The second sowing should take place on a little heat, when the first plants are pricked out; and let this sowing be presently thinned to an inch asunder; prick the plants out in the full ground, (or on a moderate hot-bed, if you wish to forward them) at six inches asunder. Here they may grow till either put out with eight leaves, or stand till their flower buds appear, which shew plainly whether they will be double or single; the double having full round buds, and the single long thin ones. But if every other is drawn with eight leaves, the rest will do the better, and may be taken up with large balls of earth; concerning the method of doing which, see page 279. Or, every other being taken up from the bed, the rest may remain to make a grand shew in flower. All the single ones not wanted for seed, should be pulled, or cut up; then those left for the purpose will more certainly produce good seed, i.e. apt to come double.

The third sowing is to be upon cold ground, in a warm border, or rather under a hand-glass, the beginning of May. Let the plants be thinned in time, so as not to draw one another up weak, and pricked out at four inches, as soon as may be, as to showery weather, for flocks will safely transplant very young; and when they have eight leaves, let them be planted where they are to blow. It is a good way (in furnishing borders) to plant three or four flocks together, at four or five inches from one another, and those that prove single, may be cut out as soon as discovered.

The fourth sowing is designed for plants to be preserved through the winter for a spring blow, and should be made either the last week in July, or before the middle of August. Plant some close under a south wall, and pot others for housing in (only) severe weather. If two or three plants are put in a pot, the single may be cut away from the double as soon as discovered.

The French stock is very floriferous, and most apt to come double. The Prussian is sometimes called the
sea-green flock, to distinguish it from the others, which are somewhat hoary leaved.

To save seed that is most promising for double, mark those flowers which have five or six leaves, by tying a bit of thread round them. A single flowering plant that has double ones growing near it, produces good seed; but those single flowers that come out before the double ones appear, it is proper to take off, as also all the late flowers, which if they ripen their seeds at all, would be weak; and a plant having but few pods to ripen, will certainly produce the boldest feed, and of course the largest plants and flowers may be expected from it. Be sure that the seed is ripe before gathered, and that it is kept dry, in their pods, close tied in paper bags.

Sultan, the yellow is the finest flower, and has a very agreeable musky scent; but it is the tenderest, and will hardly succeed well without the assistance of heat to bring the seeds up: It will come, however, if sown under a small hand-glafs, that is air tight, on a warm border. The yellow produces much finer flowers, if pricked out upon a second slight hot-bed.

Zinnia, the colours of this flower are dingy, but yet agreeable. Some gardeners chuse to treat it as the balsam; but a moderate hot-bed will produce the plants forward enough to ripen their seeds. Zinnia is, however, rather impatient of cold. In May may sow in open ground for a late blow.

IX.

HARDY ANNUALS.

1 Adonis, pheasant's eye, or bird's eye, red and yellow
2 Am thyftea, the flower is a pretty amethyst blue one
1 Alyssum, sweet-scented, white flowering
2 Balm, Moldavian, blue and red flowered

Balsam, yellow, see last list, and observation 2 Belvidere
2 Belfadere, annual, summer, or mock cypress
2 Borago, variegated leaved, purp. and red, see page 247
1 Campion, dwarf viscos, or dwarf lychnis, purple
1 Candy-tuft, common white, red, crimson, and purple
1 ——— bitter, and sweet-scented white
1 Caterpillar Plant, four sorts, yellow, see page 272
2 Catchfly, Lobel's, red, purple, and white
2 Cerinthe, or honey-wort, see last lift
2 Clary, annual pink, purple, and white topped
1 Convolvulus minor, blue, white, and striped
4 Cyanus, or corn-bottles, blue, red, pur. wh. and strip.
2 Devil-in-a-bush, or Fennel Flower, see nigella
1 Geranium, annual red musk, and a showy blue and pur.
1 Erigeron, or Canada flea wort, white
2 Hawkweed, (baftard) red, pale, and a deep yellow
1 Heart's Ease, or pansey, large Dutch, &c. a variety
4 Indian corn, dwarf, or maize, yellow flow. red fruit
2 Ketmia, bladder, or flower of an hour, yellow
4 Larkspur, tall, unbranched, branching, and rocket
2 ——— dwarf rocket, as of ditto, a variety
3 ——— Neapolitan, branched and spotted
2 Lathyrus, joint-pedded, blue flowered
3 Lavatera, or cretan mallow, red, white, and purple
2 ——— three month's Syrian, pale red flower
1 Lupine, sweet-scented, yellow flowered
3 ——— common, two blue sorts, and a white
4 ——— hairy giant blue, and rose coloured
2 ——— scarlet, see pea, Tangier
Lychnis, dwarf annual, see campion
4 Mallow, curled leaved Syrian, and Chinese, pink
2 ——— Venetian, see ketmia
1 ——— Cretan and a Syrian, see lavatera
3 Marigold, giant, or large common double
2 ——— large cape, hybrid, or mongrel
1 ——— dwarf cape, leafy, and naked stalked
1 Mignonette, (trailing) or sweet-scented refeda
3 Mulberry blight, or strawberry spinach, red fruit
1 ——— dwarf plain, and variegated leaved
Nasturtium, see observation, last lift
12 Nigella, blue, white, and yellow, single and double
Normandy tuft; i. e. red candy tuft, which see
4 Pea, sweet, purple, scarlet; white and black
SECT. XIX.  
LISTS OF TREES, &c.

4 Pea, pink and white, or the painted lady
4 — Tangier, sometimes called scarlet lupine
2 — blue flowered, or cultivated lathyrus
4 — crown, rose, or cape-horn, pink and white
1 — winged, or winged podded lutea, red flower
4 Persicaria, oriental, red flowered, see pages 273, 281
4 Poppy, tall, double purple, scarlet, carnation, &c.
2 — dwarf, or corn poppy, double, a variety
2 — prickly Mexican, or yellow flowered
3 — chelidonium, or horned scarlet poppy

Scabious, see next lift, and the observation
1 Snails, hedge hogs, and horns, yellow, see page 272
2 Snapdragon, annual Sicilian, white flowered
1 Stock, dwarf annual, or Virginian red and white
4 Sunflower, large double, pale, and full yellow
3 — dwarf double ditto
2 Toad-flax, or three leaved antirhinum, yel. blue, &c.
1 Whitlow grafts, white, and yellow flowered
1 Venus's looking glass, blue, white, and purple
1 —— navel wort, common, and Portugal, white

Xeranthemum, or eternal flower, see last lift

** There will not need many observations on the flowers of this class. Directions respecting their cultivation will be found in the last section. It was there said, that May was not too late for sowing those annuals that come quick into flower:—the season may be extended (for late blows) to some, through June, or even the beginning of July, as annual stock, candy tuft, convolvulus minor, corn bottles, heart's ease, yellow lupine, mignonette, sweet-pea, and pheasant's eye. But, if dry weather, the seeds must be watered to bring them up, and the plants also to bring them forward.

OBSERVATIONS ON PARTICULAR FLOWERS.

Belvidere is admired for its beautiful regular growth. The autumn sown seed make far the finest plants, and as self-sown ones often come up, they should be preferred. This flower is adapted for potting, and thus it looks well. See pages 273, 281.
Knotia, the flower fades in a very short time, when the sun is out; but the plant produces a great number, in long succession.

Larkspur is seldom permitted to attain its utmost perfection, not allowing a room enough. The large forts should be from a foot to eighteen inches asunder, and the dwarf half this distance. See page 282. Pull up all singles. See page 59.

Mignonette is somewhat tender, and is often sown on heat, early in the spring, to obtain forward plants, for prickng out into pots, boxes, or baskets, to be housed in windows, &c. As it does not transplant well, take it up with a little earth about the roots; and, if convenient, put the pots, &c. on a little heat, till rooted. Summer sown plants, if housed in winter, become Biennial; cut them down first.

Mulberry blight, or more properly blite; i.e. the herb blitum, whose fruit resembles a red unripe mulberry. It is also called strawberry spinach, from the leaves being like those of the prickly spinach, and the fruit like a scarlet strawberry. The plant must be supported by a wall, pales, or sticks, or the weight of the fruit (not eatable) will bring them to the ground. It looks best, and is very handsome, when trained, which it should be, just as a fruit tree, suffering no side shoots to remain on. The seed is near a month coming up, which makes autumn sown plants valuable, in order to have the fruit forward and fine. Some persons sow it in spring upon a flight hot-bed, and prick the plants out where they are to grow; but to sow forward, in their proper place (not to be transplanted) generally does very well; as it will then decorate the autumn, when other things begin to fail.

Stock, annual, if sown about Mid-August, for an edging, or in little patches, will make a pretty early spring blow, as it is very hardy: A light soil suits it best. This little flower is commonly spoiled by being suffered to grow thick, which makes it trail, and ram-
ble too much. Four in a patch, about four inches a-
funder, is sufficient.

* * * * * * *

X.

List of biennial flowers.

2 Campion, rose, red, wh. and ftr. and doub. crim. July
2——— Spanish viscous, red flowers, July
2——— Portuguese, whitish green flowered, ditto, July
2 Canterbury bells, blue, purple, and white flow. June
2——— variegated, and double flow. June
2 Carnation, (or gilliflower) a great variety, see observ.
2 Chelone, forking; penciled, American, purple, Sept.
2 Clary, garden, a variety in leaf, pur. see page 249, June
2 Colutea, see sena, blister, below
3 Goat's Beard, greater yellow flowered, July
3 Honeysuckle, French, red, wh. and ftr. flow. June, d.
3 Honesty, satin-flower, or moon-wort, pur. and wh. May
2 Lion's tail, Virginian, or monarda punctata, yel. July
3 Mallow, tree, (proving sometimes biennial) pur. June, d.
2——— vervain, ditto, red, and white, June, d.
2 Milk vetch, fox-tail, (often biennial) yellow, /. June, d.
2 Mullein, branching, phlomode and sinuated, yel. June
2 Penstemon, (a biennial-perennial) violet and pl. / Sept.
2 Poppy, common, horned podded, yellow flower, July
4 Primrose, tree, com. hairy and smooth-stem'd, yel. June
2 Rampion, (see p. 255) a large blue bell flow. June
4 Rudbeckia, three lobed Virginian, yel. flow. July, d.
3 Scabious, pur. black, red, wh. and ftrip. flow. June
3——— hen and chicken flowered, purple, June
3——— starry, Spanish and Montpelier, purple, July
4 Sena, bladder, (colutea) Ethiopian scarlet, August
2 Snap-dragon, red, pur. wh. yel. and variegated, June
2——— red, &c. with variegated leaves, June, d.
3 Stock, Brompton, scarlet, blush, and white, May
3——— queen, red, blush, and white, May
3——— Twickenham, purple flowered, May
3——— shrubby, white, tinged and spotted, May
4——— large red Dutch, and Patagonian, May

2 Sweet
LISTS OF TREES, &C.  

2. Spruce William, single and double, a variety, June
2. mule, or f.w. Wil. pink, doub. red, June
3. broad-leaved strip. and red flow. June
2. Wall-flower, large, yel. and bloody, sing. and double
1. white, and dw. yel. sing. and double, May
2. winter and early spring, single yellow

Several biennial flowers, if sown early, or brought forward upon a little heat, will blow the same year, only later, as French honeysuckle, honefly, scabious, fenna, and stocks; but it is not generally desirable to attempt this, as they do not come so fine and strong, when made annuals of. Those just named, of course, though sown late the preceding year, will blow the next; but some of the biennials, in this case, will not blow the next year, as Canterbury Bells, a few of which, though sown at their proper season, may stand over for the second year.

OBSERVATIONS ON PARTICULAR FLOWERS.

Campion, though a perennial, should be considered as biennial, in order to a timely supply; it sometimes is of no longer duration. The double (as bearing no seed) is propagated by slips from the roots; and it is a very fine flower. Pot some.

Carnation is seldom considered as a biennial, though in fact it is so, as much as several others, usually denominated of this class; for, after the first blow, the plants become straggling, and flower weakly; it is, therefore, that they are always layered, &c. to continue them. The plain, deep red, or clove scented carnation, is the original, and an established cultivated sort. The rest are class'd under the heads, flakes, bizarres, picquetees, and painted ladies, according to their colours, stripes, spots, and pouncings. For layering, and raising carnations, see the end of this section.

Chelone, the seed of this flower is best sown as soon as ripe, in autumn; and coming up in the spring, they may
may be planted in the borders, in June and July, and will flower the same season.

*Goat's Beard*, the young shoots are eat (as those of *salsify*) like asparagus at spring.

*Primrose tree*, makes a pretty show, but produces so much seed, that it becomes rather a troublesome weed to some people. Cut the flower stems off, or pull up the plant, before the seed pods are ripe enough to shed their numerous contents.

*Rudbeckia*, or American sun-flower, this biennial sort is called hardy, but should nevertheless have a dry sheltered situation. The narrow leaved dwarf *perennial* (about three feet) sometimes proves *biennial*, and may be sown as such, a little every year, by those who would extend their culture of flowers.

*Scabious* has been noticed in the two last lists as an *annual*, which it becomes, if sown early; and some gardeners make a point of doing it on a little heat to forward them. As a *biennial*, it should not be sown too soon; but if forward plants are transplanted in June, it will prevent their flowering till next year, when they will come very fine and strong, and this is the way to produce good seed.

*Sena*, bladder, or Ethiopian *scarlet colutea*, is rather tender, and the seedling plants must be potted and houfed, or sheltered by a frame from sharp frosts. This flower is properly a *perennial*, (see list IV.) but as it is apt to be cut off in severe weather, it is here considered as *biennial*, and may take its chance after the first flowering. It is sometimes made an annual of. See *colutea*, list VII.

*Snap dragon* we consider as biennial, it not blowing so handsome afterwards. The variegated (as all stripes are) is tenderish; this must be propagated from *cuttings*, as indeed the plain may be, though the finest plants come from seed. This flower is of longest continuance in a poor soil, and will grow and flourish out of cracks in old walls.

*Stck*
"Stock, or stock gilliflower, is apt to get too rampant (in some seasons) before winter, and when killed by frost, it is chiefly owing to this circumstance; for nothing stands severe weather well, that has grown very freely. Hence it used to be the custom of florists to transplant them several times in the summer; (even at every full moon) but to keep them down, and hardy, by this means, tends directly to weaken the blow, if not to kill the plant. The most reasonable method in this business is, not to sow too early, (or before the first week in April) to thin them, and to prick them out in time, that they may not be drawn up long legged; and by no means to let them have a dungy soil to grow in, or a very rich one. Prick them out the first cool weather after they have six leaves, at six or eight inches asunder, where let them remain till August, choosing a showery time, (rather about the middle) to plant them out where they are to blow; but let not this be into a moist soil, or damp situation: It is a good way to mix half sand in the mould that lies about the thaws above the roots; and when wet and frost comes, to lay coarse, or drift sand, round about them, three or four inches high, which remove at spring. Some of the weakest plants may remain in the nursery bed till spring, which put out in cool ground, for in such a soil they blow best, though they do not stand the winter well in it: Stocks blow much finer in a showery summer than in a hot one. It will be a great advantage to those moved at spring, to have balls of earth to the roots, though they do not well retain it. To dispose them to it, and make them fitter to transplant, they may be cut round in autumn, with a long knife, five or six inches deep, and about three inches from the stem, making one slanting cut under the root, at six inches depth, to cut those asunder that strike directly down. This is a practice that would answer in most things that are to be removed at spring; and if not, it would generally be of service, as the cut-
ting off the end of a downright root, occasions it to throw out several others of a more fibrous nature.

_Sweet William_ (or bearded pink) is distinguished into broad and narrow leaved sorts. This flower comes very diversified from seed, some plain, others beautifully striped, and a few double, perhaps one in thirty or forty. But the single ones are generally so ornamental, that the want of doubles is not much lamented. The _double_ sorts are propagated from _layers_, as carnations. The _Sweet William_ is perennial, but as the plants cease to be handsome (and in some cases die) after the first blow, it is necessary to raise some every year for ordinary use.

_Wall-flowers_, raised from seed, produce some doubles; but the chance is not great for fine ones, which are to be continued from _flips_ or _cuttings_ in _May_, _June_, or _July_, plant them in a rich soil, and shade till rooted. The double _white_ wall-flower is tender, and should be potted for housing, as indeed other good sorts of this flower should be, and generally are.

* * * * * *

**XI.**

_List of fibrous rooted perennial flowers._

2 _Adonis_, or perennial pheasant’s eye, _yel_. _r_. _f_. _Aug_. _m_.

3 _Acanthus_, smooth and prickly _wh_. and _pink_, _s_. _r_. _July_, _d_.

3 _Agrimony_, the large, or odoriferous _yellow_, _f_. _r_. _July_.

3 _———_ hemp, common wild, _red_, _f_. _r_. _August_, _m_.

2 _———_ spotted _stalked_ American, _purple_, _ditto_.

3 _———_ lower Pennsylvanian and Virginian, _wh_. _ditto_.

4 _———_ Canada, or tall _purple_ flower, _ditto_.

4 _———_ tallest Pennsylvanian, _white_ flowered, _ditto_.

1 _Alyssum_, rock, Cretan, and prickly, _yel_. and _wh_. _f_. _r_. _May_.

1 _Anthemis_, or sea camomile, a trailer, _white_, _f_. _July_.

3 _———_ ox eye _fort_, _yellow_, _white_ and _red_, _r_. _June_.

1 _Anthyllis_, _double_, _pur_. and _scar_. _trailing_, _f_. _r_. _June_.

4 _Arum_.

Arun, dragon, common spotted stalked purple, r. June
Afarabacca, Virginian vein leaved, &c. purp. r. May
Asphodel, or king's spear. See the next lift.
After, a variety, see starwort below.
Arnica, or bear's ear, see observation end of lift.
Arvens, com. alp. yel. and marth, pur. &c. /. r. May, m.
Bachelor's button, sing. and doub. red and wh. /. r. May
——— blue, see cyanus
Balm, grandiflorus, purple, red and white, r. June
Barrenwort, alpine (epimedium) red, r. May, shade
Bear's breech, see aconthus
Bear's ear sanicle, of Matthiolus, fine red, r. June, d.
Bear's foot, or hellebore, greenish flower, /. r. Feb.
Betony, com. Danish, oriental, pur. red, wh. /. r. July, m.
Bee larkspur, common and great flow. blue, /. r. July
Bloodwort, or bloody stalked dock, white, /. May.
Borage, oriental perennial, blue flower, /. r. May, d.
Bugle, com. pyramidal blue, red and wh. r. May, m.
Bugloss, com. (see p. 253) blue, wh. and red, /. June
——— oriental trailing, and Virginian, yel. /. r. May, d.
Burnet, com. (253) and agrimony leav. red, /. r. June
Bryony, common white flowered, red berried, /. May
Cacalia, alpine purple, a variety in leaf, /. r. June
Calamint, Heturian, see balm grandiflorus.
Campanula, pyramidal, or steeple flow. blue, /. Aug.
——— grandiflora, and Carpathian, purp. /. r. July
——— see Throatwort. Campion, see last lift.
Candy Tuft, round leaved perennial, wh. r. c. June
Cardinal flower, scarlet, blue and violet, /. r. c. Aug. d.
Carnation, is properly a biennial. See the last lift.
Catchfly, or viscous campion, doub. red and wh. r. June
Centaury, great pur. and woad leaved yel. /. r. June
Chelone, Virginian, &c. wh. blue, red and pur. /. Sep.
Chervil, perennial, or sweet fern, white, /. June
Christmas rose, or black hellebore, white, r. January
Clary, Indian blue, and glutinous yellow, /. r. June
Columbine, com. plain, striped and sported, /. r. June
——— feathered, (thalictrum) wh. and pur. ditto
——— mountain, or alpine, large blue, /. r. May
Cockoo flower, or meadow pink, see ragged robin
Coreopsis, verticillate, yellow, a long blow, r. July
Cowslip, double yellow, and double scarlet, r. May
American, or Meadia, purple, J. offic. May
Crowfoot, meadow, double yellow flowered, r. May
mountain, double white flowered, r. May
Cyamus, mountain, or perennial blue bottle, J. r. June
Daisy, wh. red, scar. variegated, cockcomb, &c. r. April
globe, (globularia) a fine blue flower, r. June
ox eye, American and Montpelier, wh. J. r. July
Michaelmas, see Starwort tradescants

Dodartia, oriental, deep purple flower, r. May
Dodecatheon, see cowslip American
Dog's bane, willow leaved, purp. and wh. &c. r. July
(Asclepias) Virginia orange off. July
Dragon's head, Virginia purple flowered, J. r. August
hyssop leaved, blue flowered, J. June
Eryngo, or sea holly, Amethystine, and Russian, J. July
maritime English, and aquatic American, ditto
Eternal flower, pearly, or white everlasting, r. June
Feverfew, two doubt. fl. and a curled leav. wh. J. r. c. June

Figwort, Spanish, elder leaved, red and gr. J. r. J. c. July
aquatic variegated leaved, ditto
Flax, perennial Siberian blue flowered, J. June
Fox-glove, pur. red, wh. and iron coloured, J. r. June
great and less yel. and Spanish purp. ditto
American, see monkey flower

Fraxinella, white and purple flowered, J. r. June
French honeysuckle, Canadian, red, wh. pur. J. June, d.
sensitive, branched, yellow, ditto
Upright American, purple, ditto

Gentian, great yellow, and purple flowering, J. July
asclepias leav. and crofs-wort, blue, J. r. May
Gentianella, fine azure blue flower, J. r. May
Geranium, (English) blue, pur. red, black, J. r. May
African, or tender sorts, see observation
Globe flower, European, and Asiatic, yel. J. r. May, m.
Globe thistle, great blue and white flowered, J. June
lefs, deep blue, and white flowered ditto
Golden Rod, common Mexican and American, J. August
tall late blowing American, J. September

Goldy locks, German, a bright yellow flower, r. c. July

Hawkweed, (or grim-the-collier) orange col./. r. July

Hedge Mustard, single and double, see rocket yellow

Hellebore, (veratrum) wh. black, and yellow, f. r. May

Helonia, two sorts, wh. and cream col./. Aug.

Hepatica, red, blue, wh. and str. sing. and doub. r. Mar.

Heart's ease, or tricolor violet, yel. pur. wh. r. April

Herb bennet (geum) see avenus

Herb Christopher, com. and long spiked, white, f. June


Hellebore, (veratrum) wh. black, and yellow, r. c. July

Hawkweed, (or grim-the-collier) orange col./. r. July

Hedge Mustard, single and double, see rocket yellow

Hellebore, (veratrum) wh. black, and yellow, f. r. May

Herb bennet (geum) see avenus

Herb Christopher, com. and long spiked, white, f. June

SECT. XIX. LISTS OF TREES, &c.

1 Milkwort, com. and bitter, blue, red, wh. &c. f. June, d.
2 Milk vetch, goat’s rue-leaved, and oriental, yel. f. July

1 Monkey flower, or American fox glove, blue, r. f. July
3 Marina, pur. wh. pale and deep red, f. off. June
2 Pluvagia, filv. tr. and gold flr. pur. r. June
4 Mullein, yellow, purple and iron coloured, r. f. June

1 Navelwort, perennial borage leaved, trailing, blue, ditto

1 Ox-eye daisy, American and Montpelier, white, r. July
2 Pea, everlasting, red, scar. pur. and large fl. f. r. June
3 Primrose, white, red, scarlet, doub. yel. &c. r. March
4 Primrose, tree, the larger, (perennial) yel. f. r. June
2 Ragged robin, or meadow pink, double red, f. r. May
4 Reed, Portugal, or Spanish, variegated leaved, off's.
3 Rhus, sweet flowering, pink, wh. and pur. r. July w.
1 Sanguinarea, Canada, (puccoon) fing. and doub. wh. r.
2 Sarracena, or side-saddle flower, pur. and yel. f. r. July

3 Plumbago, or European leadwort, blue, pur. wh. r. Oct.
1 Polyanthus, a great variety in flower, f. r. April
2 Poppy, oriental scarlet, and Welsh yellow, f. r. June
3 Primrose, white, red, scarlet, doub. yel. &c. r. March
2 Ragged robin, or meadow pink, double red, f. r. May
2 Rocket, fing. and doub. wh. pur. and red, f. c. r. June
2 —— double yellow, or double erysimum, r. June
4 Rudbeckia, jagged leaved Virginian orange, r. f. July
2 —— dwarf hairy, yellow, purple, &c. ditto
1 Rusb, sweet flowering, pink, wh. and pur. r. July w.
1 Sanguinarea, Canada, (puccoon) fing. and doub. wh. r.
2 Sarracena, or side-saddle flower, pur. and yel. f. r. July
3 Saxifrage, pyramidal, often called sedum, see next lift
2 —— spotted hairy, and strawberry, wh. ditto
1 —— ladies cushion, a low trailer, wh. off. May
1 —— golden, two sorts as to leaf, yellow, r. July
—— double flowered, granulated, see next lift

Scabious, perennial Alpine, blue flowered, f. c. r. July
2 —— oriental, silvery, and grass leaved, f. July
3 Scullcap, tall, or nettle-leaved, purple, f. June, d.
2 —— Alpine, violet, and white flowered, ditto
2 —— eastern, germander leaved yellow, ditto

Sea pink, see lavender and thrift. Sea Cale, see p. 241.

Senia, wild, or Marilandic, (cassia) r. f. July d.

Silverinkium, Virginian and Bermudian, blue, r. f. June
—— see iris, next lift

Speedwell, see veronica

Spider wort, see next lift

Starwort, dwarf alpine, purple flowered, r. c. June
1 —— dumofus, bulby white flowered, r. c. Aug.
2 —— sea, or tripolium after, blue, r. c. July
3 —— flax leaved blue flowered, r. c. Aug.
4 —— New England, violet coloured, r. c. Sept.
4 —— tradelectans, a pale blue flower, r. c. October
3 —— Catesby's pyramidal Virginian, blue, r. c. Nov.
2 —— Italian, large bright blue flower, r. c. Nov.

Stock, dwarf shrubby, or window flow. red, f. June

Stone crop, small and great, trailing, yellow, c. r. July
1 —— poplar leaved, upright, pinkish, ditto

Sunflower, many flowered, com. double, &c. r. July

Swallow-wort, common wh. black and yellow, f. r. June

Thrift, greater and smaller, red, scar. and wh. f. r. June

Throat-wort, great, double wh. blue and pur. r. June
4 —— giant, blue, white, red and striped, ditto

2 Throat.
2 Throat-wort, dwarf, small fine blue flower, f. June
2 Toad-flax, a variety yel. pur. and wh. f. c. r. July
1 — dwarf Alpine purple flowered, ditto
3 Valerian, common red and wh. mountain red, f. r. June
2 — Greek, pur. wh. and variegated, f. r. May
4 Veronica, a variety, blue, white, and blufh, r. f. June
1 — dwarf blue and wh. and Welsh blue, ditto
3 Vervain, common, and spear leaved, blue, f. r. June
4 Vetch, white wood, tufted blue, f. r. July
3 — bitter, (orobus) a variety, blue and pur./ r. May
2 — Siberian, unbranching orobus, yel. f. r. April
—— see orobus, next lift.
1 Violet, com. blue, pur. and wh. sing. and doub. r. March
1 — Austrian purple, and Cenilian blue, r. April
1 — Alpine, double red, and purple, r. March
1 — yellow, and grandiflorus yellow, &c. r. April
Wake robin, see arum
Willow herb, see loosestrife

1 Wood forre, common white and purple, f. June, m.
1 Worm Grass, Maryland, (spigelia) red flower, r. July
2 Yarrow, or milfoil, the purple flowered, Auguft
—— see maudlin and freezezwort

OBSERVATIONS ON PARTICULAR FLOWERS.

Acanthus, or bear’s breech, is admired for the ele-
gance of its leaf. It spreads wide, and should have
room allowed it, in a warm light foil, and sheltered
situation; but still rather a shady, than a sunny one.

Alyssins do best in a dry hungry Soil, but should
have a favourable situation, where they will blow
long and prettily.

Avene will grow in any cold moist shady ground.

Auricula, from the great and elegant variety of its
flower and leaf, arising perpetually from seed, is one
of the florijs chief delights, and to which he pays
much attention in the culture. It is one of the first
flowers, and ranks in nature with the primrose and
polyanthus. The sorts admitted in the present collec-
tions,
tions, are about four hundred. The *auricula*, the *carnation*, *tulip*, *hyacinth*, *ranunculus*, *anemone*, &c. are called *fancy flowers*. For the *propagation* and *culture* of the *auricula*, see the end of this section.

*Bear's ear* fanicle is very hardy, yet being low, is a proper plant to *pot*. It may be planted in any cold place, and should have a dry lean soil, but be duly watered in summer; and most things that a poor soil suits, must still have water freely in warm weather. This fanicle is about six inches high; that of *Gmelin* only four.

*Betony*, as a native of the woods, is proper to plant in shrubberies, and shady places.

*Birth-wort* is tender, and seedlings of it must be sheltered by a frame in winter.

*Bryony* is a climber, and is proper to grow in plantations to run up trees, &c.

*Campanula* pyramidal, may be propagated (as well as from seeds and slips) by pieces of its *root*, planted about an inch and half in the ground, in a shady, but not moist border. The finest plants are produced from *seed*; but will be three or four years before they blow. Sow a few every year in *April*, in a light fresh soil, where the morning sun only comes. As much wet in the cold seasons is apt to rot this root, it will be proper to guard against it, by some occasional covering, when there is a continuance of rain; or snow. A few *potted* may be removed under shelter. A *mat* set high over is a proper covering for a bed of them. In the *summer* they must never want water, especially when spindling, or in blow. There is a white sort.

*Cardinal flower* must have a dry soil, and a warm situation; occasionally also a little protection. They are commonly potted, and some should at least be so, left those in the open ground be cut off; This flower is very ornamental, but the scarlet most so.

*Christmas rose* is very hardy, but a dry warm situation may be allotted it; and when in flower, a little protection
protection to preserve the flowers in beauty, as a hand-
glass may be adviseable. A plant or two potted (large
pots as it spreads) is agreeable enough, at such a season,
to house when in blow.

Columbine comes in great variety, and the seed should
be well chosen, which, when sown in spring, is rather
apt to miss. Autumn is therefore preferable; and
these plants will from this sowing be much stronger.
The plants should not stand above two years after
flowering, as afterwards they get unprofitably, and plain.

Cowslip American is commonly potted, as indeed
some plants should be, as it thus appears to advantage;
but it is hardy, and grows best in borders that are some-
what shady, not having the afternoon sun.

Dragon's head should have a moist shady situation.

Figwort, the plants are somewhat tender, and may
be only expected to stand through ordinary winters,
in a warm soil and situation. Let some be potted, for
housing, lest those abroad be cut off.

Fox-gloves do best in a somewhat strong soil, and
shady situation, and will be found a useful flower in
shrubberies, &c. in all its varieties.

Geranium, (or crane's bill, so called from the shape
of the seed vessel) the exotic sorts are tender, Africa
being their native climate. As favourite flowers, the
different sorts are cultivated by all descriptions of peo-
ple, as opportunity affords to preserve them in winter.
They are properly green-house plants. The principal
kinds are as follow, classified according to their ordinary
height of growth:

1. Flaming, or Vervain mallow leaved, scarlet.—
Three coloured; i.e. red, black, and white.—Ladies
mantle leaved, whitish and bluish.—Sweet-scented mal-
low-leaved, white.—Gooseberry-leaved, reddish.—Car-
raway leaved, or variable geranium, red, crimson, pur-
ple, white, &c.—Vine leaved, red and white.—Night-
smelling, yellowish with dark spots, three sorts.—Pin-
nated, or proliferous, of different colours.
2. Spear-leaved, white.—Fleshy stalked, or celan- 
dine leaved, white.—Square stalked, flesh coloured. 
3. Birch-leaved, reddish.—Sorrel leaved, bluish, plain 
and striped flowered, and variegated leaved.—Three 
gouty stalked, or columbine leaved, purple — Rose-
scented, a purplish blue.—Glutinous vine leaved, red-
dish purple and white.—Horserhoe, green leaved, va-
riegated, silver edged, silver striped, gold striped, pink, 
two scarlets and a purple, and one large scarlet or 
grandiflorum. 
4. Vine-leaved, balm-scented, blue.—Shining, and 
mallow leaved, scarlet and deep scarlet.—Butterfly, or 
variegated flowered, with a pointed mallow leaf.— 
Marsh-mallow, or hood-leaved, purplish ; and a variety 
of this with angular leaves.—Rasp leaved, flesh colour, 
spotted red.—Two coloured, purple and white. See 
the end of this section. 

*Gentianella* likes a cool loamy foil, and eastern situa-
tion, and should not be often removed, or planted in too 
small pieces when it is. 

*Globe flower*, or *globe ranunculus*, is very ornamental. 
The *European* is sometimes called locker gowans. They 
both do well in a cool foil, and north border; though 
the name *Asiatic* seems to direct to a dry foil, and 
warm situation. The case is, they are natives of 
moist, shady places; and whenever this is the case, we 
may conclude such plants are organized accordingly, 
and that they must be accommodated by us agreeable 
to their nature. The *constitution* of plants is necessary 
to be known, in order to their proper culture; and a 
gardener cannot direct his attention more to his credit, 
than to make *observations* and *experiments* to discover it. 

*Golden rod* will grow in shade, and particularly the 
evergreen fort; but being late blowers, this circum-
stance directs to a snug sheltered situation. 

*Hellecbores*, the white flowered, is the common offici-
nal plant. A light foil and dry situation, not subject 
to *snails*, suits it best.

Helonias
Helonias is a very elegant and ornamental plant worthy of the most conspicuous part of the pleasure garden. It requires only the ordinary culture of perennials. Seeds are imported from America, as the climate does not ripen them here.

Hepatica is found to transplant best when in flower; but it should never be in small portions, lest it wither away; they never look well in small patches, as is the case with all dwarf blowers. Situation and soil the same as gentianella.

Ladies’ smock, and ladies’ flipper, do best in a moist soil and shade, as in a north border, where not many other things do well.

Lily of the valley should have a cool situation, and if not in a moist soil, give it at least an east border, or where it has only a little morning sun.

Lion’s foot is somewhat tender, and to do well must have a favourable place in the garden, as to sun and shelter; it does best in a light, or sandy soil. Let some be potted, it is pretty, and blows all summer.

London pride (a faxifrage) used to be planted much as an edging; but it does not answer this purpose well. A few plants here and there in patches is best; by no means allow it a good border: It prefers a moist soil and cold situation.

Loosestrife, the common, is found wild; but it is a showy plant, and where a variety is wanted is very admirable. It grows in shady moist places, and should be planted accordingly, in the borders of a shrubbery, &c. The smallest fort is a trailer.

Lupine will be best raised from seed, without transplanting, as the roots strike down deep: If they are transplanted, let it therefore be quite young.

Lungworts prefer a shady situation; but the Virginian (an elegant little plant) rather one that is dry and sheltered.

Lychnis, the double scarlet is a beautiful flower, but not apt to encrease much at root; recourse is therefore
to be had to cuttings, which also are not certain in striking root. In June, or July, take cuttings from the side shoots, (without flower) and let the pieces planted have three, or at the most four eyes. Put them into a good soil, fine and rich, but not duny, as deep as half way between the second and third joint, in an east border: and keep them cool, but not wet.

A hand-glass will greatly assist in this business, as in all other like cases. See pink at the end of this section.

The Chinese lychnis is rather too tender for open culture; but in a choice situation may abide moderate winters. It makes a good potted plant among myrtles and geraniums.

Lychnidea, take the cuttings off close to the ground, and discharge the tops; and plant them in pots, or borders, in a place not of much fun.

Maister-wort (a medicinal plant) is of no great ornament; but is commonly cultivated for borders of shrubberies, &c. as being of low growth, and hardy nature. There is an alpine sort about a foot high.

Marsh marigold is a plant (as its name imports) that will flourish in a wet soil; but yet it does not do much amiss in a dry one. In default of a moist soil, any plant that requires one, should at least be accommodated with a shady situation, and never want water in summer.

Milk vetch is somewhat tender, particularly the seedlings, which should be protected by a garden frame in winter. Foxtail sort, see biennials.

Monkey flower is very ornamental, and of easy culture, not difficult in situation.

Monk's hood is a poisonous plant in every part, but very ornamental, and commonly cultivated. Shade suits it, and it will even grow under trees, or in any damp place, where few other things will.

Morina is worthy of a conspicuous place in the garden. It has a strong tap-root, and should be transplanted whilst young, that it may not be damaged; but
but growing in the place where it is to grow (as directed for the lupine) is the best way.

Mulleins prefer a light soil, but like a north border; and the borage leaved being very low, is proper for an edging in a cool shady situation.

Orpine, this, as all succulent plants, should have a dry soil and situation, and not often watered.

Passion flower should be planted against a warm wall, where it may have room to spread, as it is a very free floower. The sorts are numerous, (for green-house and steeve) but only this well suits open culture. In fine situations, and the southern parts of England, there are two more, however, that may do abroad. Prune it about Michaelmas, leaving the shoots from two to four feet long, as the strength of the plants, or room, dictates, and a foot asunder. Before the frosts come, cover the roots, a yard round, with dry litter; and renew it with dry, when afterwards it gets much and long wet. The branches also should be covered with a mat (a thin one, and not over close) before severe frost sets in; but uncover as soon in spring as may be, or, in short, in mild weather, on days through the winter, if not too much trouble. This flower has been sometimes trained to a stake, in which case, shorter pruning must take place to keep it down. It bears upon the young shoots, which should be regularly trained in. The flowers are the glory only of a day, but generally a great number are produced in succession. It takes readily from cuttings, of about seven or eight inches long, cut in March or April, and planted in a good soil, kept cool by water, and shaded from much sun.

Pink, the sorts are numerous, for seed is constantly producing new varieties, occasionally one among many that vies with its famed predecessors in beauty, and whose superior excellence is not neglected by the florist. He gives it a name as fancy directs, and it is enrolled in the nurseryman's catalogue of worthies. The pink (as the carnation was) might be considered biennially, the good sorts being regularly layered, &c. every year
for increase: They do, however, stand on for older plants, better than carnations. For propagation, &c. see the end of this section. There is a pink called the ever-blooming.

_Polyanthus_ produces an infinity of sorts from seed, and the _floribund_ pursues his object of obtaining _prize_ flowers of this kind. The _polyanthus_ delights in a loamy soil, and shady situation. It is an excellent edging flower for shrubbery; though fine blows are not to be expected under trees, or in much wet. An _east_ border is the place for producing the _best_ flowers. For raising them, &c. see the end of this section.

_Plumbago_, though it be a native of _Italy_, is hardy enough to abide our ordinary winters in the open ground. Afford it a dry, sunny, sheltered situation, which will be a means of preserving it, and also tend to forward the blow, as it is so late: All plants that produce their flowers towards the end of autumn, (however hardy) should have a favourable aspect, as to sun, lest winter overtake them before they can gratify us with their show.

_Poppy_, allow the _eastern_ sort a light-dry soil.

_Reed_, Portugal, is curious for its lofty and ample growth, but rarely flowers with us. It attains to ten or twelve feet high, and its _flems_ are strong enough for walking-_flips_. The _variegated_ sorts come only to half the size, and more frequently flowers.

_Rhubarb_, the common serves for _shoe_, and the ribs of the leaves for _tarts_; but the _Chinese_ principally, and then the _Tartarian_ for medical uses of the root: The _Chinese_ is deemed the true officinal rhubarb.

_Rocket_, (sometimes called _dame's violet_, and _queen's gilliflower_) the single is raised from seed, and the double from rooted _flips_ and _cuttings_. The double is rather uncertain in continuance, and requires some attention. Cut the _flems_ down as soon as off their principal show of flowering, which is a means to help them to get strong and encrease at root; and it is from _offsets_ formed
formed in the present year, that they flower in the next. If weak, or small roots are planted, they should not be suffered to blow the first year. To *propagate* by cuttings, do it when the stems are about eight or nine inches long, (i.e. before flowering) making each into two; and plant them a little more than half way deep, in an *east* border, in good fresh unduged soil. Keep them cool by occasional watering, and if the cuttings attempt to flower, be sure to nip the buds off. Cuttings of stems that have flowered, will sometimes grow, but they make weak plants: A *hand-glafs* would be of service over them. See *pink* at the end of this section.

*Rudbeckia*, or *American sun-flower*, is a little tender, and must be accommodated accordingly. Like the *rocket*, it is rather (some sorts at least) unapt to form *offsets*; and therefore to encourage the putting them forth, (without which the plant dies) the stems may be cut down to prevent flowering: That is, when plants are more desired than flowers.

*Rush* will be proper only for places that are constantly wet, by standing water; and in such a situation they will prove ornamental.

*Sarracena* is a native of the bogs of *North America*. It requires therefore a moist situation; but is found to need protection from our sharp frosts. The whole plant is of curious formation. It is not apt to ripen its seeds here, or to make *offsets*, so that both are frequently imported.

*Saxifrage* plants, are usually potted to move into the house when in flower, as indeed the *pyramidal* in particular should be; but they are all very hardy, except the *strawberry* sort, (not very handsome) which is too tender to endure much wet and cold.

*Senna*, of Maryland, must have a dry soil and warm situation. It is annual in flalk, and therefore the roots may be well protected in winter; This flower makes a very handsome show.

Q 6 Solomon's
Solomon's seal is in greater variety, and there is one with double flowers. They all suit well in shady and moist places.

Starworts are in general of that hardy nature, that they will flower almost any where, and increase apace from the least slip. They are apt, however, to lose their lower leaves, in proportion to the shade, cold, and wet, they grow in; and the Alpine sort will require an open situation, though, like the others, a stiff moist soil suits it. There are other sorts. The three last, as blowing late, and not rampant, may be planted near the house.

Stock, this plant is rather of a biennial nature, but generally of longer duration. It is proper to pot and place in a window, on account of its size, rising only a few inches. It is sweet and floriferous, and altogether very proper for an edging.

Sisyrinchium, allow it an east border, but dry soil; and as it is a small flower, pot home.

Throatwort, the two first sorts are classed with campanulas. The latter, which is the proper, or mountain blue throatwort, likes the shade, but must have a light dry soil. This, as the snap-dragon, and some others, will grow in the cracks of walls, &c. and continue longer in such a situation, than a better: In most soils it proves often biennial.

Whitlow graft is a wild (medicinal) herb, that grows on roofs and walls of old houses, and rubbish heaps; but makes a pretty dwarf spring flower as an edging, &c. in a poor soil.

Worm graft is a very neat little plant, with a flower bright red without, and a deep orange within.
XII.

List of bulbous, tuberous, and fleshy-rooted perennials.

1 Aconite, or winter wolf’s bane, yellow flower, Feb.
2 Albuca, or bastard star of Bethlehem, (least) yel. June
3 —— greater, or spear leaved, red flowered, June
4 —— tallest, with spined clusters of wh. flow. June
2 Anemone, doub. broad and narrow leav. variety, May
2 —— com. wood, doub. wh. pur. blue, red, March
2 Appenine wood, doub. blue, pur. wh. April
2 —— yellow wood, or ranunculus anemone, April
2 —— pulsatilla, see pasque flow.
3 Asphodel, or king’s spear, yellow and white, f. r. June
2 —— hollow leaved, and dwarf, white, f. r. June
1 Bulbocodium, or mountain saffron, purple, April
2 —— variegated flow. and a striped leaved, Sept.
1 —— mountain, (Spanish) red and strip. red, Aug.
1 —— eastern, varieg. leaf, chequered flow. Aug.
4 Comfrey, oriental, blue (April) and German, yel. June
4 Cornflag, or sword-lily, crimf. red, pur. and wh. June
1 Crocus, spring, yellows, a variety, plain and strip. March
1 —— ditto, blues, purples, white, pl. and strip. March
1 —— autumnal, or saffron, pur. blue, wh. yel. Oct.
3 Crowfoot, Alpine plantain leaved, white, April
2 —— see crowfoot, last lift
3 —— Pyrenean grst leaved, yellow, May
4 Crown imperial, fing. and doub. reds and yellows, May
4 —— double crowned, triple crowned, May
4 —— gold, and silver striped leaved, May
1 Cyclamen, European, spring and autumn, pur. wh. April
3 Daffodil, a variety of yellows, fing. and doub. April
3 —— double yellow, with cup in cup, April
3 —— yel. with wh. cup, and wh. with yel. cup, April
4 tradescants large double yellow, April
2 —— dwarf, or short-stalked yellow, March

Daffodil;
LISTS OF TREKS; &c. SECT. XIX.

1. Daffodil, hoопpeticoat, or rush-leaved yellow, April
2. —— odorous, or sweet-scented starry, yel. April
3. —— white, see narcissus
4. —— sea, see paniculatum

1. Dog's-tooth violet, purples, red and white, April
2. narrow leaved, colours ditto, April
3. Dog's-bane, (tuberous aclepias) orange coloured, July
4. Dropwort, doubt, flow, and varieg. leaved, white, June

1. Fritillary, common, and Pyrenean, a variety, April
2. —— formaton, folid, and hollow rooted, red, pur. wh. April
3. —— gladfus, see Cornflag.
4. Herb-true-love, nodding, and sessile flowered, pur. April
1. Hyacinth, a great variety, white, red, blue, &c. May
2. —— tufted, (or fair-haired) bl. pur. and wh. April
3. —— Spanish nodding flowered, red, April
4. —— musk scented, purple and yellow, April
5. —— monstrous flowered, or feathered, blue, April
6. —— grape sorts, blue, white and grey, April
7. —— lily, (yellow rooted) a blue star flow. June
8. —— Peruvian starry, blue and white, May
9. —— Italian and Byzantine starry, blue, April
10. —— English starry, (autumn squill) blue, Sept.
11. —— bell flowered starry, white with pur. May
12. —— Indian tuberous, see tuberose

1. Jonquil, single, semi and double yellow, April
2. Iris, or flag, or variety, pur. blue, yel. wh. &c. June
3. —— striped leaved flinking gladwin, purple, July
4. —— Siberian narrow leaved, blue with white, July
5. —— dwarf Austrian, purp. blue, red and white, May
6. —— vernal, or dwarf Virginian, blue, May
7. —— snake's head, or tuberous iris, purple, May
8. —— Xiphium, or Spanish bulbous, a variety, June
9. —— Persian bulbous, finely variegated, March
10. —— bulbous Sifyrinchium, blue and yellow, June
11. Ixia, large flowered, or crocus leaved, variety, June
12. —— Chinefe sword leaved, yellow with red, July
13. Lily, com. sing. and doub. wh. orange and fiery, June
14. —— striped flowered, purple and white, June
15. —— striped leaved, of white and orange sorts, June
16. —— dwarf stalked, orange, or red flowered, June

Lily,
4 Lily; Constantinople, dependent flowered, June
4 —— prolificous, or many flowered ditto, June
4 —— com. martagon, or Turk’s cap, purple, June
4 —— ditto, wh. red, imperial and double, June, July
4 —— pompony martagons, several colours, June
4 —— Chalcedonian martagons, scarlet and purp. July
4 —— superb pyramidal martagon, variegated, July
4 —— Canadian martagon, plain, and spotted yel. Aug.
4 —— day, or lily asphodel, yel. and tawny red, June
1 —— daffodil, or autumnal narcissus, yellow, September
1 —— atamasco amaryllis, carnation coloured, July
3 —— Guernsey scarlet and belladonna purple, Sept.
3 —— pancratium common, and lillyrian, wh. Aug., July

Martagons, see lily above.
Meadow jaffon, see colchicum
2 Mol., (flowering garlick) yel. wh. purp. and red, June
4 —— magicum, victorialis, and descendens, pur. July
3 Narcissus, poet’s daffodil, variety in cup, wh. May
3 —— peerles, or two coloured, wh. and yel. April
3 —— polyanthus, or multiflorus, ditto
2 —— late flowering, yellow cup, white, August
2 —— hoop petticoat, &c. see daffodil
2 Orchis, perennial, purples, reds and white, June, d.
2 —— biennial bee, or gnat orchis, red, June, d.
Ornithogalum, see star of Bethlehem
1 Orobus, tuberous, or wood pea, red flower, May
1 —— fibrous rooted, see last lift
4 Paeony, com. sing. doub. reds, pur. black, white, May
4 —— Constantinople, large flower, blood red, June
4 —— Portugal sweet-scented, deep red, May
3 —— small narrow leaved, red flowered, May
3 —— dwarf, with a white flower, May
2 Pasqueflower, or Pulsatilla, bl. red and wh. April
2 —— Siberian, or alpine yellow, April
Pilewort, see ranunculus ficaria
2 Ranunculus, planted leaved Alpine, white, April
2 —— grasf leaved Pyrenean, straw col. May
3 —— grandiflorous, or oriental great yel. May
1 —— ficaria, or pilewort, double yellow, April
2 —— Turkey, or turban, red, scar. yel. black, May
1 —— Persian, a great variety, fine colours, May

Ranunculus,
Ranunculus, see crowfoot, last lift
2 Saxifrage, granulous rooted, double white, May
1 Snow-drop, single, semi-double, and double, white, Feb.
3 ———— great, spring, summer and autumn sorts
4 Spider-wort, favoy, (Bruno’s lily) and others, wh. June, m.
4 ———— Virginia, (tradescant) blue, pur. &c. ditto
4 Squill, or common sea-onion, white flower, June, d.
4 Star of Bethlehem, pyramidal Portugal, white, June
1 ———— Arabian, or Alexandrian lily, ditto
1 ———— common wild, greenish white, May
1 ———— ditto, with yellow flower, April
3 Tooth-wort, bulbiferous, seven lobed, purple, June
4 Tuberoze, single and double flowered, white, July
4 Tulip, double, a variety, yel. and red striped, &c. June
4 ——— parrot, or hooked-leaved, ditto, June
4 ——— Turkey sorts, striped, great variety, May
2 ——— ditto, early dwarfs, a variety, April
2 ——— wild European, small yellow flower, April

** The propagation of flowers in this lift, is generally by offsets, or pieces of roots, having an eye, or bud, to it. Most of them may be raised also from seed; but this is a tedious method, and not ordinarily practised, except by curious florists. See page 284.

Some of this lift, as most of the bulbous and tuberous roots, may be kept out of ground a long time, others a shorter; (see page 286) but those denominated felt by roots, must either be planted immediately, or at least in a few days. It is common to them all to be taken out of ground for removal, as soon as their leaves decay, the roots then being in a state of rest, which is naturally longer, or shorter, in different plants; and if they stay in the ground till new fibres are shot, they are always removed with damage, if not death.

Observations on Particular Flowers.

Albuca is too tender a bulb to endure much wet and frost, and therefore is usually planted in pots, for putting under shelter (as in a frame, &c.) in winter; but may be protected in the open ground, by covering with a glass, or garden-pot, towards the end of autumn, to keep
keep the roots dry; and before sharp frosts come, covering round with litter. By such a practice, several forts of tender things that die down to the ground, may be preserved abroad.

Anemone, the garden (in contradistinction to the wood) we have, in great variety of very fine sorts, divided generally into two kinds; i.e. narrow and broad leaved; the latter is the hardier. The full doubles only are esteemed choice flowers; but the semi-doubles, and singles, are showy enough for ordinary borders. The single, or poppy anemones, (so called from their form) frequently blow as early as February, or sooner; and thus become valuable, for decorating the ground at so dreary a season. The wood kinds bear large flowers; and are very useful ornaments for the borders of shrubberies, &c. at an early season, for which reason, they should be planted in the most frequented shady places.

Colchicum, or meadow saffron, flowers about Michaelmas, and may be kept out of ground from May (or decay of the leaf) to Mid-August. It is a remarkable property of this flower, (not however peculiar to it alone) that it makes its appearance before the leaves, which grow all winter and spring. The colchicums are pretty plants for the end of the flowery season, (October) which makes them estimable objects near the house, where they may be often seen. The flower sometimes called spring colchicum, is the bulbocodium, which see.

Cyclamen, the sorts flowering in winter (Persian) are too tender for open culture; but close under a warm wall, with occasional protection of a hand-glafs, they have succeeded. A culture of this nature is rather to be attempted, as housing (except in places where they have much air) does not suit them; the roots often moulding and rotting when kept close. The colours of the Persian sorts are red, purple and white. Let them have a light, and deeply dug dry soil, not too much
much water, and none at all after the leaves begin to decay; for the roots then ceasing to act, would suffer by absorbing much wet, the leaves not performing their office of drawing it up, and discharging it. This observation applies to all bulbs and tubers, (in a degree) though few are so liable to rot as these.

Fritillary is of several colours, plain, chequered and spotted, white, purple, black, red, and yellow. The kinds are broad and narrow leaved; and there is a large double sort, a tall Persian, (three feet high) and a dwarf Persian, about half size, both having deep purple flowers.

Jonquil, or rush-leaved daffodil, has been always justly admired for a very neat sweet flower; but we do not so often meet with it, as might be expected. The single kinds are the most fragrant, and the large double is scentless. It is proper always to pot some, in order to bring them into the house when in flower, for their agreeable perfume.

Iris, the four first sorts rather prefer a shady moist situation; but will grow any where, and are commonly planted in odd spare corners of ground.

Ixias are, for the most part, green-house and flower plants; but these two sorts are found hardy enough to do ordinarily in open borders, in a light dry soil, and warm situation, a little protection being afforded them in severe weather.

Lily is a very ornamental and hardy flower in all its varieties, increasing abundantly, and needing only to be removed every three or four years, for the purpose of taking away the offsets, and renewing the soil, for a superior blow. The whites will not keep out of ground above one month, but the orange for several. The white will flower tolerably in shade, but the orange much better; and as it is a gay flower, it serves well to enliven plantations. The martagons are generally not nice as to soil and situation; but the scarlet and yellow sorts, and striped lily, should have a light dry soil,
foil, and fun. The single white lilies are very sweet; but the doubles are inodorous, as is the case with some other flowers, the fragrance arising from the stamina and antheræ, which are often smothered by numerous petals. The Amaryllis, Guernsey, belladonna, and pancratium lilies, are tender, and should have a warm, or a good auricula foil, a full funny border, and well sheltered situation; protect also from much wet in cold seasons, and afford security from frost. These are very elegant and noble flowers, and the Guernsey lily is equal to, if not beyond, any plant in the flowery creation: This is, however, the tenderest of the four: then the belladonna, and pancratium lily, or sea daffodil; the atamasco is the hardiest. All of them are usually potted for removing into shelter; but they may be managed (see albuca) so as to do abroad, except in the more northern and bleak parts of this island: They blow much the finer in open ground, (all things going on well) the roots having a free scope to draw nourishment, &c.

Orchis is rather difficult of culture: It likes a dry barren foil, and the roots should be taken up (from the places it grows wild) just as the leaves decay after flowering; and with a ball of earth about them, as then the chance of succeeding is much greater. Upon removal, let them be planted directly, and remain in their places for years.

Paony, the single kinds are showy, but the doubles are nobly ornamental. Let this flower have room, as it will spread (when in full sized bunches) a yard round; and let it be planted out of the way of the full sun, and of much wind, that the flowers may continue. It need not be removed for many years, and will grow in any foil and situation, even among trees, which adapts it for shrubberies, &c. The sorts are divided into male and female; and the former, having lost its flower, produces pods, containing rich crimson grains, interspersed with black berries, that look very pretty when burst; and may be gathered as soon, or rather just
just before they open, brought into the house, and put in vials, &c. as curiosities. Let this root be removed early in September, or at least before the month is out, before new fibres are formed to the knobs of the roots.

Pilewort, (the double, prefers a shady moist situation; and is a pretty wild plant, though an humble trailer. It is called sometimes the lesser celandine, and also figwort erroneously.

Ranunculus, in all its sorts, is very ornamental; but the Persian kinds are beautiful, and of infinite variety. This flower is surely left too much to the culture of professed florists; for why should not every garden be adorned with it, seeing, that a little care, and not much skill is necessary in the management: it is hardy and increases freely. See pages 285, 288.

Saxifrage roots of the double sorts are like so many small peas, and should be planted five or six together, in order to form a full tuft of its flowers, which are full and white like a flock. The stems, being slender, will need the support of a light stick, which it is best to fix in the middle at the time of planting, as putting one in afterwards might injure the roots. All solid rooted plants are liable to be hurt by pushing in a stick too near for tying to; more care should be taken in the business than usually is: The practice of placing a stick at the time of planting is best, because it may then be fixed close: and it serves to show where the roots are, that they may not be disturbed before they appear above ground. This saxifrage is usually and properly potted, though it does very well in borders, and makes a good appearance.

Spider-wort thrives best in shade and moisture.

Star of Bethlehem, the two last sorts, are proper for the edges of borders in plantations; and the pyramidal sort is a proper flower to pot, mixing with others very ornamenteally: The two first should have a light dry soil, and are somewhat tender.

Squill
Squill will need a little protection from hard frosts; but is sufficiently ornamental to reward the trouble.

Tooth-wort thrives best in shade and moisture.

Tuberose, there is a dwarf stalked, and a variegated leaf sort of, but they are not so worthy of cultivation as the common single and double; of which two the single is preferable, as it blows better, and is more fragrant. See the end of this section.

Tulip (the Turkey) is classed into two sorts; the taller, called sertotines, or late blowers; and the shorter, précoces, or early blowers; some have made another distinction, medias, but it is not necessary. The plain tulips (as they generally are when they first blow from seed) are called whole blowers, or breeders; and according as they break into other colours, stripes, and variegations, (after transplantations) are denominated and classed into baguettes, bybloemens, verports, and bizarres. The dwarf sorts blow early, as March and April, (the duke van tol earlier) allow them therefore a warm border and dry soil, to preserve them from frost and wet, which they are rather impatient of. These are often potted and forced on a hot-bed, &c. or brought forward by water-glasses, in a warm room; but an increase of offsets, is only to be expected from open ground culture, and even there these early sorts do it sparingly. Take them up every year to remove the offsets, and renew the soil; and keep each sort separate, and plant them so, for then they will blow together, and be all of one height. There are about fifty of the early sorts; but the number of choice fancy tulips is more than eight hundred.

* * * * * * *

The following articles are detached as most conveniently inserted here:

Auricula is increased by parting the roots, or flipping rooted offsets from them; but offsets without roots
roots will sometimes strike, if well managed, by setting them in a good soil, (in pots best) where they have but little sun, and keeping them cool by occasional watering. When the roots are divided, (in August,) let it be with a sharp knife; and cutting off any cankered part, shorten also their ends, and let not the top part of the root be too long.

The soil for auriculas should be a good fresh light loamy maiden one, to which is added one third of wood pile, or willow earth, one of sea, or any sharp, or drift sand; and a quantity, equal to the whole, of rotted cow dung, or in lieu of this, horse dung. This mixture should be well incorporated, at least a year before, by frequent turning over, which ought to be repeated once a month without fail.

In winter some protection is necessary; but auriculas are not very impatient of frost, which rarely hurts them if dry. Do not follow the custom of some persons, who lay the pots on their sides in winter to keep them dry, and to cover with straw, &c. For a short time about Christmas it may be allowed; but soon after, as they begin to stir in the shoot, it gives the bud a twist, if they remain long in this posture. The best way to guard from snow, wet, and severe frost, is either by frames, or plunging under a south wall. Place a bit of tile at the bottom to keep out worms; and if the soil is moist, lay some drift sand, or fine ashes round their sides, and over the tops.

Dress the pots towards the end of January, for then the plants begin to push for flower, and must be attended to, and asfifted. Strip off dead leaves. Take as much of the top mould off as can be, without disturbing, or bruising the roots; and fill up with the compost, a little pressed down. If the pots are dry from the shelter afforded them, give a little soft water in mild weather, about ten in the morning, and fail not to water duly, as the plants push forward.

Auriculas
Auriculas in blow should be protected from rain, wind, and sun, and their stems supported by little neat slender formed sticks, or strait ones, and tied with thread; and when out of blow, should be set out of the sun, but not under trees.

Shift or transplant auriculas every second year, and that as soon as they are out of blow; those, however, that produce many offsets, or are luxuriant growers, may be shifted every year. The more common practice is to move all in August.

To raise auriculas from the seed, in February, fill boxes, or pots, with fine sifted middling compost; smooth the top perfectly level; scatter the seeds evenly, and cover not more than the thickness of a shilling. Set the pots, &c. on tiles, or boards, under a warm wall, and keep the surface moist. It is a good way to mix the seed with a like quantity (or a little more) of fine wood ashes; and to lay some small pieces of furze, or light thorns over. Remove them (as weather dictates) to shelter, or protect them from cutting wind, much frost, or heavy rain, &c. and by May expect them to appear, when take the furze off, and cover with a net; let them have only the morning sun, keep them moist, and when they have got six leaves, prick them out three inches asunder, in boxes, or pots; and early in the next spring, plant them at six inches asunder, and protect from wet and frost.

Carnation is usually propagated by layers, (sometimes by pipings or cuttings, as pinks) about Midsummer, or as soon after in the season as they will admit of it, by their length and strength, and the work is thus: Strip off the leaves from the lower part of the shoot; at the middle of it, close below the joint, cut it half through by an upward direction, with a thin, narrow, sharp knife, and continue the slit exactly up the middle from half to three fourths of an inch; peg the shoot down into the earth (being before well loosened) as low as it will bear bending, setting the layer upright. This
This business must be done with a careful hand, lest the layer should snap off. Now, or rather before, cut off the ends of the longest of the top leaves, that the worms may not draw them in, and disturb the layer. The soil (fine and good) may be raised about the layers as occasion requires. Water them to set the earth close, and always keep it cool. In six weeks, or two months, they will be rooted, fit for transplantation; cut them from the old plant (at the peg) with a sharp knife, and take them up carefully, that their very tender roots may not be broken off, keeping a little mould about them, if possible; but plant them not deep, as they are then liable to decay.

The soil proper for carnations, is a hazelly, or sandy loam, procured from a pasture, by a spit of about eight inches depth, the turf being well broke, frequently turned, and laid so long together, as to be nearly consumed; then add a little lime, (or not) and one third, or one fourth, of very rotten dung, (cows best) and let this be well mixed, till thoroughly incorporated, which will be some months first; then screen it, or sift through a coarse sieve. The soil for carnations must be rich; but yet dung is found so injurious to carnations, that some florists depend upon a good fresh soil alone; carnations are also (except in summer) impatient of much wet. See to them in the winter and give pots of them protection from great snows and frost, by frames, or mats on hoops, set rather high. Turf ashes, or those of any vegetable, may be mixed with a fresh maiden soil, but not too freely for a compost: A small quantity of fine foot, or wood ashes, may be also used. Dress pots of carnations in March, as directed for the auricula. Take care not to plant too small pots.

To raise carnations from seed, sow thin in boxes, or pots, (in a foil as above) early in April, and let them have only the morning sun. When advanced a little in growth, (as about Midsummer) take the first opportunity of moist weather, and prick them out at three
three or four inches asunder, into open ground, and give a little water. If dry weather, contrive to shade them about ten days, or a fortnight, with mats hooped over, which remove in shady, or showery weather. When they have grown here a month, or six weeks, (or before August is out) plant them in a bed, where they are to blow, at nine or ten inches distance, and shade, if necessary. See January. Seed is best saved from good seedling plants, rather than those long propagated from layers, &c. Guard against mice in winter.

Geranium, African. (Pelargonium) is propagated by seeds and cuttings. The former produces the most free growing plants; but as luxuriance is not desirable in things confined to pots, (as geraniums must be) and as the propagation by cuttings is so easy and expeditious, it is the mode of culture that generally prevails. The young plants from cuttings are also harder than those from seed. If raised from seed, sow in April, in a light and good soil, warm border, and under a hand-glass, keeping the earth somewhat moist; but it is best to make use of a gentle hot-bed, giving plenty of air to the plants, when they appear, which on natural ground will be five or six weeks in coming up, and on a moderate heat about three. If raised from cuttings, use shoots of the last year’s growth, straight and short jointed. Plant them in a fine rich soil, two or three inches, or at the most four deep, and eight or nine inches asunder, or less, if more convenient. Or the rule may be, to plant the shorter cuttings in two thirds of their length, and the longer one half; but it is an error to put them in the ground so deep as some people do. Those raised on a little heat will be sufficiently rooted in two months to transplant into small pots; (shortening the longer roots a little) and those in the cold ground will be ready in three months, and sometimes less. A hand-glass set over geranium cuttings (or any other) will greatly facilitate the business, as is directed for pinks. If the cuttings are raw, or long, take the upper part off down R to
to an eye. If a hand-glass is not used, lay some moss round the cuttings to keep the ground cool. In general it may be proper to keep the cuttings out of ground a day, or two; but the soft and succulent ones should by all means, in order to dry the ends, and so heal the wound, which, if put directly in the ground, might decay and rot.

The proper season for planting is from Mid-May to Mid-July: a little earlier, or later, may however do: Some choose to forward them on heat, in March and April; but they must not be kept close. It is advisable to take cuttings from towards the top of plants, in order to keep them down; but where they can be best spared (as to the form of the plant) is the general rule. Pot them in August or September, according to the time the cuttings were put in: The former time is much the best, and June cuttings will be rooted.

The management of geraniums is, to keep them from frost, and as much as may be from harsh winds, particularly in the spring; as after being housed all winter, they are then tender, and far less able to bear unkind weather, than in autumn; when having been used to the external air, and the colder weather coming on by degrees, they are seldom hurt much, but by absolute frost. In the spring, they must be brought to bear air by degrees, and the more carefully, according as the winter has occasioned them to be more or less deprived of the external air being let in upon them. When the weather is mild in April, let them be taken out in the day, (if convenient) and put in on nights; and venture them not wholly abroad till Mid-May, or after. In the summer, they should be placed in shelter and shade; but not under trees, or any roof: The morning sun is all they should have, for more of it dries the mould in the pots too fast, and fades the flowers. They will want frequent watering, see page 277. They may take up their summer residence about Mid-May, (as directed) but the season must
must govern; and it will not do to bring them out in a harsh one, which would pinch up the leaves, and deprive them of their beauty. If put cloae under a south wall for a week or two at first, it would be proper; or an awning of mats might be used for nights.

Shifting geraniums should generally take place once a year, from smaller pots into others one size bigger: This may be in the first mild weather in April, or May. Loosen, and take off the top mould down to the roots, (without damaging them) then turn the pot up, and gently shake it out. If the roots adhere to the sides of the pot, give the edge a tap upon the knee, or something else, and a little pressure at the hole, with the thumb, or finger, at the same time, which will help to discharge it. Pare off the matted roots round the sides and bottom, with a sharp knife; and plant it in a fresh pot, (or the same again may sometimes do) putting in as much fine light rich mould, or compost, at the bottom, as will raise the ball of earth, which is about the roots, within an inch of the top of the pot; then fill round the sides, putting the mould by little and little in, and pressing it down gently, make all level to the top within half an inch; finally, give a watering that shall soak to the bottom, and sprinkle some dry mould over. All shifted plants should be kept rather in the shade for a week or two till ready to strike root.

If any flicks are to the plants, they must be taken away first, and replaced (if necessary) again before watering, or rather the next day, if the plants will stand up without. This may be a proper time to trim off all dangling, or too crowding shoots; but if cuttings are wanted for increase, they should not be trimmed till these are to be planted. At any rate, dead leaves, or unsightly crooked parts, should be discharged, and symmetry, in a snug round head, provided for. Geraniums are free growers, and it is always advisable to take off some shoots to keep them down and in form. A few of the plants, that most need it (as least
handsome or healthy) should be severely cut, for a late blow, which generally proves a fine one in consequence. A judicious regular use of neat slender sticks is of much advantage to geraniums, or other potted plants. What has been said of geraniums; applies to all those Exotics, called Greenhouse Plants, in the management of which, it is a material thing not to shift into too large pots, as the roots run directly to the outsides, and so would be too hastily brought to require the biggest pots. Another thing is, to take off some of the top foil, not only as directed in spring, but once or twice in the summer; and always before housing in autumn, and replacing it with a rich compost, as one of almost all rotten cow dung, which being black, is the most suitable to the eye, and it is cool and nourishing. It is material to neatness, and the end of ornament, (for which plants are chiefly potted) that the pots should be occasionally washed, or scoured, and by no means suffered to get mouldy. This is a point so little attended to, that we sometimes see a beautiful plant in a very disgusting habitation. It is equally offensive, and injurious, to suffer the surface earth to get mossy, or caked hard by the necessary waterings; to prevent which, often stir it a little depth, and lay it smooth, which makes all look creditable.

Pinks are sometimes layered, or more usually propagated by cuttings, or pipings, about Midsummer; and may be also by slips, set in March, April, or May, with, or without roots, four inches asunder. Cuttings should be young strong shoots of three or four inches long, taken off just below a joint; from which stripping the lower leaves, and cutting the top ones short, plant them in a fine good soil, about two inches asunder, and in depth full half of their length. They will strike root, so as to be fit to move, in seven or eight weeks, with a little earth about their roots; or may be left to an early time in the spring; but where this is designed, they will be best six inches asunder. They may
may be either put in pots, or borders, where they are to blow, or rather into a nursery-bed, to grow a year at six inches distance. Pipings are obtained by drawing the heads of the young shoots out of their sockets, of the length of cuttings. In both methods, push the shoots carefully into the earth, gently press the mould about them, and give a watering; shade also from much sun. They will strike more certainly, and much sooner by being covered close with a hand-glass, as much as possible air-tight. They must be kept cool, by occasional watering; but when under glass, they will not need so much watering or shading, or may do without any; for though the inclosed air is warmer, it is always more humid, which refreshes the cuttings with answerable supply for their support; and it is this moisture and warmth that facilitates the growth. When they appear to be growing, the glasses must be raised, and in a short time removed. To raise pinks from seed, follow the directions given for carnations.

Polyanthus is propagated by parting the roots in autumn, or (for new varieties) by seed sown and managed (nearly) as directed for auriculas; But as this flower is not so delicate in the cultivation, it may be sown in borders, where there is only the morning sun, any time from August to April; and as soon as the plants are at all big enough to prick out, set them four inches asunder; and some time in August, plant at six inches, where they are to remain for their first blow; which should be attended to, in order to mark the best flowers, dividing these into two sorts, prime and middling; and the rest may be either planted into ordinary ground in plantations, &c. or cast away; There will be but few real good ones in a great many; but the culture of this plant is so easy, that it is worth while to try for them. Some sow in pots, and boxes, in December, placing them in the sun, and housing them in severe weather; and when the plants appear, set them in an east aspect, left much sun destroy the young plants;
The feed may be coveretfa a little lei's than a quarter of an inch. Both feeds and seedling plants should have occasional watering, as moisture fuits them.

A compost for the polyanthus is a light loam, (as the first spit from the pasture rotted down with the turf,) and about one fourth part cow dung or wood pile earth. If the loam is strong, a little drift sand amongst it will be proper. The polyanthus grows any where, but a cool soil and-situation suits it best; and some compost, as the above, with an east border, is necessary in order to a capital full trussed blow.

Tuberose is blown finest in a hot-house; but if planted in pots, and plunged at the back of a hot-bed frame, it succeeds very well. This will be best done about Mid-April, as sooner they are apt to get too tall before they can safely be exposed abroad. Provide a good fresh light earth, and use no dung, except a little rich and dumpy, to lay an inch below the bottom of the bulb; fill the pots only three parts, and place the root only half way, or a little more, in it. Let the mould be somewhat moist, but give no water till the shoot appears, and then moderately; at which time, fill up the pot, just to cover the bulb, which should be but barely hid, when the pot is full. The best shaped pots for bulbous roots is, when they stand high, and the bottoms are as wide as the top; and the size for the tuberose should be those of eight or nine inches diameter at top, according as the bottom is for width; for the more space below, the less is required above.

As the shoots advance in growth, the more air must be given; and as freely as possible on mild days, shutting close on cold nights, and almost so on moderate ones. When they get too high for the frames, and the season is forward, with kind weather, they may be plunged in the ground, close under a warm wall; and a covering of mat contrived to protect them a while on nights, or may do if left to take their chance. If the
the weather is foul, they may be housed in a good window, for a week or a fortnight, and then put in the ground as directed above. Here let them remain, giving occasional watering, (and freely in dry weather) till in flower; when the house (allowing them light and sun) will be their proper residence, for their fine powerful scent, and to protect the blow, that it may the longer continue. In their flowering state, they will want much water.

The heat on which this flower is forwarded should be moderate, otherwise it will run up too fast. If planted under a south wall in May, covering the root about an inch, and guarding against much wet till it is growing, it will do for a late blow: A hand-glass of course would be serviceable, both to assist it in shooting, and shelter it from unkind weather; but close covering is as much as possible to be avoided. Fresh roots are imported every year;—the double never flowers twice with us, but the single may, if kept in a dry warm room.
SECTION XX.

A CALENDAR.

The general work of gardening has been pretty fully spoken of, in the parts concerning the formation, cultivation, and management of a garden, propagation, &c. The particular culture of edibles, herbs, fruits, and flowers, has been treated in the sections appropriated to each. It therefore remains to give here little more than short hints, by way of affisting recollection, and to make proper references to the pages, where farther instructions may be found.

What is said concerning seeds and sowing, page 57 to 64, must be attended to. It need only be farther observed, that as to the season most proper to do the several works of gardening, it is not the same (exactly) everywhere, as soil and situation make a difference.—The time mentioned in this calendar is, that which the author judges will be found most generally right in the midland counties, as the extremes of north and south make a great difference in this business, which must be allowed for.

The work of gardening being very multifarious, it would be a practice not unworthy, even the skilful gardener, to make it a rule, once a week, to consider what is to be done the following week; and to make memorandums accordingly, numbering them in the order he would have them performed.—Thus he would never be at a loss, what to let him, or his labourers about, and the mortification of omissions, or appearance
ance of neglect, would be avoided: This calendar, it is presumed, will be found a ready and sufficient assistant upon such an occasion, the author having endeavoured to make it plain, comprehensive, and as concise as possible.

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JANUARY.

Let every thing be done now, that the weather and circumstances will permit, (though not absolutely necessary) in order to lessen the work of next month, which when it happens to be an open season, is a very important one in the way of gardening, in which the loss of a single fine day is of consequence.

MISCELLANEOUS WORK.

Frost protect things from, as they may need it.
Earth-up any roots bared or disturbed by frost, 49.
Dung for hot-beds should be duly attended to, 171.
Manure and compost heaps turn frequently over.
Espaliers, garden frames, and such things, rectify.
Tools, make, repair, sharpen and brighten, 276.
Fruit, onions, &c. the stores of, look over, 263, 229.
Brush-wood, prepare ready for flicking peas, &c. 231.
Planting, trench and prepare ground for, 28, 95, &c.
New-planted trees, protect and tie to stakes, 89, 100.
Old trees dig about, and dress with some manure, 45.
Prune espalier trees, standards and shrubs, 160, 166.
Moss, clear trees and shrubs from, in moist weather, 163.
Vermin set traps for, and oppose all annoyances, 233.
Webs and nests of caterpillars, slugs, snails, destroy, 56.
Beds and borders, weed, stir the ground, and rake, 49.
Cauliflowers and lettuces in frames, &c. attend, 214, 227.
Endive, tie up, when dry, to blanch; and protect it, 220.
Cions, procure for grafting, except apples, 82, 85.

Hot-beds, prepare for, or make, cucumbers, &c. 169, 177.

Drain ground, scour ditches, plash hedges, &c.

**Sow**

Cucumbers, 176. Melons, 192. Peas, 230. Beans, 206. Spinach, 243. Radishes, 238. Lettuces, 226. Cress, 249. Mustard, 253. Carrots, 212. The five last on heat; to which may be added, rape and lap-letuce, 228, as fallading; towards the end of the month, however, they may be sown on warm borders, the fallading being under close hand-glasses.

**Plant**

Mint on heat, 253. Cabbages at distances as 211. Trees and shrubs of the deciduous kinds, grape vines, currants, gooseberries, and raspberries, if mild weather, so that the ground will work loose. Layers may be removed; but rather prepare the ground now for planting them next month, 95, &c.

**Propagate**

Trees and shrubs by suckers, layers, cuttings, &c., &c.

**Flowers.**

Pots of, (see December) tulips, anemones, ranunculuses, hyacinths, narcissuses, &c. above ground protect, 289. Bulbous and tuberous roots now plant for a late blow, or in the next month; but preserve them if choice forts from much wet, lest they rot, 286. Auriculas, if disturbed by frost, dress and protect, 358. Carnations, and all hardy plants, in pots, protect, but give them as much air and sun as may be, 361.

Flowering shrubs may be planted, if open weather, covering the roots well; but it is better done next month, getting the ground ready now, 107, &c.
NURSERY.

**Vermin**, guard against in time, on seed beds, &c. 72.

Dig beds for sowing, next month tree seeds, &c. 71.

Protect seedling trees (particular exotics) from frost.

Plant, or transplant, hardy things, cover the roots.

Prepare ground for next month's planting out seedlings, or flocks for grafting another year, 72:

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**FEBRUARY.**

When the ground can be conveniently worked, this is a very busy month, and no time must be lost, nor hands spared, that every thing may be done in its proper, or earliest season.

The last week is the principal, in which many things are to be done, and some full crops sown: The skilful gardener is properly aware of this, but ordinarily the month of February is too much neglected.

**MISCELLANEOUS WORKS.**

Ground, prepare for planting and sowing, &c. 45.

Borders should be stirred, dug, or dressed, 29, 138.

Gravel walks, weed, mofs, put in order, and roll firm, 54.

Turf, prepare the ground for laying, by levelling.

Grass plats and walks, clean up, cut the edges, 54.

Compostfs and manures, turn over, and break well.

Hot-beds, attend regularly, and no neglect, 179, &c.

Stable dung, for hot-beds, now manage properly, 171.

Cauliflowers and lettuces, see to, as in the last month.

Earth up and protect plants from frost and wind, 49.

Stick-peas, neatly, when about five inches high, 231.

Weed and thin crops, as winter onions, radishes, &c. 49.

Endive, attend, to blanch and ridge when quite dry, 220.

Vermin
Vermin and insects, see to, as mice, snails, slugs, &c. 233.
Birds, chiefly bull-finches, do much mischief now.
Prune wall and other trees, but first grape vines, 129.
Moss and canker clean trees of, moist weather, 162.
Cions for grafting provide, 82, and use them, 83, &c.
Edgings of thrift, a good time to make or repair, 55.

Sow


PLANT


PROPAGATE

Trees and shrubs by grafting, 83, by suckers, layers, and cuttings, 64. Sow kernels, stones, and seeds of fruit, &c, on fine well broke earth, providing exotics a little heat, 71.

FLOWERS.
FLOWERS.

See last month, Biennials and perennials plant, 283. Shrubs protect, &c. 119: prune and dig about, 111. Carnations, &c. housed, bring abroad on mild days. Auriculas, pots dress and regularly water, 358. Auricula and polyanthus seed should be sown now, 359. Bulbs and tubers, plant soon and pot some, 286. Water pots, particularly woody and hardy plants. Annuals, sow about last week, 281; some in pots, 282.

NURSERY.

See last month. Sow hardy trees and shrubs, 71. Transplant hardy seedlings of last year, and stocks for grafting next year, or the following, 72.

MARCH.

The first week in this, like the last in February, is very valuable to the good gardener, and must be made the best use of by those who would have things tolerably in season, and well furnished for the summer. It is therefore proper to have no regard to the charge of necessary assistance. Nature now waits for us, let us not neglect to attend upon her: This is the universal feed-time. See management, page 56.

MISCELLANEOUS WORK.

Order and neatness are now principal objects, 54. Vacant ground, dig and apply manure where wanted, 47. Borders dress, by weeding, digging, &c. see last month. Gravel walks, clean, roll, re-lay, or make new, 54. Edgings of thrift and box, if mild, repair, or make, 55.
Grass plats and walks make, cleanse, mow, cut hedges, 54.

Herb-beds weed and dress, see article balm, 246.

Weeding in general should be begun in time, 49.

Asparagus beds, weed, carefully fork, and dress, 202.

Ditto, in dry weather, water as recommended, 205.

Strawberry beds, weed, fill the mould, and dress, 163.

Artichokes, dress, &c. towards the end of the month, 202.

Composts heaps, turn, screen, or sift, for pots, &c.

Vermin, insects, and destructive birds, see to, 233.

Earth-up peas, beans, and whatever else needs it, 49.

Stick peas in time, and flop them, or not, 231, 233.

Stakes to trees, &c. see that they are fast, 100.

Grass now, but apples towards end of the month, 81.

Prune wall trees without delay, but first vines, 148.

Blossoms of choice wall-tree fruit, defend, 145.

Prune, dig, dress, shruberies and plantations, 108.

Hot-beds carefully attend, 180, and make new ones, 183.

Dung for future hot-beds, manage in worked heaps, 170.

Cauliflowers, &c. under glass, give air freely to, 214.

Stir mould about ditto, and also lettuces, 215, 227.

Prick out cauliflowers, cabbages, lettuces, &c. 214.

Orchards, dung, dress, prune, or smoke them, 43.

Sow.

See last month, cauliflowers, savoys, onions, &c. Radishes, the spindle rooted, 239. Lettuces of sorts, 226.


Plant
PLANT


PROPAGATE

Trees and shrubs, by grafting, &c.; by suckers, offsets, layers, and cuttings, 64. Herbaceous plants, by parting roots, &c. 285.

FLOWERS.

The hardy kinds of flowers in pots that have been housed, should be inured by degrees to the weather, and soon left out on nights: None should remain under cover more than necessary.

Pot desirable hardy plants for moveable ornaments, when in flower; but not too many, 278, 282. Auriculas, if not before, dress, and regularly water, 358. Carnations dress as directed for auriculas, 358. Tulips, hyacinths, &c. of the best sorts, protect, 289. Water potted plants duly as the weather is, 277. Sow annuals, 278. Biennials, 282. Perennials, 283. Take up, remove offsets, and divide fibrous rooted perennial flowers about middle of the month, 285. Layers of carnations, pinks, &c. take up carefully, and pot or plant with earth to the roots, 360. Seedlings of ditto, and other things, plant out. Anemones, ranunculuses, and bulbs, may be put in (east border) the first week, to blow late, 286, 287, &c. Box, thrift, daisies, pinks, &c. plant soon for edgings.
NURSERY.

Remove litter, weed, stir the ground, and rake neatly.

Prune into form, shorten the leader, &c. to make a head, &c. 69.

Grafts of last year cut to a few eyes; behead as at 94.

Transplant and sow as last month, and do it quickly.

Exotics, or tender plants, sow on a gentle hot-bed, 71.

Water give in a dry time to seeds, seedlings, cuttings, and newly planted things; but not over much, 52.

* * * * *

APRIL.

If by any means the proper early spring cropping of the ground has been prevented, make no delay to finish, and to get the garden into a complete state of cultivation. This month may be mild enough to invite us abroad, to traverse the walks, and view nature in her spring attire, "all blooming and benevolent." Let nothing therefore be met with that appears slovenly, or disgusting. See page 54.

MISCELLANEOUS WORK.

Borders, &c. weed, stir, rake, and clean up neatly, 49.

Quarters also weed, particularly beds of onions, 49.

Gravel walks and grass plats, put in order, roll, &c. 54.

Turf, get, lay, but water frequently if dry weather.

Edgings of box, &c. make, repair, trim, or cut low, 55.

Watering omit not where necessary in a dry time, 50.

Pruning finish all soon; head down young trees, 130.

Graffs, see to, that the claying remains safe on, 84.

Blossoms of wall fruits, protect in bad weather, 145.

Dung for hot-beds, collect and take care of, 171.

Hot-beds, make in due time for fruiting cucumbers, 183.

Hot-beds,
Hot-beds, for melons, tender annuals, &c. 194, 273, 279.
Asparagus, strawberries, artichokes, see last month.
Cauliflowers, stir mould about, and earth up, 214.
Peas, earth up, and stick before they droop, 231.
Beans in blossom, crop the tops, and earth up firmly, 207.
Weed and thin all seedling crops, by hand or hoe, 49.
Prick out celery and plants of every kind when fit, 50.
Potatoes, early sort, earth up, protect from frost, 235.
Lettuces, tie up close, and stir the ground about, 227.
Cabbages, earth up, and also tie up forward ones, 211.
Caterpillars, snails, and slugs, search often after, 56.

Sow

As soon as possible, what was omitted last month, or the preceding. Then, Salsify, 240. Scorzonera, 241.
Succession crops, of cucumbers and melons, for hand- glasses, &c. 188, 198, 200. Peas, large and small. Beans, the broad sorts. Savoys, carrots, turneps, celery, lettuces, fucchio, spinach, and radishes cool ground, small falling the, weekly, on a south border, onions to draw young, 61.

Plant

Strawberries yet, but alpines succeed best so late, 38. Asparagus, 204. Artichokes, 201. Lettuces, 226. Chives, garlick, roombake and shalots, first week, see February. Cabbages, early and late, 211. Cauliflowers, 215. Kidney beans that have been raised on heat, 224. Potatoes for a full crop, 234. Herbs in rooted
rooted slips, 246, &c. Trees and shrubs immediately, and do it in the best manner, water, cover the roots, and stake the stems, 97, 107.

PROPAGATE

Trees and shrubs, by grafting, layers, cuttings, and sowing, which may yet be performed, 64, 71, 79. Herbs, by slips, or cuttings, in a good soil, and a shady situation, but not under trees, 246, &c.

FLOWERS.

Sow, in the first week, (if not done before) annuals, 273, 279, 280. Biennials, 282. Perennials, 283. Plant, or prick out, annuals as the sorts require, 274. Biennials and perennials of late blowers, may yet be transplanted into borders or pots, giving an immediate watering, and shading a few days from sun, 283. Carnation layers, taking them up carefully with a scoop trowel, 276. Pinks, the same. Tuberose, 357. Tulips, ranunculuses, anemones, &c. of choice sorts, protect in severe cutting winds, 288. Auriculas in bloom, shelter from rain, wind, sun, and support the stems by neat forked sticks, 359. Pots of flowers, shift, and dress, tie up, water, &c. 368. Crocus leaves tie up, but do not cut them off.

NURSERY.

Weed, water, stir the soil, rake neatly, and clean up, 69. Transplant (yet) seedlings of trees and shrubs; the evergreen sorts it is now a good time for, 72. Sow (if not done before) the seeds of forest trees, flowering shrubs and evergreens: but keep them cool, by watering, as every thing should be, that is sown or transplanted late in the spring: Yet they must not be kept soaked with wet, 71.

MAY.
**MAY.**

Let this charming month be ushered in with due respect, by the garden being in excellent order, to which end let no help be spared, when the gardener is not competent to perform the work himself: It is sometimes too much for the most industrious man.

We now gather vegetables that have stood the winter, and been the care of many months, with some of the products of spring also; and it is the hope and fruition of reward that sweetens labour: All the senses are gratified at this season.

— The softening air is balm;
And every sense and every heart is joy!  

**Thomson.**

**MISCELLANEOUS WORK.**

*Neatness must be pursued,* stir the ground, rake, &c. 49.
*Gravel walks and grass plats,* keep in good order, 54.
*Weeds,* destroy every where, by the hand or hoe, 49, 54.
*Water,* if dry weather, new planted trees, shrubs, and flowers, strawberries, cauliflowers, &c. 40, 51.
*Thin* all sorts of seedling crops enough, and in time, 49.
*Prick out* lettuces, celery, broccoli, bokcole, cauliflowers, savoys, cabbages, leeks, &c. 50.
*Earth up* potatoes, peas, beans, cabbages, celery, &c. 49.
*Tie up* forward lettuces, and early cabbages, 211, 227.
*Cucumber plants,* give air, water, shade, train, 185, &c.
*Hot-beds,* make for cucumbers and melons, 173, 189, 199.
*Regulate* wall-trees, vines, and prune figs, 132, 149, 151.
*Graffs* attend to, and repair the clawing, &c. 84.
*Thin* fruit that is superabundant on wall-trees, 146.
*Beans,* top, when in blossom, and earth them up, 207.
SOW


PLANT


PROPAGATE

Herbs, culinary and medicinal, by slips and cuttings, but rather the latter. For sage it is now the best time, 246, &c. See Flowers, article slips, &c.

FLOWERS.

Sow annuals of all sorts for a late blow. Scarlet bean, sow as a flower to run up pales, &c, 273, &c. Thin seedlings soon, that they may not be weak, 273. Prick out, or plant, the tender annuals in new hot-beds; pots, &c. as directed, 274, 276, 278. Hot-beds of flowers, manage, as to air, water, &c. 280.

Biennials
Biennials and perennials, thin in time, and water them; also prick out any that are forward enough; they may yet be sown, 282, 283.

Auriculas out of flower, remove out of the sun, 359; Tuberoses, pot on heat, or under a south wall, 357. Tulips, anemones, &c. in beds and in flower, protect, 288. Bulbs and tubers of dying spring flowers, take up, 285. Slips and cuttings of pinks, double wall-flowers, double sweet williams, double scarlet lychnis, double rockets, and lychnidea, plant as soon as the young shoots are forward enough, 364, 383, 348, 346, 344.

Geraniums, plant cuttings of last year’s shoots, 361. Water seed-beds lightly and moderately in a dry time, 280; and pots of flowers regularly, 277.

Air, give to housed plants freely, as the season is, 362. Dress, shift, and tie up, flowers and shrubs in pots, 363. Pot some ten week stocks, mignonette, &c. 276, 278. Support spindling carnations, &c. and weak shrubs, 55. Stir the surface mould in pots of flowers, 382.

NURSERY.

Weed, water, occasionally shade tender seedlings, 69. Seed-beds, keep cool, for without moisture, germination cannot be expected; but give water lightly, so as not to cake the ground, 51.

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JUNE.

In this month the gardener begins to find some pause to his labour. The ground is now fully cropped, as to principals, and the chief business is to see that the various plants, according to their different ages of growth, do not stand in need of the neccessary assistance of culture, or good management. Particularly attend to trained trees, &c. to regulate them before they get into disorder;—This do once a week.
MISCELLANEOUS WORK.

Weed diligently, particularly close crops, 49.
Stir the ground between open crops, and rake, 49.
Gravel walks, grass plats, and edgings, see to, 55.
Water, let it be duly applied where necessary, 51.
Thin by hoe, or hand, all sorts of crops fully, 49.
Prick out things, celery, endive, savoys, broccoli, &c. 50.
Cauliflowers shewing head, break leaves over, 216.
Earth up high peas, beans, &c. see the last month.
Tie up the leaves of garlic and rocombole, 221.
Blanch lettuce, white beet, and finochio, 208, 227, 250.
Stick peas, and top beans when in full flower, 231.
Cucumbers, attend duly, to air, water, train, &c. 185.
Melons, ditto, prune, lay tile under the fruit, 195, &c.
Prune wall-trees, vines and espaliers, 129, 149, 160.
Blighted trees, pull off curled leaves, and water them forcibly and frequently with an engine, 52.
Grass that have clearly taken, unclay and unbind, 84.
Bud, or inoculate, at Midsummer, or soon after, 89.
Asparagus, finish cutting before Midsummer, 206.
Herbs for drying, gather as directed, page 246.
Seeds also attend to, and gather if any ripe, 59.

SOW

Cucumbers, last crop, for picklers may do in open ground, if a good soil and sunny situation, 190.
Pumpions and gourds may succeed as ditto, 237.
Turnep radishes of all sorts, but chiefly the large white and black Spanish for autumn use, in cool ground, 239.
Endive for a principal crop, 220.
Succession crops of celery, broccoli, peas, broad beans, kidney beans, radishes, lettuces, small fullading, purslane, turneps, cabbages, carrots, finochio, and spinach.

PLANT

apples, 259. Leeks, 225. Celery, 216. Cauliflowers, broccoli, boocole, savoys, cabbages, and such like greens, at two and a half feet, or rather more for cauliflowers; less for broccoli, and cabbages if a small fort. Seedling herbs, 246, &c. Moist weather at this season is very advantageous for pricking out, or planting, and it must not be neglected when it occurs: Water at the time of planting, and afterwards as the weather may require.

PROPAGATE

Herbs by slips, or cuttings, in a good soil, and as cool a situation as may be, not under trees, 246, &c. Layer the young shoots of roses, evergreens, or any shrub, or tree, that does not readily strike root from older wood, or send forth suckers; but make the soil rich first with compost, or short dung, and water the layers frequently, 66.

Cuttings, or the young shoots of some woody plants, may be made to strike root, see page 312.

About the second week is the best time to plant cuttings of myrtles, which should be young wood and short, about two inches. Keep them cool.

FLOWERS.

Annuals, tender sorts, pot and plant out into the borders; they will require a good soil, water, and a little shade at first, and choose rainy or cloudy weather for the work, 276.

Pots of flowers set where they have only the morning sun, but not under trees, or any roof, except for ornament a while, when in blow, 278.

Trim, from dead parts, &c. perennials and biennials, 56. Carnations, and other spindling flowers, support, 55.

Geraniums, plant cuttings of last year's shoots, 361.

Water pots of flowers duly, borders occasionally, 277.

Prick
Plant slips, &c. of wall-flowers, &c. see last month.
Layer carnations, pinks, and sweet Williams, 359.
Auriculas should be set in shade, except for seed, 359.
Spring bulbs, the leaves being decayed, take up, 285.
Autumnal bulbs, plant at the end of the month, 286.

NURSERY.

Weed, water, stir the soil, rake it, and clean up, 69.
Shade the tender seedlings, and late planted things, 51.
Seed beds, spring sown, keep moist, and earthed up; in very hot weather, an awning of mats is advantageous on days. Seedlings in pots or boxes move into shade, but not under trees.
Thin young plants from growing thick and weak, 49.

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JULY.

Though in this month there is a cessation from the great bustle, and more laborious works of gardening, yet "its many cares" still find employment for the willing hand; and most assuredly a good success in the end will not be attained without perseverance in the means. Let nothing therefore be omitted, that may tend to crown the gardener with credit, by a continued production of fine vegetables, fruits, and flowers. The garden now abundantly gratifies the sight, the taste, the smell; and those who have the opportunity to enjoy it, should be grateful to God—and the gardener.

MISCELLANEOUS WORK.

Prepare vacant ground for cropping, and let as little of it as possible lay rude and unproductive, 47.

Weeds
Heed the borders, hoe between crops, &c. 54.
Water cauliflowers, and whatever else may need it, 51.
Gravel walks, grass plats, and edgings, keep in order, 54.
Box, yew, &c. should be clipped after, or in rain.
Earth peas, broad and kid. beans, celery, cabbages, &c.
Blanch white-beet, lettuce, and finochio, 208, 227, 250.
Stick peas, and running kidney beans in time, 251, 225.
Thin all small crops to their due distances, 49.
Prick out celery, endive, brocoli, cabbages, &c.
Seeds, gather as they ripen, lest the best be lost, 59.
Herbs for drying, gather as soon as in flower, 246.
Take up garlic, rocambole, shalots, 221, 225, 243.
Cucumbers and melons, attend, water, train, &c. 185, 195.
Pumpions and gourds, train, and water plentifully, 237.
Artichokes, take off small side heads in time, 202.
Wall-trees, &c. regulate, and occasionally prune, 152.
Vines stop, and take off the little side shoots, 150.
Thin wall-trees, &c. of superabundant fruit, 146, 156.
Bud-graff, or inoculate, fruit trees, roses, &c. 89.
Blighted wall-trees, attend to, see the last month.
Strawberry Runners take off; except the first, 77.
Kidney Beans, runners, train, and water if dry, 223.
Ants, flies, and wasps, take by vials of sugar water.

BROCCOLI, first week cool ground a little, for late use, 210.
Endive, principal winter crop, in open ground, 220.
Peas and beans, early sorts, may yet sow, 208, 232.
Kidney beans, dwarfs, first week, south border, 224.
Carrots, a few, cool ground, first week, and water both seeds and roots if dry weather, 212.
Radishes of any kind, but chiefly the large black and white Spanish turnep sorts, water, 240.
Lettuces, the hardier, or winter sorts, open ground, 226.
Spinach, first week, the round in cool ground, and in the last week the prickly seeded, 243.
Onions, a few Welch, and Strasburgh, second week, 228.
Coleworts, first week for winter, last week spring, 219. Turnips, any sort, both early and late in the month, 244.

PLANT

Celery at six inches; Leeks the same or more. Endive, lettuces, coleworts, at a foot. Cabbages, savoys, broccoli, borcole, and cauliflowers, at two feet, or a little more in a rich soil, particularly the latter: Give water at planting, and two or three times after, if not much rain should fall.

PROPAGATE

Herbs, lavender, rosemary, sage, propagate yet, by cuttings, or slips, occasionally watering, 246, &c. Trees and shrubs, by laying shoots of the present year; i.e. of those that are not apt to strike from older wood. Slips and cuttings of some sorts, may strike, by the help of a hand-glass, 66, 312.

FLOWERS.

Stir the flower borders, and rake them neatly, 54. Pots of flowers, set in shade, and regularly water, 278. Carnations and double sweet williams, layer, 359, 333. Pinks, plant slips, cuttings, pipings, or layer, 364. Geraniums, double lychnis, lychnideas, double wall-flowers, Rockets, plant cuttings, or slips, 344, 333, 361. 346. Succulent plants (as aloes) may now be set abroad. Annuals, plant out tender sorts into borders, 286. Ditto, quick blowers may still be sown, 334 Biennials, thin seed beds of, prick out, water, &c. 283. Perennials, ditto, particularly auriculas, 359. Carnations, 361. Pinks, 364, and polyanthus, 365. Larkspurs thin, and pull up all the single ones, 335. Stocks, pull up most of the single ones, 332. Seeds, gather very regularly as they ripen, 56, 58. Bulbous and tuberous roots take up in due time, 235. Bulbs,
Bulbs of autumn, as saffron crocus, plant now, 293.
Trim plants and shrubs, straggling branches, &c. 56.
Support weak flowers and shrubs by properties, 55.
Minionette, sow in pots, cool place, to flower in winter.

NURSERY.
Weed, water, shade, young tender seedlings, &c. 69.
Prune away suckers, or shoots from stems, &c. particularly those that have been grafted, 93, 94.
Thin seedlings, shade by a mat, &c. new planted ones, but not from night dews, water, &c. 73, 51.

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AUGUST.
In this month (as in some measure before) the gardener anticipates products of the future year, and sows various vegetables in autumn to stand the winter, for spring and summer use; so that, in this, and other respects, August is in truth an important season, as will be seen by the work directed to be done. The times for the several sowings should be pretty exactly observed in order to succeed.

MISCELLANEOUS WORK.
Weed, water, sir borders, rake and clean up, 50, 54.
Walks and grass plats, attend, roll, mow, sweep, 54.
Thin by hoe, or hand, young crops, in dry weather, 49.
Water ditto, as also new sown beds, regularly, 50.
Prick out celery, and other things as winter greens, 50.
Earth up peas, beans, kidney beans, celery, greens, &c. 49.
Blanch endive, beet, chardon, finochio, 220, 208, 218.
Dig, or use a strong hoe, between rows of plants, 49.
Vacant ground, clean, and prepare for use, 46, 47.
Stick peas, and take up the haulm of old crops, 231.
Stake tall plants which are standing for seed, 59.
Seed plants support, and gather seed as it ripens, 59.
Herbs, gather for drying just when in flower, 246.
Onions, press down the leaves to the ground, 229.
Shalots, garlick, rocombole, take up, 249, 227, 261.
Grape vines, prune, nail, and keep in due order, 150.
Wall-trees, espaliers, climbing shrubs, &c. regulate, 133.
Insects about wall-trees, attend to. See blight, June.
Waps, &c. take in trees, by vials of sugar water.
Budding may yet be performed, first week, 89.
Buds that have taken of former work, unbind, 93.
Net fruit trees up, to keep off birds, and also fingers.
Gather fruit before the sun has shone long upon it.
Mat up currants and gooseberries for late fruit, 164.
Strawberries, clear from runners, weeds, leaves, 165.
Cucumbers, pumpions, and gourds, train, water, &c.
Pickling cucumbers should be gathered twice a week.
Melons, prune, train, water sparingly, 195.

SOW
Coleworts in the first week, 219; cabbages in the second, 211; cauliflowers in the third, 214. Onions, Welch, a full crop, and a few Strasburgh a warm border, first week, 228. Lettuces, at the beginning, middle and end of the month, 226. Small fallading, in a shady place, and water it, 249. Chervil and American chefs, second week, 248, 250. Radish, both spindle and round rooted, 245. Kidney beans, dwarf, on a warm border, first week, 225. Spinach, round first week, prickly third week; the former at broad cast, and the latter rather in drills, 243. Turneps, first or second week, 244. Carrots, ditto, 214. Herbs first week, 246, &c.

PLANT
Without delay, leeks, celery, lettuces, endive, cabbages, coleworts, late brocoli, and boorcile, distance as last month,
month, though every thing planted late, may be so much the higher, generally speaking one third. *Strawberries* and *herbs*, culinary and medicinal, towards the end of the month, that they may be well rooted before winter, 39, 246, &c.

**PROPAGATE**

Trees and shrubs, by laying young shoots in fine rich earth, and keep the ground cool about them, 69.

**FLOWERS.**

Decayed parts, take off, trim, and tie to sticks, 56, 57. Shrubs, ditto, thin a little, and prune off suckers, 111. Edgings, or edges of box, yew, &c. may be cut, 55. Water potted flowers regularly, also others, 277. Ditto all new planted things, and shade them, 275. Annuals, hardy, sow towards end of the month, 287. Saxifrage pyramidal, and double plant in pots, 355. Geraniums, raised from cuttings, (or seed) pot soon. Ditto, pots of, &c. stir, or fresh earth, 364. Auriculas and *polyanthus*, transplant, part, &c. 359, 365. Carnations yet layer; transplant early layers, 359. Pinks from early cuttings may be fit to move, 364. Sweet Williams layer, or transplant if rooted, 333. Bulbous roots, as lilies, &c. take up for planting, 285. Bulbous offsets, replant them without delay, 286. Bulbs of autumn flowers, plant in first week; see lilies, *atamasco*, Guernsey, &c. 362. Succulent plants, shift (best season) first week, 364.

**NURSERY.**

Prune suckers, side stem shoots, straggling and luxuriant ones from the head; stir the ground, weed, water, thin seedlings, plant, shade, &c. 69, 51.
Gardens begin now to fail of their wonted beauty, and therefore dying flowers, all litter, and every thing unsightly, admonish the gardener to trim his plants, and clean the ground frequently, that all may be pretty if not gay. An attention of this sort, stirring the ground, and raking it, will give an air of freshness and culture highly pleasing and creditable.

MISCELLANEOUS WORK.

See beginning of last month, twelve first articles. Shrubs free from suckers, dig about, &c. 111. Prepare ground for planting trees and shrubs, 103. Turf, lay as a good time, beat, roll, and water. Gather fruits as they ripen, and store them well, 262. Grapes, tie fine ripe bunches up in gauze or crape. Figs, keep in close training to ripen the fruit, 151. Cucumbers cover on nights to prevent the spot, 190. Pickling cucumbers, gather before they get spotted. Melons carefully protect from cold and wet, 200. Cauliflowers, prick out, put some on slight heat, 214. Ditto, Michaelmas crop, if dry weather, water often. Lettuces, prick out, at 4 or 5 inches, south border. Herb-beds should be cleared and dressed this month, 246. Nasturtiums gather before ripe for pickling, 253. Onions, being dry and hard, take in, sort, &c. 253. Garlick, shafts, and rocambol, tie up, and store, 221. Seeds, such as are well dried, dress and put up, 56, 59. Beans, late, top them as soon as in flower, 207.

Sow

Spinach, turneps, Welch onions (thick) and endive, first week, for late spring use. Radishes of all sorts, but chiefly
chiefly the large black turnep, 210. Small flallading, every ten days, warm borders, or under glafs, 250. Corn flallad, 250. Chervil, 248, and færel, 257.

**PLANT**

At distances as before, coleworts, endive, cabbages, savoys, braccali, boarccole, Bruffels, fprouts, chou-milan, and celery; also letufces on dry warm ground, 226. Herbs, pot and medicinal, from parted roots, or off- fets, 246, & c. Shallots, garlick, rocambole, 249, 227, 261. Strawberries, any time this month, (the sooner the better) drefs old beds and plants, 88, 77, 165. Shrubs, begin to plant towards the end, but let not the roots be long out of ground, 106. Cur- rants, goafeberries, and raspberries, may be planted last week, 31, 39.

**PROPAGATE.**

Trees and fhrubs, by laying young shhoots, and at the end of the month, cuttings may be planted, as of goafeberries, currants, laurels, honeysuckle, & c. 66.

**FLOWERS.**

Remove dead ones, trim the decaying, tie up, & c. 55, 56. Annuals, sow some of the hardy forts, first week, 281. Biennials, plant out, refferving a few for spring, 283. Perennials, ditto, also take up, and part old roots, 283. Pinks, from cuttings, & c. (if well rooted) plant out; also carnations, sweet-williams, & c. from layers, 360. Geraniums, from cuttings, or feed, plant without delay, in finall pots, shortening the roots, & c. 362. Auriculas, drefs, shift, flip, place in shade, 359. Polyanthus, plant, part roots, or sow the feed, 365. Bulbs of autumn flowers, plant yet in firft week, see laft month; and those of spring in laft week, as crocuses, early tulips, common anemonies, 286. Lilies
Lilies and other scaly bulbous roots, plant soon, 287.
Offsets from bulbs must be planted immediately, 287.
Beds for bulbous and tuberous roots, prepare, 293.
Edgings of box, thrift, or pinks, plant, cut, or repair.

Pots of flowers bring from shady situations to more funny ones; exotics, put in time under some degree of shelter, according to their nature; the succulent plants are impatient of wet, and cold, as also variegated geraniums; take them in soon; but give plenty of mild air.

Minionette in pots for winter, place under a south wall.

NURSERY.

Weed, stir the soil, clean up, and water, if dry weather.

Dig about young trees, at the end of this, or the beginning of next month, as directed, 79.

Prepare ground for planting, next month. Stocks and seedlings, and sowing seeds of trees and shrubs, 71, &c. Cherry Stones may now be sown. Evergreen seedlings should be planted out, last week, and watered, if a dry time, 72.

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OCTOBER.

This is the chief month of the year for planting trees, shrubs, &c. No part of it should be lost, in either working the ground well for the purpose, or putting in the plants without delay: Early planting, if the ground is fit, is of much consequence. Esculents are to have their winter quarters provided them as soon as possible in the month, as at the end of it the weather is often bad.

Now the virtues of industry and perseverance will be tried to keep the grounds clean from falling leaves, &c. The garden, however, ought yet to be a source of
of pleasure, and the weather is often still inviting abroad: Surmount impediments.

**MISCELLANEOUS WORK.**

*Dig, dung, trench, and drain, ground thoroughly, 46.*

*Prepare for planting, lay open the holes for trees, 97.*

*Rake leaves off borders and quarters, sweep, &c. 54.*

*Gravel walks, and grass plates, cleanse, roll, mow, 54.*

*Turf will be well laid now, but do the work soon.*

*Caterpillars, destroy, for they do mischief rapidly.*

*Thin, by hoe, spinach, &c. small crops, by hand, 49.*

*Prick out cabbages for winter or spring planting, 211.*

*Hoe between rows of cabbages, &c. and earth up, 49.*

*Blanch celery and finochio by earthing; endive, beet, and chardons, by tying, 217, 256, 221, 208, 218.*

*Cauliflowers that are heading, break leaves over, 216.*

*Asparagus beds and seedlings, dress, second week, 205.*

*Strawberries, if not before, dress out of hand, 165.*

*Raspberries, dress, and plant coleworts between, 165.*

*Seeds gather regularly and lay up thoroughly dry, 59.*

*Fruits; gather carefully, and house well, 262, 274.*

*Dig up, and store clean and dry, carrots, 214; potatoes, 237; parsnips, 230; Jerusalem artichokes, 222.*

*Dress about currant and gooseberry bushes, by digging in a little manure, cutting the ends of the roots.*

*Herb-beds should always be dressed at this time, 246.*

*Vines, wall-trees, &c. regulate, if not fully prune, 143.*

*Grapes bagged in gauze, see to, left they get mouldy.*

*Shrub, &c. dig about, and put in good order, 111.*

**SOW**

*Beans, mazagan, third and fourth week, 207. Peas, ditto, early sorts, 231. Lettuces, first week, warm border, 226. Small fiallings, warm border, under glass, 249. Radishes, early purple short top, or early Sandwich, may succeed, south aspect, 240. Carrots, a few early horn, warm border, may be tried, 214.*
PLANT


PROPAGATE

Trees and shrubs, by suckers, 61. By layers of the young wood, roses, jasmines, bay, laurel, laurustinus, vines, figs, filberts, codlins, mulberries, &c. See lifts of trees and shrubs, 66. By cuttings or slips, gooseberries, currants, berberry, jasmines, honeysuckles, laurals, box, &c. 66. See lifts, sect. 19.

FLOWERS.

Look over, trim, tie up, gather ripe seeds, &c. 55, 56, 59. Geraniums, and other tender plants, drees, house, 362. Auriculas and carnations in pots, preserve from much wet, and set in sunny situations, 358, 359. Seeds, or seedlings, in pots, or boxes, ditto, and shelter from the cutting N. E. winds, 359. Annuals, self-fown, &c. may be taken up with a little earth, and planted where wanted, 281. Biennials, plant out, but leave a few for spring, 282. Perennials, ditto, also split or divide old roots, 285. Bulbous or tuberous, and fleshy roots of spring and summer flowers, plant, but the earliest first, 285. Minionette,
Minionette, pots of, house, or put under glass.
Saxifrage, pyramidal and double, plant in pots, 356.
Edging of dwarf flowers, box, &c. plant, or repair.

NURSERY.

Stir, and fork in a little short well rotted manure, 70.
Dig ground to be planted, a week before it is wanted.
Sow seeds of trees, &c. and guard against mice, &c. 72, 79.
Transplant seedlings designed for stocks, &c. 72.
Suckers of plums, cuttings of quinces, codlin, &c. 74.
Prune, or dress up, young trees and shrubs from suckers, straggling shoots, and form the heads, 73.
Dig about ditto for purposes as directed, 79.

* * * * *

NOVEMBER.

Though the last be the better month for planting, yet this is more commonly the time adopted: It cannot be now proper to delay it. The leaves not being all off should be no obstacle.

The object of pleasure should not yet be given up; and let the gardener do all in his power to be cleanly and neat, giving his grounds that proof of good culture, which is so essential to his credit.

Anticipate winter, so as to put all in order, and furnish the ground early; provide against frost, lest it come unawares.

MISCELLANEOUS WORK.

Wet, if it stands any where, let it be drained off, 114.
Vacant ground, dig, manure, trench, or at least hoe, 46.
Clear away dead plants, leaves, weeds, and all litter, 54.
Weed borders and crops, as spinach, winter onions, &c.
Grass plats, cleanse, roll, mow, and lay turf, but soon.
Gravel walks, weed, clean, and roll hard after rain, 54.

Compost, collect, and mix well the materials for them.

Cucumber and melon earth, store in dry time, 178, 195.

Earth up peas, beans, celery, cauliflower, &c. 49.

Blanch endive, 221, chardons, 218, and fnochio, 250.

Dig up carrots, potatoes, Jerusalem artichokes, and parsnips, but not all the latter, 222, 230. Also when in prospect of frost, some red beet, scorzonera, salsify, skirrets, Hamburgh parsley, leeks, turnep radishes, and horse-radish, all of them to be preserved a while in a cellar, or longer in dry sand. See cauliflowers below.

Lettuces in frames, under hand-glasses, &c. attend, 226. Artichokes, cut, see to, when in prospect of frost, 202.

Asparagus, dress beds of, and also seedlings soon, 205. Raspberries, dress in the first week; see last month.

Hot-beds may be used for small fallading, 249, mint, 253, lettuces, 227, or for radishes, 239.

Frost, consider what should be protected from it.

Fruit, latest sorts, gather in the first week; and manage that already housed, 262.

Onions, store of, look over to remove decayed ones, 229.

Seeds, dress, put up clean and dry, and keep them so.

Caterpillars on winter greens, search for in time.

Grubs about the roots of lettuces, search for, 227.

Shrubs, prune and dig about; fasten trained ones, 111.

Prune all trees, except figs, but cherries the first, 143.

Figs, pull off green fruit, fasten shoots, 151.

Cover the roots, and stake new planted trees, &c. 102.

Cauliflowers under glasses attend to, and those in head, break leaves over. This vegetable, and broccoli, may be taken up when in prospect of frost, and planted with balls of earth, or only laid in a cellar, where they will keep (perhaps) a month; but tie the leaves together at the tops with strong bays or a hay-band before they are taken up, 216.
Sow


Plant

Celery yet, 217. Lettuces, 226: and cauliflowers yet, in frames, under hand-glasses, or close under a south wall, 214. Endive ridged, 220. Coleworts, 219. Cabbages, 211; and all in the first week, though the latter may be later. Mint on heat, 253. Wall-trees, and others soon, 80, &c. 95, &c. Shrubs, deciduous, but not evergreens, 117, &c. Strawberries, upon necessity, but do it first week, 39.

Propagate

See last month, by suckers, slips, divisions, cuttings, and layers, as roses, &c. 94, &c.

Flowers

Take up dead flowers, and tie up those in blow, 55, 56. Frost, beware of, as to the care of tender flowers, 362. Auriculas and carnations in pots, protect, 359, 361. Seedlings in boxes, &c. place in the sun, and protect. Pots of hardy flowers are themselves preserved, as well as the plants, by plunging above their rims, 358. Bulbous and tuberous roots, plant and protect, 286. Biennials and Perennials hardy, plant early, 283. Thrift, plant or repair, as soon as may be, also box.

Nursery

See last month, and do soon what was then omitted.
Cover the roots of newly planted things and lightly all seed beds and seedlings of tender sorts, 99, 69.

* * * * * * *

DECEMBER.

The garden is no longer a decorated scene; but it contains many things of promise, which demand attention, and which the industrious gardener will afford, agreeable to the culture that each requires.

There are full some works of labour; and where there is plenty of dung and frames, hot-beds may be made use of, and spring anticipated.

If this month be called dreary, yet still the face of nature has charms, and invites us sometimes abroad, even when covered with snow. Frost is clearly beneficial, it dries the path, it strings our nerves, exhilarates our spirits, purifies the air, and prepares the ground for future produce.

All nature feels the renovating force
Of winter, only to the thoughtless eye
In ruin seen. The frost-concocted glebe
Draws in abundant vegetable soul,
And gathers vigour for the coming year.

Thomson

MISCELLANEOUS WORK.

Weed crops, &c. clean up litter, and still be neat, 54.
Gravel walks, roll hard, if dry, against wet and frost.
Grass plots, cleanse from worm casts, sweep and roll.
Mice traps, set about peas, beans, cauliflowers, &c. 233.
Caterpillars in trees, snails in walls, and slugs, see after.
Tools, make, repair, grind, and keep bright, 276.
Seeds, look over the flock to keep them clean and dry.
Fruit and onions, examine, remove decaying, 229, 263.
Straw,
Straw, damp or musty, remove from store rooms.
Frost, guard against the ill effects of every where.
Wheat straw, useful to protect things, see radish, 233.
Vegetables, before hard frost, take up, see last month.
Artichokes, asparagus, and raspberries, (if not before) give their winter dressing to soon, 202, 205, 164.
Endive, tie up when perfectly dry, and ridge some, 220.
Earth up (dry) celery high, also cauliflowers, chardons, brocoli, favoys, cabbages, &c. pressing the mould.
Cauliflowers and lettuces in frames, &c. manage, 214, 226.
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Cucumbers may be sown in the last week, 174, 176.
Composts, make, and incorporate well by turning over.
Orchards, prune trees, drefs, dig, or plough the soil, 43.
Prune wall pear trees, espaliers, and shrubs, 153, 160.
Hedges, ditches, and drains, manage as the case requires.
Drain wet from orchard, garden, nursery, &c.
Spring, have a constant eye to, and prepare things for.

SOW

Beans, 207. Peas, 231. Radishes, 238. Carrots may be tried as radishes. Lettuces ditto, under glass in a warm border. Small salald, as cress, mustard, and lap lettuce, on a slight heat, 227, 249.

PLANT

Mint on heat, 253. Trees and shrubs of the hardy, deciduous kind, in open weather, covering the roots and flaking; if against a wall fasten them to it, 97, &c.

PROPAGATE

By suckers, cuttings, layers, &c. see October, 64, &c.

FLOWERS
FLOWERS,

Take care of, but neither sow nor plant; yet some chuse to sow auriculas in this month, 359.

Covering of every kind is to be no closer, or longer kept on than necessary, for great danger arises from much nursing, when plants come to be exposed again. See last month.

Auriculas see to, and take-off dead leaves, 358.

Carnations guard against mice and much wet, 361.

Pots of hardy flowers, to protect, see last month.

NURSERY.

Protect, as the weather may require: all new planted things, cover the roots of them well, 99.

Seedlings of tender things may be covered lightly all over, but uncover in time, 69, 73.

Frost-cracks in seedling beds, fill up with sifted mould.

Wet (much of) gives frost so great hold, that it should be particularly guarded against. 358, 360.

Vermin must be attended to, particularly mice, which are apt to bark, and so kill young trees, 73.

CLOSE.

Nature attend! join every living soul,
Beneath the spacious temple of the sky,
In adoration join; and, ardent raise
One general song.

Soft roll your incense, herbs, and fruits, and flowers,
In mingled clouds to him, whose sun exalts,
Whose breath perfumes you, and whose pencil paints.

Thomson.
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The Calendar will be found accurately to direct, from time to time, the work to be done relative to each of the foregoing articles, as sowing, planting, &c. And not to swell the Index to an unnecessary size, the author has brought into it the mention only of a few things from the Calendar, as what is there directed has most of it appeared in the work before. The Calendar is only a help to recollection, and with a glance of the eye may be seen everything the Gardener has to do; he is there referred back for more ample information, if he needs it.

The many uses (as mentioned in this work) to which hand-glasses may be profitably applied, induces to recommend rather an ample furniture of them. Also to have plenty of garden pots of all sizes, that plants may be accommodated with just such a sized pot as is proper for them.

To the article Potatoe, concerning Seedlings, page 236, add; — The Potatoes produced from each Seed should be kept separate, and two or three from each carefully boiled also separate, and being tasted by a good judge, choice of sort made accordingly, to be planted for propagation; the size, shape and colour, being in a measure considered as well as flavour.

ERRATA.

Page 21, line 16, these, read some.
66 — 7, head, — hard.
111 — 19, lie, — die.
127 — 25, crowded — crowded.
134 — 36, trellis — trellis.
154 — 31, turfs — tufts.
226 — 28, neat — near.
285 — 4, seedlings — seedlings.
339 — 3, turned — forked.
216 Bottom, leave out, “Or for a few Plants.”
HINTS
ON THE
METHOD OF MANAGING POND-FISH.

THE quantity of Fish to be supplied obviously depends upon the quantity of water, which should be divided, where it conveniently can, into five ponds; these may be distinguished by the five first figures, as, 1, 2, 3, 4, 5.

Number 5 is intended for Breeding, and should be double or treble the size of any of the other ponds. Or if this be inconvenient, there may be two marked No. 5. This pond may likewise be the most distant from the house. If the Breeding Pond should fail to answer this purpose, it will at least serve as a conservatory for Fish of small size, to be obtained elsewhere: and indeed fresh stores in any case will be found desirable. The contents of this pond in Carp and Tench, or the greatest part, should be taken out annually in September, or October, counted in braces; and such as are from five to seven inches long thrown into No. 4.

The contents of No. 4, when grown one year from the length of five or seven inches, must be put into No. 3. The contents of No. 3, having grown one year
year from No. 4, must be removed into No. 2; and in like manner the contents of No. 3, after one year, must be removed into No. 1, which is to contain only such Fish as are fit for the table. It is obvious that this pond, for safety and convenience, should be the nearest to the house.

As No. 5 is to be the largest water, so No. 1 is to be the least; the rest, of sizes between the two.

The shape of No. 1 should be oblong, for the convenience of the net, and the less disturbance of the Fish in taking out what are wanted from time to time.

A book should be kept by the Gardener, of the number and size of each kind in every pond.

Carp are fit for the table from three to seven pounds each. Tench from one pound and a half to three pounds each. Perch from three quarters of a pound to one or two pounds, &c.

It is supposed that none of the ponds have a strong current of very cold, acrid, innutritious water.

One acre of water upon a loam, clay, or marl, or any of these with a mixture of gravel, has been stated to be capable of supporting 2000 pounds weight of Fish; the number of the Fish making that weight being immaterial.

Carp and Tench breed most freely in ponds, or pits newly made. Tench likewise in almost any ponds, where cattle are admitted.

It is evident that Perch and Pike should not be admitted in any degree in No. 5; but in all the other numbers, besides their own value, they are of important service, provided that they are strictly confined to a size greatly subordinate to that of the Carp, or Tench. For they destroy not only the accidental spawn of Fish which breed, but also several Animals, whose food is the same with that of Carp and Tench, as Frogs, Newts, &c. Pike above the weight of one or two pounds must not be admitted even amongst Carp of the largest size and weight.

With
With regard to the absolute weight of Fish, which any particular pond will support, this can only be determined by observation and experience; as it depends on the different degrees of nutrition in different waters. It is said, that Carp and Tench in waters which feed well, will, before they are aged, double their weight in one year.

The third part of an acre in No. 1 would probably be sufficient for the demand of any family. For, upon the calculation above given, it would support near 700 pounds of Fish, which might be divided thus.

50 Brace of Carp, of three pounds each and upwards.
50 Brace of Tench, of two pounds each and upwards.
50 Brace of Perch, of one pound each and upwards.

That is, three Brace of Fish, weighing at least twelve pounds for the use of every week.

Allowing one acre for No. 5, one third of an acre for No. 1, and one acre and two thirds for the intervening numbers, the whole water would be three acres. Upon this calculation the stock of No. 1 at 8d. per pound, would be worth 23l. 6s. 8d. per annum, and the expense annually of changing the Fish from No. 5 to 4, &c. will not exceed 1l. 6s. 8d. So that the value of each acre would be at lowest 7l. 6s. 8d. annually.

No. 1 being supposed to be near the house, and at no great distance from the garden, if the Fish should not thrive sufficiently, which will be seen by the disproportioned size of the head, and the whiteness or paleness of the scales, they may easily be supplied with more food by loose peas from the garden, the sweeping of the granary, worms saved by the Gardener in digging, and the offal of the poultry killed for the kitchen; or by letting down the water about two feet, in the spring or summer, where there is a sufficient supply, and sowing the sides with oats, barley, rye, or wheat, very lightly raked in, and then stopping the sluice again.
In ponds already stocked, but not accurately regulated, it would be advisable to begin with that which has the most Pike, otherwise with No. 4, or what is intended for No. 4, and throw all the Fish under five inches length into No. 5, and the larger, according to their sizes, into the other numbers: and so on with No. 3, 2, and 1.

Store-Fish procured elsewhere, if taken in summer, should be moved in the night in clean straw, wetted occasionally after they are packed: except Perch, and Pike, which can only be carried in clean pond or river water. In moving Fish from one Pond to another, they should be first put into tubs of water already prepared for them, and afterwards carried in buckets without water. In taking Pike, or Perch, great care must be observed to avoid raising mud in the water.

In Breeding Ponds all water-fowls, as Geese, Ducks, &c. should be discouraged; and Herons carefully destroyed. If any white Fish, as Roach, Dace, &c. should be found, they are to be taken out; and if there be a spare piece of water for large Pike, they should be put into it as food for the Pike.

Eels may be put with advantage into any except the Breeding Ponds, in lieu of Perch. The most easy way of taking them is by trimmers laid over night, baited with small Fish, not with worms; otherwise they may catch the Carp: or a small thief net may be baited with white Fish.

Common sewers and drains from the laundry are prejudicial to fish: so are the leaves falling from trees in great quantities. The use of grains should likewise be avoided in large quantities, as having little nutriment whilst they are thus washed by the water.

It seems better for the use of the table, as well as more humane, to kill Fish designed for food by an incision with a sharp-pointed pen-knife, or punctures, made with a pin longitudinally into the brain, about half an inch or an inch, according to the size of the Fish,
Fish, above the eyes. As this produces an instantaneous effect, it would probably favor the cruel operation of crimping or flaying fish while alive; as in the case of Pike and Eels.

It is obvious, that this method of regulating Fish will apply with its full effect in larger spaces of water: it will likewise apply in a considerable degree to smaller pieces: even where the change is but from a pond for the use of cattle to a single canal in a garden.

In situations near the great inland manufactures, and near the turnpike roads leading from an easy distance to the metropolis, water may be made by this kind of management, with little trouble or expense, to produce a large annual rent.

*** Mr. Marshall was favoured with this paper on Pond-Fish by an eminent literary character in the Church—"A member of the free Agricultural Society at St. Petersburg;" and the best method of breeding, feeding, and preserving Fish, cannot but be esteemed a valuable part of Rural Economics.
He who undertakes the profession of a gardener, takes upon himself a work of some importance, and which requires no small degree of knowledge, ingenuity, and industry, to perform well. There are few businesses which may not be learned in much less time than that of a gardener can possibly be.

It often happens, however, that a man who has been very little in a garden, and that only as a labourer, who can do little more than dig, or put out cabbage plants, will call himself a gardener; but he only is worthy of the name who having had much practice in the various parts of horticulture, possessest a genius and adroitness, fitting him for making experiments, and for getting through difficulties that the existing circumstances of untoward seasons, &c. may bring him into. He should possesse a spirit of enquiry into the nature of plants and vegetation, and how far art (in his way) may be made successfully useful, or at least probably so. The mode of growth, the pruning, the soil, the heat, and the moisture that suits particular plants, are not to be understood without a native taste, and close application of the mind. "Gardening depends more upon the labour of the brain than of the body."
There are few things to be done in a garden, but which require a dexterity in operation, and a nicety in hitting the proper season for doing it. A gardener should be a sort of prophet in foreseeing what will happen under certain circumstances, and wisely cautious to provide (by the most probable means) against what may happen.

A man cannot be a good gardener, except he be thoughtful, steady, and industrious; possessing a superior degree of moral excellence, as well as genius and knowledge adapted to his business. He should be modest in his manners and opinions. It too often happens with those who have much practical skill, that they flight what is written upon subjects of their profession; which is a fastidious temper, that the man of real merit will hardly possess.

The knowledge of botany is not necessary to the business of a practical gardener, but it might be made useful to him, or at least a matter of amusement and relaxation, enabling him to be respectably communicative. Some knowledge in this way he will perhaps not content himself without, if he has any thing to do with the green-house, and hot-house, as many curious plants are admitted there.

The character of a gardener is here set high; but it is the goal of respectability at which he ought to aim, who presumes to call himself a professed one; and no doubt there are many in noblemen's and gentlemen's services, who are thus respectable in their abilities and conduct.

It remains for the employer to consider the merits of his gardener, and reward him accordingly. He should reflect upon the imporrance of his garden to himself, family, and friends; and how great difference there is between one well, and one ill managed. If the soil and situation is untoward, or the season crofs, (which in England is very apt to try a gardener's skill and patience) he should be ready to make allowance, as there
there is little to be done in working against nature; and to the most attentive and skilful in the art of gardening, accidents will sometimes happen, that might have been prevented. "In the work of a garden there is no such thing as always proceeding with certainty, and insuring success."

A gentleman should consider that he who furnishes him with fruits and vegetables, almost lives in the garden; and that he cannot relax in his duty without his neglect being manifest, by serious consequences following it. There is always something for him to do, that must be done now, to sow, plant, prune, dress, &c. &c. "Whoever will give himself the pains to trace a good gardener through the several stages of his employ, in all seasons of the year, will find it to be one continued circle of labour and toil."

A gardener is, in many respects, differently situated to the other servants about a gentleman's house, and these discriminating circumstances, are what may be said (according to general estimation) not to his advantage. A gardener has reason, indeed, to love his employment, as he meets with health and tranquillity in the exercise of it; but considering what he is, and what he does, in his proper capacity, he may justly claim a superior degree of estimation and reward.

FINIS.